The users of the classroom(s) will be students and faculty.

Daily lectures will be held within this space. Professor will stand in front of room and will lecture and discuss with his students. Area may be used for a work shop with temporary lockers. Classroom may be in the nature of a studio.

Space must act as a classroom and a studio. Students will need room to layout art work and prepare for presentation.

A average studio of 25 students @ 50 sq. ft. per student is 1,250 sq. ft.

The studio should be in the same proximity of lab, sound studio and graphic production.

Furniture and equipment that will be used with the space are: chairs, tack boards, blackboards, lockers, tables and stools.

Proper heating and cooling must be provided to the space. Space shall be well lit.

Student should have a specific area for painting with toxic fumes.
There will be two reception areas: one for the center and one for management. Users will be people waiting for appointments and other engagements.

Visitors will be seating or standing within the reception area. While waiting, some light reading may take place.

Space should be inviting and comfortable. The seated visitor should have eye to eye contact with the secretary.

Space should accommodate several parties of people; on the average about 6 to 8 persons.

The average person seating occupies an average 4 sq. ft. of area.

- 8 persons \( \times \) 4 sq. ft. \( = \) 32 sq. ft.
- Circulation space \( = \) 32 sq. ft.
- Total area for reception \( = \) 64 sq. ft.
- Total area for two reception rooms \( = \) 128 sq. ft.

The reception area must be adjacent to the secretarial space; it must also be near department's offices.

The sound generated by other areas should not be allowed to penetrate reception space.

The furniture that will be used are chairs, magazine rack and plants.

Space must be properly heated, cooled, and ventilated. Lighting should be significant for reading.
The users of the secretarial offices are the secretaries of the academic programs and management.

Secretaries are at the nucleus of the business. They perform their activities which are typing, desk work, filing and other activities. Secretaries must be able to interact quickly with visitors and staff.

The space is often busy and active. Walls of space should be demountable for future growth.

Each secretary will require desk and chair. Also files and copy space is allocated for each secretary. An approximate value for each secretary is 150 sq. ft.

Offices and reception space need to be in the proximity of the secretarial space.

The furniture and equipment that will be used are desk, chairs, typewriters, files, and copy machines.

Space shall be properly heated, cooled and ventilated. The room shall be well lit for desk work. The noise generated by space must not be allowed to penetrate other rooms.
Conference space(s) will be used by the center, and by business.

Space must be able to project and rear screen project films and slides. Space must be able to seat approximately 40 people.

Space must be able to divide into two separate conference spaces. The conference spaces must be able to function as a whole and separate entities.

Space will be formal and business-oriented. A space where problems may be explained and worked out.

There will probably be one conference table and 40 moveable chairs. A small amount of space will be allocated to a projection space.

Projection Space 50 sq. ft.
Conference Table 50 sq. ft.
40 Chairs@ 4 sq. ft. each 160 sq. ft.
Total Area for one Conference/ Seminar Space 210 sq. ft.

The conference/seminar space(s) must be near the proximity of office spaces.

The furniture that will be in the space are moveable, stackable chairs, and a large table. The equipment that will probably be used are screens, table for projectors and speakers.

Space must be properly heated, cooled and ventilated.

Lights must be able to reach high and low levels of intensities.
There will be several directors that will have offices within the building. They are the following: Director of Marketing, Maintenance, the Center and Public Services. Managers and Faculty may be thought in the same way as Director in relationship to a space standard.

Director must be able to perform all of his administrated duties within the space. A Director will occasionally be conducting meetings with small groups of people.

Office should be in a module. Walls of office should be demountable for future growth.

Space must be calm, formal, and a restful space.

With the furniture that will be present for office use and required circulation, an approximate area for the office is 150 sq. ft.

The offices should be in the proximity of the secretary and conference space. Also, offices should have access to apparatus and operational areas.

The equipment and furniture that will probably be used in most offices are: office desk and chair, two side chairs, bookcase/shelving, two filing cabinets, tack/bulletin board, and telephone.

Space must be quiet and comfortable. Space shall be properly heated, cooled and ventilated. Task lighting shall be supplied to work area. The room in general shall be well lit.

Walls, ceiling and floor must not allow noise to infiltrate from other rooms.
SPACI STANDARDS
RETAIL SHOPS

USERS

The user of the retail shops can be categorized into two groups: merchants and customers. The types of merchants will range, but shops will be related to audio/visual industries directly or indirectly. Some possible retail shops may be: gift shop, novelties, paperback book store, photographic supplies and equipment, art stores and artists' supplies, radio and television, stereo store, electrical equipment and repair, express office, hobby shops, photographer, ticket offices, and radio and television broadcasting stations.

One must also recognize that management and employees are the users of the retail shops.

The customers are the primary user of the retail shops. All space standard shall take into consideration the needs of the handicapped and small children.

One last note concerning retail shops, small specialities food shops may be included within the building. Food shops are very successful in a shopping center in attracting people.

The exact routine of each retail shop will depend on the type of facility. But there are some general observations that can be made.

Most retail shops must be able to accept deliveries directly or indirectly to the store. Once the deliveries are brought into the shop they must be unpacked or placed in storage.

