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IDEAS FOR PLANNING A

VISUAL ARTS CENTER  
(TITLE)

BY

Larry Dale Quick

**PLAN B PAPER**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE MASTER OF SCIENCE IN EDUCATION  
AND PREPARED IN COURSE

Art 591

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY,  
CHARLESTON, ILLINOIS

1967

YEAR

I HEREBY RECOMMEND THIS PLAN B PAPER BE ACCEPTED AS  
FULFILLING THIS PART OF THE DEGREE, M.S. IN ED.

August 11, 1967  
DATE

ADVISER

August 11, 1967  
DATE

DEPARTMENT HEAD

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## PREFACE

The material found in this paper started to develop over three years ago. An interest in the area of fine arts centers was brought about by various factors, such as, a course dealing in contemporary architecture; seeing a relationship between art and the concepts inherent in "visual" education; plans to remodel the art department in the high school where I teach; and, seeing the film To Build A School House.

Considerable time has been spent in research and also in forming opinions by looking at various facilities and debating with professionals on ideas related to this subject.

The success of compiling this paper is due to a great extent to the patience, consideration, and enthusiasm of Dr. Leipholz, my graduate advisor; his direction and criticism I have valued greatly.

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## INTRODUCTION

### Statement of Purpose

The purpose of this paper is two-fold: 1) to make a survey of certain outstanding fine arts centers in respect to their salient features and, 2) to present ideas based on the latter for planning visual arts centers. The paper as a whole, then, is a type of manual for planning committees, administrators, and educators as well as for those institutions--public school, college, or university--that are hoping to build a new visual arts center or complex.

### Hypothesis

An implied hypothesis of this study and presentation is that "good" facilities will enhance the educational process. In other words, the effectiveness of the total visual arts program is dependent to a great deal on "good" facilities. It is believed that the survey, discussion, charts and plans that follow each area will bear this out.

### Need for the Study

A need was felt to organize the material under one cover with data, ideas, studies, and other pertinent information that

was available. To date all that is available, sketchy, to say the least, is a bulletin called The Fine Art Center published by Educational Facilities Laboratories. By putting this material under one cover it has fulfilled a need to locate information by administrators, planning committees, architects, and the like.

### Treatment of Data and Procedures

#### Procedures

In respect to procedures, all the major sources for information about fine arts centers have been investigated. These include books for general architectural ideas; various architectural magazines, such as Architectural Record and Architectural Forum; Educational Facilities Laboratories Reports (Ford Foundation); and other pertinent references.

#### Treatment of Data

The data collected is the basis for the survey and architectural ideas that are presented. It is not the function of this paper to use such data to evaluate the various centers or to "solve" particular problems. In short, data is used in an informational sense.

#### Charts, Diagrams, and Plans

Aside from the commentary and for purposes of clarity, much of the data is presented in the form of charts, diagrams, and plans. While some diagrams and charts are not discussed in the



copy, it is believed that they are self explanatory and are there to illustrate a point.

#### Development of Chapters

The Survey of Fine Art Centers is treated in some detail to present basic information about visual arts centers in general. By necessity, therefore, this chapter is relatively long.

Chapter II, which includes sections on general architectural details and related factors to consider, is more detailed because of the nature of the material and the importance of its relationship to the other sections.

The Art History and Appreciation chapter is more thoroughly treated because it describes in detail the processes of planning and various factors to consider in planning. It was felt that one section needed to be completed in an order that it would, in some way, relate basic ideas and concepts necessary for the other chapters in the paper.

The following chapters in the paper omit much of the process and present only basic ideas and, therefore, are shorter than the chapters preceding.

#### Scope

While the survey covers fine art centers, the manual itself is concerned only with the major areas of the visual art complex:

Art History and Appreciation

Art Education

Studio

Art Library or Study Area

In the final form of the paper, the museum was omitted due to the fact that the areas included are basically concerned with teaching and learning; in this sense, the school museum or art gallery falls into a different category and is a university-wide facility.

#### Bibliography

The bibliography is extensive for purposes of reference. For additional information, a committee can turn to these sources for further specifics, if needed.

Footnoting uses the journal entry system to make the location and sources of materials more convenient for the reasons mentioned above. The bibliography is classified under books, periodicals, and pamphlets.