Some packages may need to be assembled for sales. It might be necessary to have a workshop. Some packages will be unpacked and placed in the main stockroom or a subsidiary stockroom. When items run low on counters, items must be moved from stockrooms to sale area.

Management must have an office within the retail shop. Office space will be used for bookkeeping and conducting business transactions. See space standards for office space.

The customer should be able to find items conveniently in a store. The customer will be carrying items by hand,
basket, or shopping carts. Customers will be circulating through the aisle looking at goods.

Customers must be able to look, window-shop and buy. Shopping must be a fun experience. Show window displays must be attractive to customers. Also, the store front must be attractive in order to catch the shoppers' attention and draw the customers from the mall space. The use of graphics; bold colors, lighting, lettering and logos may be used to attract customers.

The entrance of a retail shop is directly related with the show windows. Entrance and show windows must be attractive to passing shoppers and should induce them to enter the store. Show windows may be open for the public from the shop's interior. Door location will depend on the existing pedestrian traffic flow.

The organization of the store space must enable customers to find items easily. Also, it permits merchants to keep close track of types of goods being bought, and any shoplifters in the store.

They must be organized to accept deliveries, unpack items, store items and sell them. The whole routine from deliveries to sale should be a smooth one.

The primary performance of the retail shop is to be convenient. Each type of store must cater to the needs of the customer. Conveniences would include: telephones drinking fountains, lavatories, desk for writing, chairs and mirrors.

Within the interior of the shop, it must be an efficient selling machine. The interior must be organized to help customers in making a selection and to help the sales person in selling.

In relationship to the cash register and wrapping counter, they should be near the door, if one clerk must sell, make change, and watch shop. A store with a narrow entrance may be more efficient.

It would be very difficult to come up with a standard for
all types of retail shops. But one may hope to obtain a module. This module must be able to adapt and support any retail activity. The module shall be able to combine with other modules or be divided in two to support a retail shop.

The exact amount of space required would depend on the specific type of retail. But some general guidelines can serve as a start.

A shop where only one aisle used are usually 12 to 15 ft. wide by 40 to 60 ft. long. Aisles should be wide enough to allow people to move in two directions.

The height of the ground floors are preferably 12 ft. high, and if a mezzanine is included; the height will be at least 8 ft. above floor level.

A desirable width for an aisle is 2 ft. to 3 ft. For aisles used only by a clerk, the width would be 1 ft. 8 in. For main public aisles and average width would be 6 to 7 ft. For secondary public any average width would 3 to 4 ft.

Two rows at 6 ft. wide by 50 ft. long

Area for counter 9.5 ft. by 50 ft. long

Storage area at 15% of sales area

Office space approximately 15% of sales area

Laboratory Allocation

Total area for one module

Total area for ten modules

The retail shops must be relatively close together. Retail shops may share services such as loading dock and trash pick-up.
Sounds generated by one store must not be allowed to filter into the next shop. Noise generated from the people in the corridor may be used as a buffer to mask annoying sounds from one space to another.

Depending upon the type of retail shop, furniture and equipment will vary greatly. Some equipment that will probably be used are telephones, drinking fountains, sinks, toilets, and mirrors.

Each module must easily be supplied by drinking water, air conditioning, heat, ventilation, electrical utilities, and waste drainage.

Walls that are constructed must be well insulated for heat and sound.
The following is a tabulation of areas within the scope of this project. The following is divided into five categories: Academic, Business, Cinemas, Management, and Exhibition.

### Academic

<table>
<thead>
<tr>
<th>Name of Space</th>
<th>Units</th>
<th>Net Area Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director's Offices</td>
<td>2</td>
<td>300</td>
</tr>
<tr>
<td>Secretarial Office</td>
<td>1</td>
<td>150</td>
</tr>
<tr>
<td>Faculties Offices</td>
<td>3</td>
<td>450</td>
</tr>
<tr>
<td>Classroom/Studio</td>
<td>2</td>
<td>1,500</td>
</tr>
<tr>
<td>Multi-Use Studio</td>
<td>3</td>
<td>2,400</td>
</tr>
<tr>
<td>Conference/Seminar</td>
<td>1</td>
<td>210</td>
</tr>
<tr>
<td>Graphics Production</td>
<td>1</td>
<td>800</td>
</tr>
<tr>
<td>Darkroom</td>
<td>1</td>
<td>700</td>
</tr>
<tr>
<td>Studio Control and Distribution</td>
<td>1</td>
<td>400</td>
</tr>
<tr>
<td>Experimental Theatre</td>
<td>1</td>
<td>32,400</td>
</tr>
<tr>
<td>Reception</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>Total Area for Academic Purposes</td>
<td></td>
<td>39,342</td>
</tr>
</tbody>
</table>

### Business

<table>
<thead>
<tr>
<th>Name of Space</th>
<th>Units</th>
<th>Net Area Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference/Meeting</td>
<td>1</td>
<td>210</td>
</tr>
<tr>
<td>Loading Facilities</td>
<td>3</td>
<td>1,440</td>
</tr>
<tr>
<td>Retail Modules</td>
<td>10</td>
<td>1,000</td>
</tr>
<tr>
<td>Total Area for Business Purposes</td>
<td></td>
<td>2,650</td>
</tr>
</tbody>
</table>

### Cinemas

<table>
<thead>
<tr>
<th>Name of Space</th>
<th>Units</th>
<th>Net Area Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticket Booth</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Concession</td>
<td>1</td>
<td>304</td>
</tr>
<tr>
<td>Lounge</td>
<td>1</td>
<td>2,400</td>
</tr>
<tr>
<td>Auditorium</td>
<td>4</td>
<td>28,000</td>
</tr>
<tr>
<td>Lobby</td>
<td>4</td>
<td>4,320</td>
</tr>
<tr>
<td>Foyer</td>
<td>1</td>
<td>1,200</td>
</tr>
<tr>
<td>Projection Room</td>
<td>1</td>
<td>750</td>
</tr>
<tr>
<td>Special Storage</td>
<td>1</td>
<td>400</td>
</tr>
<tr>
<td>Manager's Office</td>
<td>1</td>
<td>150</td>
</tr>
<tr>
<td>Assistant's Office</td>
<td>1</td>
<td>150</td>
</tr>
<tr>
<td>Total Area for Cinema's Purposes</td>
<td></td>
<td>37,714</td>
</tr>
</tbody>
</table>

### Management

<table>
<thead>
<tr>
<th>Name of Space</th>
<th>Units</th>
<th>Net Area Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director's Office</td>
<td>2</td>
<td>300</td>
</tr>
<tr>
<td>Superintendent's Offices</td>
<td>4</td>
<td>600</td>
</tr>
<tr>
<td>Reception</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>Graphics Production</td>
<td>1</td>
<td>450</td>
</tr>
<tr>
<td>Secretaries Offices</td>
<td>2</td>
<td>500</td>
</tr>
</tbody>
</table>
Total Area for Management Purposes 1,682
Exhibition Space 1 15,000
Storage for Exhibition 1 600
Loading Facilities 2 960
Total Area for Exhibition Purposes 16,560
Total Area for Academic, Business, Cinemas, Management and Exhibition purposes 97,948

Cinerama is basically several building types. Cinerama is part auditorium, museum and academic facilities. A practical efficiency ratio (assignable/unassignable) would be 65/35%.

Total Gross Area for project 150,700 sq. ft.

The 35% of unassignable space includes circulation, mechanical areas, toilets, janitor closets, unassigned storage, and walls and partitions. The following is a breakdown.

<table>
<thead>
<tr>
<th>Unassigned Areas</th>
<th>Percent</th>
<th>Area Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation</td>
<td>20.0%</td>
<td>30,121</td>
</tr>
<tr>
<td>Mechanical</td>
<td>5.5%</td>
<td>8,282</td>
</tr>
<tr>
<td>Public Toilets</td>
<td>1.5%</td>
<td>2,216</td>
</tr>
<tr>
<td>Janitor Closets</td>
<td>.5%</td>
<td>738</td>
</tr>
<tr>
<td>Unassigned Storage</td>
<td>.5%</td>
<td>738</td>
</tr>
<tr>
<td>Wall, Partitions, Structure</td>
<td>7.0%</td>
<td>10,657</td>
</tr>
<tr>
<td>Total Percent and Area</td>
<td>35.0%</td>
<td>52,752</td>
</tr>
</tbody>
</table>

Total Gross Area for Project 150,700 sq. ft.
Space Relationships
The relationship diagram on the next page deals with respect to circulation. Each node represents a space. The overlapping of node may indicate that a space may share the same facilities. Nodes within a node represent space breakdown of one large space.

The arrows indicate the direction of interdependence. Three arrows signifies an absolute dependence of one space to another. Two arrows signifies some dependence of a space to another. One arrow signifies that it might be convenient to have one space near the other.
Building Criteria
Building must function as a whole organization. Also, the building must function separately to operate as an exhibition space, an experimental theatre, movie theatres, film studios and retail center.

The exhibition space and the experimental space may be separate entities or be physically combined together. As separate entities, each space can operate their own schedule, but as one space activities must be scheduled in advance throughout the year. Depending on the type of presentation, experimental theatre might occupy part of the exhibition for months.

As written before, the cinemas (or theatres) must be able to combine together and form one large theatre. As one large theatre the management may schedule the showing of a 70 or 75mm film for several weeks. The combined cinemas must be able to provide enough space for a 500' x 700' screen. Also, the sound system of each theatre must be able to combine into one total system. The sound system must be able to hook-up with special 70 and 75mm projection.

One must recognize the separate patterns of circulation with the project. The pattern circulation of the general public may be designed for smooth, free circulation for all activities. Also, circulation path may be articulated to minimize security and unwanted trespassing. The exhibition space should be used as a focal point. An individual entering the exhibition space should have a clear orientation of space and surrounding spaces.

The general public must have a clear concept of a circulation path from the moment he drives onto the site to the time he must leave the site.

The entrance to the building must be well defined. The entrance of the building must be recognizable from the street in front. If two entrances are used both shall be well defined.