## CHAPTER I

### THE FINE ARTS CENTER

This section on the Fine Arts Center is intended to serve as background material for the planning of a visual arts center. Since in many instances art departments share the same building with music and theater, a brief look at the fine arts center as a whole brings forth ideas pertaining to the visual arts center.

Hardly a week passes that a new fine arts center, a building for the performing arts, an art gallery or a museum is not being dedicated on some college or university campus. The arts are at last emerging from the catacombs and cast-off spaces and moving into splendid new facilities which are the "show place of the campus." This represents only the beginning; in the decades to come many more will be built. Meanwhile, those that have been completed will partly serve as a guide to future planning and construction.

The eight examples that are cited in the opinion of the Ford Foundation's Educational Facilities Laboratories publication, "The Fine Arts Center" represent the "ideal" or "optimum" architectural solution in provisions of space and equipment. While the cost may be prohibitive for many institutions, the centers may be suggestive

of elements that could be adapted to modest constructions and budget. For purposes of quick reference, salient features are listed and occasionally commented upon where information is available on the centers. For details, the reader can turn to the bibliography.

The eight centers in the survey are located at:

Colgate University, Hamilton, N. Y.

College of Saint Benedict, St. Joseph, Minn.

Dartmouth College, Hanover, N. H.

Harvard University, Cambridge, Mass.

Knox College, Galesburg, Ill.

Macalester College, St. Paul, Minn.

Wellesley College, Waltham, Mass.

Yale University, New Haven, Conn.

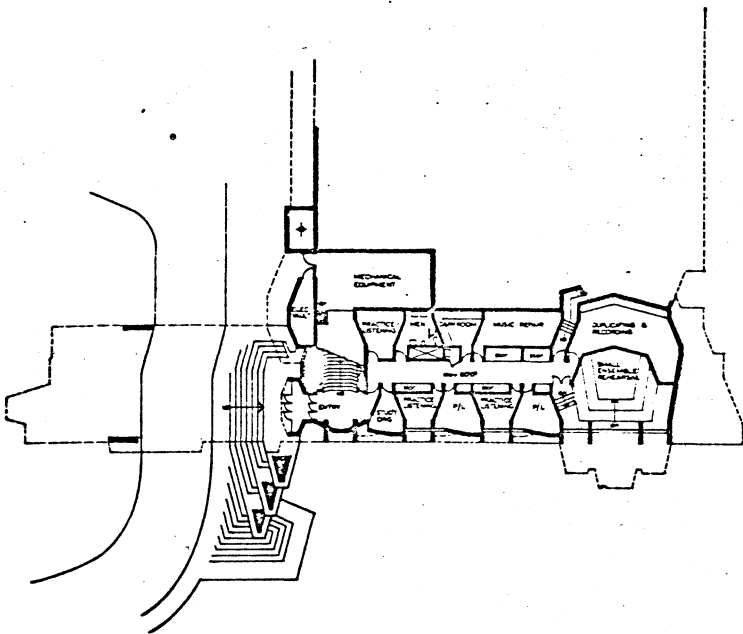
## Colgate University

The Charles A. Dana Creative Arts Center stands on the Colgate campus as testimony to the belief that creative activity is an essential aspect of a liberal arts education and that it provides an immediate and personal access to the truth which is the goal of such an education.

In constructing the Dana Arts Center, Colgate University was concerned to provide the best possible environment for direct creative experience in the fine arts, music and drama.

There were two main requirements to be fulfilled. Not only must there be adequate space, light, acoustics, and technical facilities, but the building must express in itself a philosophy of the arts relevant to the activities which it would house. The selection of Paul Rudolph as architect promised that both requirements would be met.

The Charles A. Dana Creative Arts Center provides for many different kinds of experience. For the entire College community and for residents of the area, it is a place to hear music, attend plays, and view exhibits. For all students, it is a classroom building not only for department courses but also for Colgate's required core courses in the Fine Arts, Music and Poetry and in Philosophy, Religion and Drama. (87, 94)



Coordination of facilities in one building reflects the belief that the various arts share common values and offer common educational advantages which are mutually reinforcing.