When performing value engineering on a project, one always tries to obtain the most quality for the amount of money spent initially and for maintenance.
Building should be designed to reduce maintenance and night security.

If possible, vegetation should be used within the exhibition space. The nature cycle between people and plants helps to keep the air clean.

The building will create huge wall planes on the exterior envelope of the building. Some of these walls may be used as exterior screen for movie promotions. The exterior envelope may function as a movie screen. The type of promotions may be short film promotions, slides or commercial for local merchants.
Exterior Criteria
EXTERIOR CRITERIA
ACCESS AND EGRESS

PARKING

The minimum code requirement for access and egress from a structure of this size would only be two exits. For a smooth transition on and off the site four exits should be significant.

There are approximately 2,400 seats within the cinemas. One can assume that 1.5 persons will arrive by automobile. An addition number of people will also be within the structure at maximum capacity.

- 2400 persons @ 2 persons per car = 1,200 parking spaces
- 400 additional persons @ 1.5 persons per car = 267 parking spaces
- Total number of parking spaces = 1,467 parking spaces

- 1467 parking spaces @ 180 sq. ft. per parking space = 264,000 sq. ft.
- Circulation is 33% of total area for parking spaces = 87,200 sq. ft.
- Total area for parking lot = 351,200 sq. ft.

When people park and leave their cars, they should be able to see promotions and local advertisements on the exterior envelope.

One must think of vegetation the same way one uses materials for construction. Vegetation can be used to control privacy, reduction of glare, purify atmosphere, control noise and control traffic.

The uses of canopy can be used to direct circulation from parking lot to building.

A small plaza may be used for an escape for fresh air or just waiting for someone. Plaza should accommodate eating spaces and seating.

LANDSCAPING

CINERAMA
1. 45° parking for buses
2. Lorry with trailer
3. Small buses
4. 40° parking for lorries with trailer
5. 30° parking for lorries with trailer
6. 90° parking for lorries with trailer
7. 90° parking for narrow driving lanes
8. 45° parking for narrow driving lanes
9. Wider bays for very small cars
10. 45° parking
11. 45° parking for cars
12. 45° parking for large cars, reversing
13. 45° parking for medium cars, reversing
14. 45° drive-through parking for medium to small cars (no reversing)
15. 45° drive-through parking for medium to large cars (no reversing)
Building Type Analysis
A building type analysis for this project may be difficult to classify into a similar Prototype project. Another method of analyzing would be to find several Prototypes for the project, Cinerama. Cinerama may be classified into three basic categories: Theatre, Exhibition Space and Educational Film Laboratories. Each category will be analyzed in terms of concept, correlation of spaces, circulation, structure and any unique features.

According to The Picture Palace, by Dennie Sharp the auditorium of the theatre may be classified into three basic categories: The single flat floor, stadium type with raised tiers at the rear of the auditorium, and large auditorium with balcony. The floor plans for auditoriums are not easily categorized into groups. Some theatres are square in shape with row seating. Other auditoriums are pear-shaped with seating fanning around the screen. Theatres can be a combination of row seating and a fan-shape plan or other combinations of arrangements.

Site conditions might sometimes determine the shape of the theatre. The conditions of the site may cater to long narrow auditoriums. Two good examples of projects that site determinants were a major factor of design are Ritz in Hereford and the Regal in Margate.

In construction of theatres most theatres are built exclusively with steel. Steel construction allows the design to eliminate the use of columns for the support of the balcony. One main advantage to steel is the construction of large spans. In general, small narrow theatres may use concrete construction for reducing cost. The use of concrete construction is usually slow in erection and unadaptable to changes. Some use of precast concrete construction has been successful for some commerical developers. One common method of construction is to use a composite design where masonry walls are used to carry the load of a steel truss roofing system.

A more definitive analysis will be given on a familiar Prototype of a theatre. As written before the definitive analysis will be in terms of concept, correlation of spaces, circulation structure and any unique features.
The following is a general description of popular theatre arrangements. Advantages and disadvantages are given for each type. Also examples are given for each type which serves as a reference.
One floor type

This type of arrangement is the most simple in form. Being simple in form it's the most economical to build. Some floors are slightly raked at the rear. Each row of seats is usually altered between seats in front of each row. Examples of this type of arrangement are Cinema'T Venster, Walpole Picture Theatre, and Riviera, Manchester. Some advantages for a one floor type are ease of construction, ease of maintenance. Some disadvantages for a single floor type are poor line of sight, unadaptability to growth and distortion of images.

Bleacher type

This type of auditorium is a variation of the one floor type. The diagram to the left indicates that entrance to the auditorium is through the middle. Enterances may also be designed at the rear. The line of projection becomes more distorted with the use of the Bleacher type. There is no need for alteration of chairs. Examples of this type of arrangement are Electric Theatre London, Electra Palace Sheffield, and Palace Cinema, Kentish Town. One major advantage for a Bleacher type is that it provides a better view for each patron. Another advantage to the Bleacher type arrangement is that it is very adaptable to larger screen.