Colgate students of the near future may hear the college orchestra playing a Brahms passage as they make their way to the art studios. Or, the student who comes to the Center to see his roommate in a performance of an Ibsen play may find himself studying the Mestrovic sculpture in the auditorium lobby. And residents of surrounding communities will enjoy similar experiences. The Center will be a place where there is much to see, much to hear, much to do.

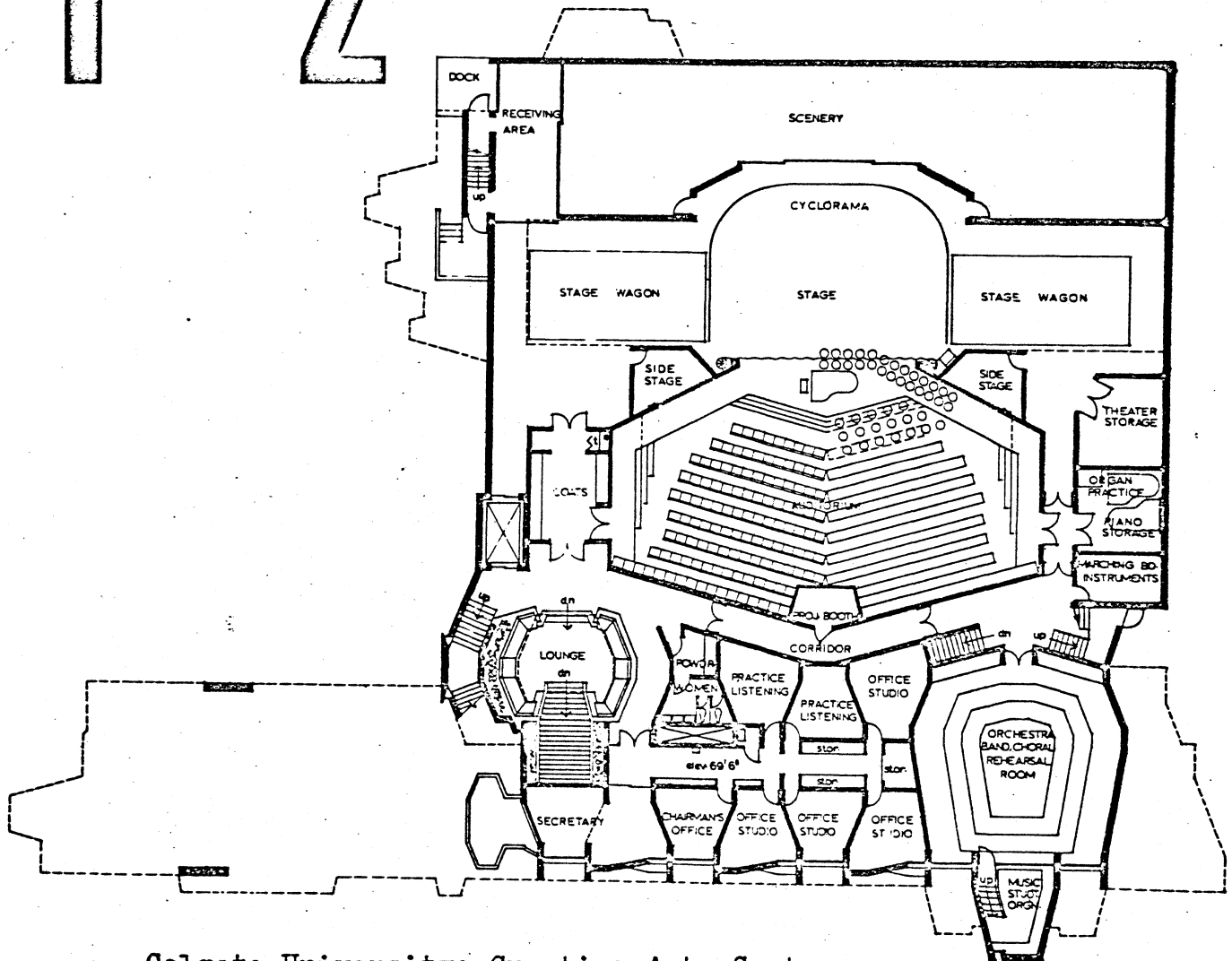
Plans for the building, which will itself be a creative achievement, include basic facilities for drama, music, the visual arts. Exhibition areas, classrooms,

1

first floor plan

2

second floor plan



Colgate University: Creative Arts Center

studios, offices, rehearsal rooms, the theater and storage spaces have been arranged to provide maximum coordination with minimum interference for the separate programs which will be conducted simultaneously in the building. The architect has designed a Center that will become a major asset both to the College and the larger community it serves.