Stadium type

The stadium type is a variation of the Bleacher type. Patrons on the lower section have poor visibility to the screen. Patrons on the stadium have a fair view to the screen; these patrons will have an excellent view for a large screen. A cross-over aisle is raised so not to interfere with other viewers line of sight. Good examples of a stadium type of plan are New Adelphi Swinton, and Gaumont Palace Paris. A disadvantage to this type of arrangement is that it limits accessibility to the handicapped. Another disadvantage is it will produce distortion in projection.
**Single balcony type**
The introduction of the balcony is to add more setting capacity without increasing the original area. The additional cost per seat is slight considering the results obtained. Seating for the patrons in the upper balcony offers viewer poor line of sight. One major disadvantage with the use of a balcony is that it is very unadaptable to the usage of a large screen. Another disadvantage is the inaccessibility to the balcony for the handicapped. Examples of single balcony type are the Regal Wimbledon, Kensington London, Granada, Tooting and the Carlton, London.

**Balcony-mezzanine type**
This type of arrangement has several advantages over a single balcony type. Patrons views are greatly improved by reducing the balcony projection. One disadvantage to this type of auditorium is that it is unadaptable to a large screen. One advantage to this arrangement is that it allows a greater seating capacity. One example of this type of auditorium is the Majestic, Houston, Texas. The mezzanine offers the change for a designer to create intimate setting for individual booths.

**Plans**
There are no distinct categories of plan shape and consequently whether a cinema auditorium is fan-shaped, straight back and sides, curved or pear-shaped in plan will be dependent on site factors as well as the preferences of individual designers.
AUDITORIUM DELLA GUYMOM
GUYMOM, OKLAHOMA

This building was chosen for its simplicity in design. It will help the reader get a basic understanding of relationships in designs of movie theatres. The auditorium has the capacity to hold 1,000 people in a stadium type auditorium. The auditorium has the ability to use a larger screen due to its arrangement. All movie patrons must have an unobstructed view. Acoustical panels are used to provide perfect audibility. Incandescent lighting in the ceiling, and fluorescent lights are used for special affects. Heating is achieved by forcing air through low pressure, hot water coils; for cooling a evaporative forced air cooling system is used.

One fault of this structure and others like it is the enclosure system. Most modern designs of movie theatres are no more than a warehouse with an exterior skin. It also lacks a well defined entrance as most cinemas do. Basically the auditorium is just a square box in a large parking lot. Never the less, all principle systems work as an integrated whole to provide the public with a functional facility.

SPATIAL SYSTEM

The program elements are very basic to all movie theatres. Note the additional space for stage productions, and the upper stadium balcony over first floor facilities. Screen is expandable to other sizes.

STRUCTURAL SYSTEM

Like most movie theatres a steel frame and concrete floor are used. Steel truss systems are used most often to obtain predominantly long spans. A combination of masonry and steel is a common method of construction of cinemas.

1. entrance
2. corridor
3. auditorium
4. projection
5. stage/screen
6. dressing room
7. storage
8. balcony
9. mechanical
10. w.c.

Lateral bracing is not shown.
Within the United States there were two schools of thought about the movie building themes in the 1920's, Neo-Classical forms and Atmospheric Environment. Later during the 1930's many designers felt that the movie picture house should reflect the uniqueness of the film medium and the spirit of the time. Today, the new building of cinemas appears to be inadequate to meet the requirements for the expanding growth for visual and audio entertainment. It is the purpose of this program to bring back the color and the excitement of the picture palace.

Circulation must be well defined especially if a movie house contains several auditoriums. Patrons must not be confused as to which cinema he must enter. Circulation must include a clear building approach, building entrance and a clear sequence of spaces. All types of Architecture will have some interpretation of connotative meaning, semiotics, or symbolology due to the nature of design. The art of architecture is not only for utilitarian purposes but to communicate meaning.

Circulation System
The circulation of this project is very basic to most cinemas; patrons enter into foyer, lobby, lounge and auditorium in procession. Patrons can reach the balcony by two ramps on the lower level.

Enclosure System
The exterior and interior wall facing are made of face brick. Huge glass panes help to define the entrance.
So far, attempts at building a research and development center have been sporadic; some highly successful ones have been set up on large universities to attack specific educational problems, but the educational laboratory concept has yet to be adopted on any scale.

The center must be able to carry on a concentrated and coordinated program of educational activities. These activities will most likely be accomplished by eminently qualified persons and will have a widespread rather than limited application and use. The center must provide training ground for educational research personnel.

The laboratory must remain flexible. It must be able to adapt to needed situations changing its own character as it undertakes different kinds of projects in different fields. The center must be able to supplement and coordinate with other programs throughout the region.

There are two basic approaches that the facilities might have: Program-Oriented or Service Oriented. Program-Oriented facilities and facilities that offer a strict program for interested students; this type of program would have a full time faculty. A Service-Oriented program would allow only individual students and faculty to use the facilities.

The educational laboratories will be a part of the total structure of Cinerama. The laboratories must be easily identified from the exterior as well the interior. Students, faculty, and visitors must be able to direct themselves to different parts of the laboratories. The basic spaces within the facilities are production, class rooms, studio administrative services, and resources.