Few things happen quickly on a college campus. Sometimes this can be a fault; more often it is a virtue inherent in the nature of education itself. For education is nothing if not growth, and the process of growth can be hurried only at the peril of loss.

The Creative Arts Center has not happened quickly. It existed as a dream long before it became a possibility. Working under frequently difficult and frustrating conditions, students and faculty dreamed

of it. So did the man who served as President of this College for twenty years and who left just as the dream was on the verge of being translated into reality.

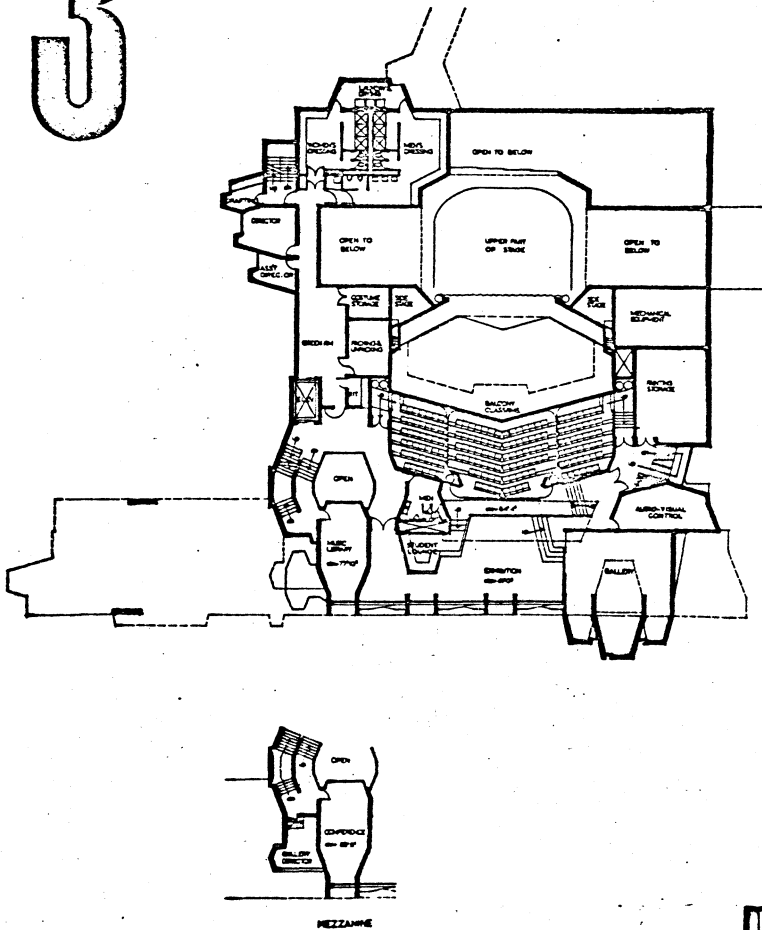
In short, for more than two decades questions have been asked, memos written, speeches made, and funds sought for such a center as we will now have.

When Charles A. Dana, noted industrialist and philanthropist, came to the campus in 1962 he saw the need. His generosity, through the offices of the Dana Foundation, challenged the College to find matching funds to supplement an initial grant of \$400,000 and to plan a Center which would provide the right atmosphere for the creative arts at Colgate.