The physical part of the structure and the enclosure system will be part of the total structure of the exhibition space, or an addition to the whole complex.

The educational facilities should be adjacent to the exhibition space and the experimental theatre. The experimental theatre may be a permanent space within the educational center, or it may be a part of the exhibition space.
The following illustrations are for a Proto-type center. The center will be producing basic institutional aids and media, with an emphasis on film production. The production process is initiated by a conference between faculty, production staff, and students, at which time the nature and instructional requirements of the materials are defined and a production schedule is set up. After the production is finished, it should be displayed. Eventually the material will be deposited in the library of the center where it is available to the public for review; it may also be distributed to other cooperating institutions.
MUSEUM OF ART, MUNSON-WILLIAM PROCTOR INSTITUTE
UTICA, NEW YORK

The space that is utilized for visual escape or reference points in the galleries are not wasted by the architect: Philip Johnson. The clear orientation within the building allows a person to find all the programmatic elements within the building. Mechanical system and vertical circulation are two program elements that are adjacent to each other. Central Hall on the first floor in open to a large void on the second floor. Different types of galleries surround the central hall on the first and second floor. There is a large mechanical room under the auditorium.

The square building is supported by eight bronze-clad columns of reinforced concrete holding the intersecting exterior beams. Interior void acts as a central core for the building; other interior steel studed walls help to make up that core. The central core and the eight exterior columns are used to obtain floor spans for upper floors. Concrete floors are used for all levels. A demountable wall system is used within the many galleries. The central hall is top-lit for skylights shielded by a very deep coffer in the center of the eight exterior beams.
The building has a dry moat on three sides onto which ancillary rooms face. A bridge across this moat leads to the main entrance. The two exterior columns help to define the entrance. Once in the building the visitor is in the Central Hall; it is the largest room within the building. The Central Hall as a continuous reference point to the galleries opening of it and its top-lit volume provides a different sort of spatial experience to the surrounding enclosed and artificially lit room. The auditorium is reached by side stairs within the central core; upper levels are reached by side stairs within the central core; upper levels are reached by central stairs in the core.

The two upper floors of the museum are enclosed by unpierced walls sheathed in grey Canadian granite. A glass veneer exists for the lower level of the museum. The bronze-clad columns add a element of monumentality.

Other museums that are excellent examples that one might do a building type analysis are the following: Oakland Museum, Museum of the 20th Century, Museum of the Maeght Foundation, and Everson Museum of Art.
The building type analysis basically has been dealing with parts of the whole project. The analysis to this point has dealt with proto-types such as movie theatres, exhibition space and film laboratories. The whole program must be looked at as a total facility. There are several conceptual arrangements that the project may adopt to form. The project can be simplified into four programable elements: theatres, exhibition space, retail stores, and university facilities.

The primary objective of an arrangement is to create an environment that is easily accessible to its interior spaces and create a logical transition from vehicle circulation to ones destination. The theatres, exhibition space, university facilities have the capability of attracting people within the total facility. Small retail shops dealing in some way with audio/visual media will serve as a secondary traffic attraction. There are several basic configurations that are possible with conceptual arrangement. The conceptual plans may be categorized into three basic plans: centroidal double centroidal plan, triple centroidal plan.

The single centroidal plan has one principle generator. Within Cinerama the exhibition space will act as the traffic generator. In a centroidal scheme secondary program elements surround the main generator. The main generator acts as a focal point for visitors in the facility. The main generator gives people a sense of "place" and a sense of orientation within the total structure.

The conceptual diagrams on the left illustrate the different possible types of entrance into a centroidal plan. A centroidal plan may be approached directly through the main generator. Main circulation to a centroidal plan may be surrounding the main generator. The main generator may be approached on a strong axis by manipulating the secondary elements.

A single generator in a centroidal plan tends to work well when there is only one large department store, theatre, or another type of magnet. The main generator need not be always thought of as a physical structure; it may be an outdoor facility such as a court, plaza or square. Examples of this type of arrangement are the Eldon Square Centre,
Newcastle, England, and Eastland Shopping Center, West Covina, California.

The second basic type of conceptual arrangement is a double centroidal plan which is sometimes called dumbbell plan. The double centroidal plan is desirable when two large generators are applicable. If a dumbbell plan is used for the project Cinerama, the two magnets would probably be the theatres and the exhibition space. Within a dumbbell shape there is a tendency to have a corridor for circulation. The corridor is used to create circulation between the two generators. The secondary elements are usually located adjacent to the corridor.

There are several possible approaches to a double centroidal plan. Most facilities that have utilized this type of a plan have their major entrances at the generators; an alternative is to have the main entrance in the main circulation corridor. The latter alternative is more favorable for the secondary elements; the first would be more favorable to the large magnets.

Another alternative for magnets for the project would be to have the theatre and university facilities to be the major generator. The exhibition space could serve as the main corridor.

When using a double centroidal plan, both magnets must be easily identified from the corridor.

Examples of structures that utilized a dumbbell are many. Santa Anita, Fashion Park, Arcadia, California, are Velizy, Paris, France are some of more notable ones.

The third type of conceptual arrangement is a triple centroidal plan, which contains three major generators. In relationship to the project the three main generators would be the theatres, exhibition hall, and university facilities. Approach can be made directly at each node or between each node. The generators (or Nodes), may form a string-like connection or a triangular connection. The mall or corridor would be the connection between nodes. Secondary, programable elements would have their entrance feeding off of the circulation in the mall area.
The triple centrodial plan seems somewhat natural for the program of Cinerama. Because of its three major program elements. The singular and double centrodial plans do have some possibilities for the project.
Cinerama will be located in Muncie, Indiana. Muncie is located in Delaware County in the northeast corner of the state. Other towns located near Muncie and in the county of Delaware are Albany, Selma, Yorktown, Eaton and Gaston. Muncie, Indiana is approximately sixty miles northeast of the state capital of Indiana, Indianapolis.

The following are population estimates for Muncie and surrounding town and cities as of July 1, 1976 from the U.S. Department of Commerce, Bureau of the Census.

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muncie</td>
<td>77,947</td>
</tr>
<tr>
<td>Albany</td>
<td>2,373</td>
</tr>
<tr>
<td>Selma</td>
<td>1,039</td>
</tr>
<tr>
<td>Yorktown</td>
<td>1,956</td>
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<tr>
<td>Eaton</td>
<td>1,511</td>
</tr>
<tr>
<td>Gaston</td>
<td>1,115</td>
</tr>
<tr>
<td>Indianapolis</td>
<td>708,867</td>
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</tbody>
</table>

In 1977, the estimated population for Delaware County was 128,950. For the same year, the estimated per capita income figure for Muncie was 4,553 dollars; this was a 49.7 percent increase from 1969 to 1975. Also, from 1970 to 1977 Muncie has had an -0.3 percent loss in population. Over the years, Muncie's population has had very little growth, but the average Muncie individual has had an increase in his yearly income; this increase has been above the annual yearly income. Therefore, the average Muncie resident was able to afford more than other Hoosiers. The development in Muncie is a result of this increase. The increase in development in Muncie seems to be in the area of leisure activities. Fox Fire, the Racquetball Club, the Specialty Food Shops in the new Northwest Marsh Food Store are a few recent project developments.

Muncie is an important local business center for the surrounding communities. The area is serviced by railways, highways and by an airport.

With respect to the railways, Muncie is serviced by two lines of freight service and one line of passenger service. The names of the railways and their respective service are as follows:
AMTRAK Service. . . . . . . Passenger Service
Louisville & Nashville. . . Freight Service
North & Western . . . . . Freight Service

Muncie is also supported by State Highway 67, US Interstate 35, State Route 3 and US 69 which is located on the southeast side of Muncie.

Muncie has one major river named the White River; its only use is for leisure activities.

Muncie, also has a small airport which services private and commercial aircrafts.

Climatic information is given on the following pages. The information that follows is a summary of it:

Normal Daily Max. Temp. (°F) Jan 038
Normal Daily Ave. Temp. (°F) Jan 028
Normal Daily Min. Temp. (°F) Jan 023

Normal Daily Max. Temp. (°F) July 087
Normal Daily Ave. Temp. (°F) July 076
Normal Daily Min. Temp. (°F) July 064

Normal Annual Total Precipitation (Inches) 38 ins.
Mean Annual Total Snowfall (Inches) 24 ins.

Prevailing Direction and Mean Speed (MPH) of Wind (Annual). Northeast Direction 11 MPH

Note: All information from the Department of Commerce.

The site for this project within the city of Muncie is located on the northwest side of the town. The site is a triangular piece of property which is surrounded by streets on the north, south and east side which are respectively West McGalliard Road, Everet Road, and Bethel Avenue.

West McGalliard has heavy traffic circulation during morning, noon and evening rush hours. There are four
lanes of traffic on McGalliard; two of those lanes are headed west and the other two lanes are headed east bound. Bethel Avenue has only two lanes of traffic. Bethel Avenue does turn into four lanes of traffic farther south of the site. One may assume that, eventually Bethel will be a continuous four lane highway. Everett Road is temporarily closed to the site on the north end, but vehicular traffic is able to enter on Everett on the south side. On the intersection of West McGalliard and Bethel Avenue it tends to create some problems of circulation for residents of the area. Residents living on Timber Road have a difficult time of pulling into traffic on Bethel and McGalliard. The intersection of McGalliard and Bethel also creates long lines of traffic on Bethel. In designing a facility on this site one should carefully have considerations to redesign this intersection. A designer might also give some considerations of expanding the west end of Bethel.

The site has approximately 800,000 sq. ft. The approximate gross area allocated for the project is 150,000 sq. ft. with an approximate 300,000 sq. ft. for parking. This will yield us to an estimated 350,000 sq. ft. unassigned space which may be devoted to "Landscaping."

Approximately 600,000 sq. ft. of the site is the ownership of Ball State University, and 200,000 sq. ft. of area is of the ownership of private residents. The private property is in very poor condition. There are two small houses on the site.

The following site plan on the next few pages are an analysis of the site. Plans indicate Micro-Contexts such as Topography, Hydrology, Circulation, Views, Utilities, and other necessary information. Other necessities are provided within the program of Cinerama. Articles on "Industrial Outlook," "Muncie" and "History" are a few such articles.
The site is located on the north side of Muncie. The site is triangular in shape; it is surrounded by streets on the north, south and east side which are respectively West Malliard Road, Everett Road, and Bethel Avenue.
SITE ANALYSIS CIRCULATION

Scale: 1" = 262'

Winter Sun

Summer Sun

North

South

West

East

Little traffic on this road

Traffic is two directional on Bethel Ave.

The speed limit for Bethel Ave. is 30 mph but traffic speed is usually higher.

The intersection is only used for baseball games & practice.

This intersection is accessible from all sides except for West intersection. Opening of north end of Everett Rd. is a good entrance.

This area is accessible from all sides except the west intersection.

Traffic is held back to this point in heavy traffic conditions.

Traffic is two directional on Timber Rd.

Problem area for traffic wanting to pull out.

This intersection (Timber & Bethel) is somewhat hazardous to vertical traffic on Timber & Clarion Ln.

Problem area for traffic.

This intersection has been closed by BSU on the southside.

One way traffic is prohibited on Everett.

Everett Rd. has been closed by BSU on the southside.

One way, two lanes is headed east to strip area in Muncie.

One way, two lanes is headed west to Foxfires main entrance to the site. Light traffic for the most part.

The one way, two lanes traffic is headed west-bound.

Light circulation in intersection, traffic is only able to drive north on Everett Rd.

Truck entrance to BSU serve & stores.

Light circulation for presidential area beyond this point.

Main entrance to March 25.

Heavy circulation in intersection - major peak time are rush hrs. & Sat. morning.

Bethel Ave. has been closed to McGalliard Rd.

Problem area for residents.

Light circulation for presidential area.

Parking lot for March 25.

Heavy traffic during popular weekend hrs.

Paging lot for March.
SITE ANALYSIS EXISTING CONDITION

Scale: 1" = 262'

- Private Property: Farmland is now being used to cultivate corn
- Telephone poles
- Street light poles
- Light poles for service and stores
- Service & store is owned by BSU
- Baseball area is owned by BSU
- Private property two private homes that are dilapidated
- Existing wire fence on both sides of McGilliard
- Gas line underground (- - -)
- Electrical poles
- Telephone poles
- Private property one home
- Private property dilapidated farm and home
- Private farmland field is now being used to cultivate corn
- Intersection is heavily conjectural by light telephone and electrical wires and poles
- Light residential area; privately owned; most homes are in good condition
- New Marsh Supermarket, full court, & tennis facilities serve as a drawing force for North West area
SITE ANALYSIS TOPOGRAPHY-HYDROLOGY

Scale: 1" = 262'

0'  200'  500'  1000'

Winter Sun
Summer Sun
North
South
West
East
Costs
The following is a very simple programming cost estimate.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>CALCULATIONS</th>
<th>SUB-TOTAL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Cost</td>
<td>150,700 GSE @ $60/SF</td>
<td>$9,050,000</td>
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<tr>
<td>Fixed Equipment</td>
<td>25% of Building Cost</td>
<td>2,263,000</td>
<td></td>
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<tr>
<td>Site Development</td>
<td>10% of Building Cost</td>
<td>905,000</td>
<td></td>
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<tr>
<td>Total Construction Cost</td>
<td>Total of Above</td>
<td></td>
<td>$12,220,000</td>
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<tr>
<td>Site Acquisition</td>
<td>Estimate</td>
<td>600,000</td>
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<tr>
<td>Moveable Equipment</td>
<td>20% of Building Cost</td>
<td>1,810,000</td>
<td></td>
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<tr>
<td>Professional Fees</td>
<td>4% of Construction Cost</td>
<td>500,000</td>
<td></td>
</tr>
<tr>
<td>Contingencies</td>
<td>10% of Construction Cost</td>
<td>1,222,000</td>
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<tr>
<td>Administrative Cost</td>
<td>2% of Construction Cost</td>
<td>245,000</td>
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<tr>
<td>Total Estimated Budget</td>
<td>Total of Above</td>
<td></td>
<td>$16,600,000</td>
</tr>
</tbody>
</table>
Final Presentation
Second & Third Lower Level
First Lower Lever
First Level
Third Level
West Elevation Section
View of interior lobby for cinemas
Appendix
Key books and articles on Cinemas, and their construction.


Schlanger, B. 'The Motion Picture Theaters,' *Architectural Record*, Feb. 1937, pp. 17-34. An article on the site positioning planning and technical aspects of cinemas.


Gall, A. H. 'A Cinema at Speke, Liverpool University School of Architecture, 1939.


PERIODICALS AND ARTICLES

American Cinematographer
American Film
Arts and Architecture
Architectural Forum
Architectural Record
Box Office
Business Screen
Cinema
Cinema Journal
Motion Picture News
Movie/Exposition
Progressive Architecture