Hundreds of volunteers willingly accepted the challenge; some to raise money, others to plan

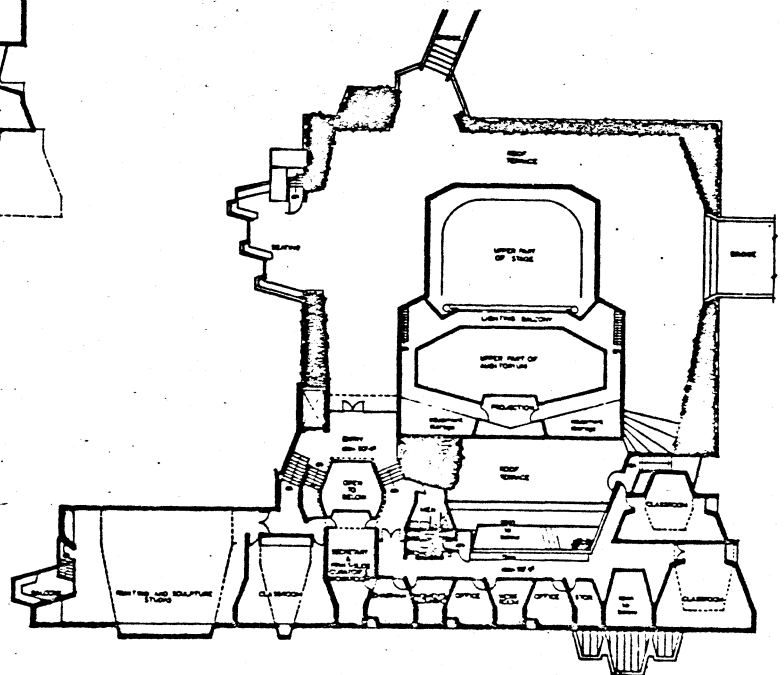
3

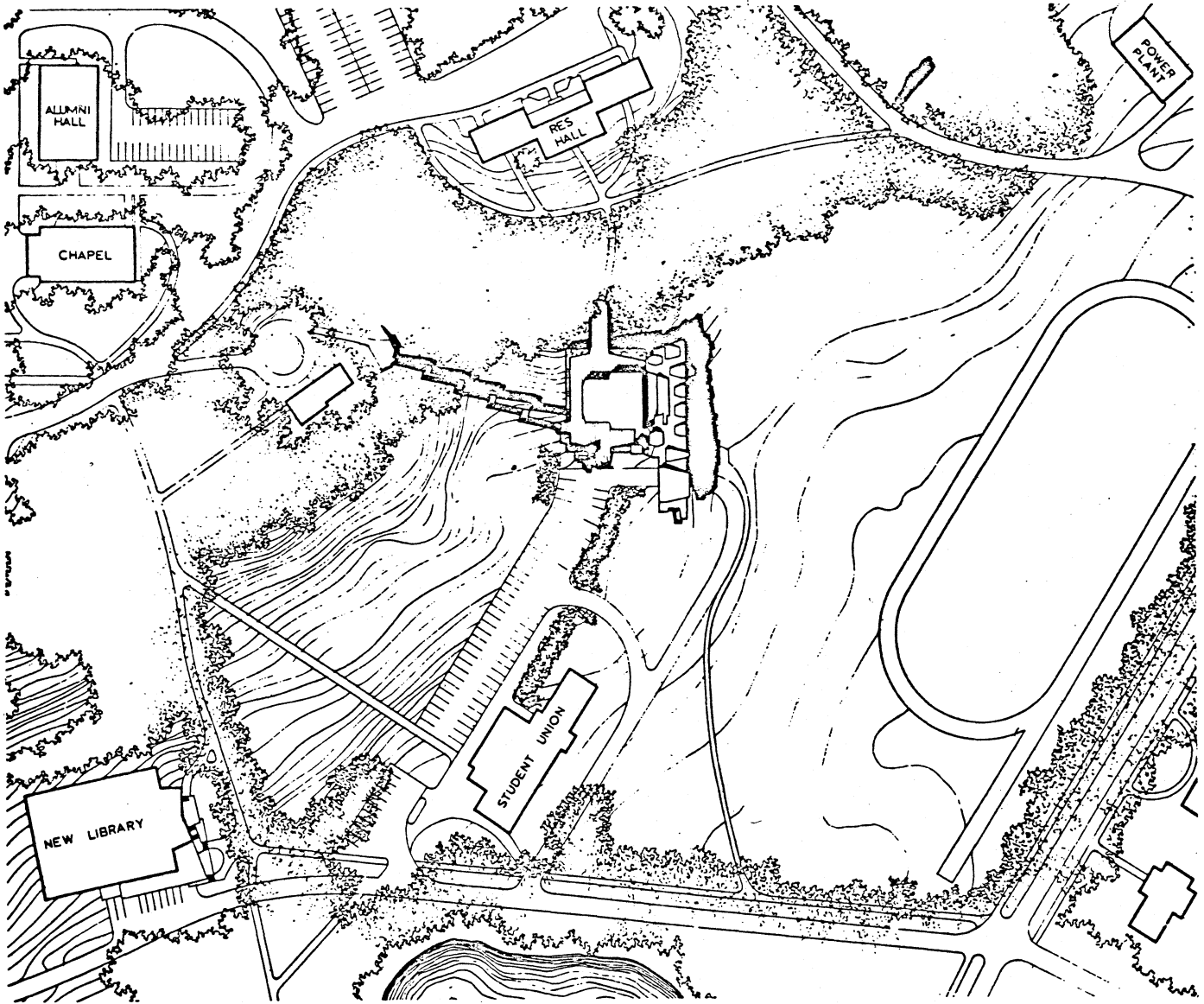
third floor plan with mezzanine



4

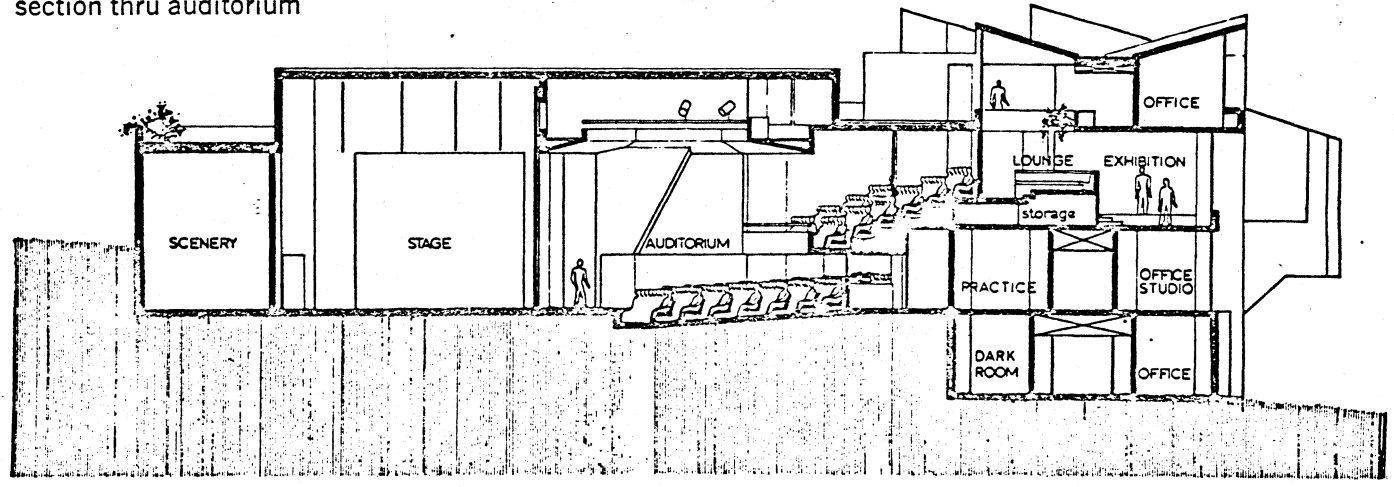
fourth floor plan





site elevation

section thru auditorium





College of Saint Benedict

The Benedicta Arts Center was built at a cost of \$2,750,000 and combines arts, music, speech, and drama under its roof. (34)

The art department has several excellent features among which is a central court yard, studios with 4 seven-foot monitor windows which admit north light, and an art gallery off the west lobby that shows travel exhibits as well as student and faculty works of art.

Studios that make up the art center are: a design and drawing room; painting room; pottery and ceramics room with adjoining kiln and glaze room; two rooms for wood, plaster, clay and metal sculpture; and a graphics room.

A theater, or forum seats 300 people. This area is a multi-use area for discussion groups, large classes meetings and major productions of the Communications and Theater Department.

Other features of the forum are:

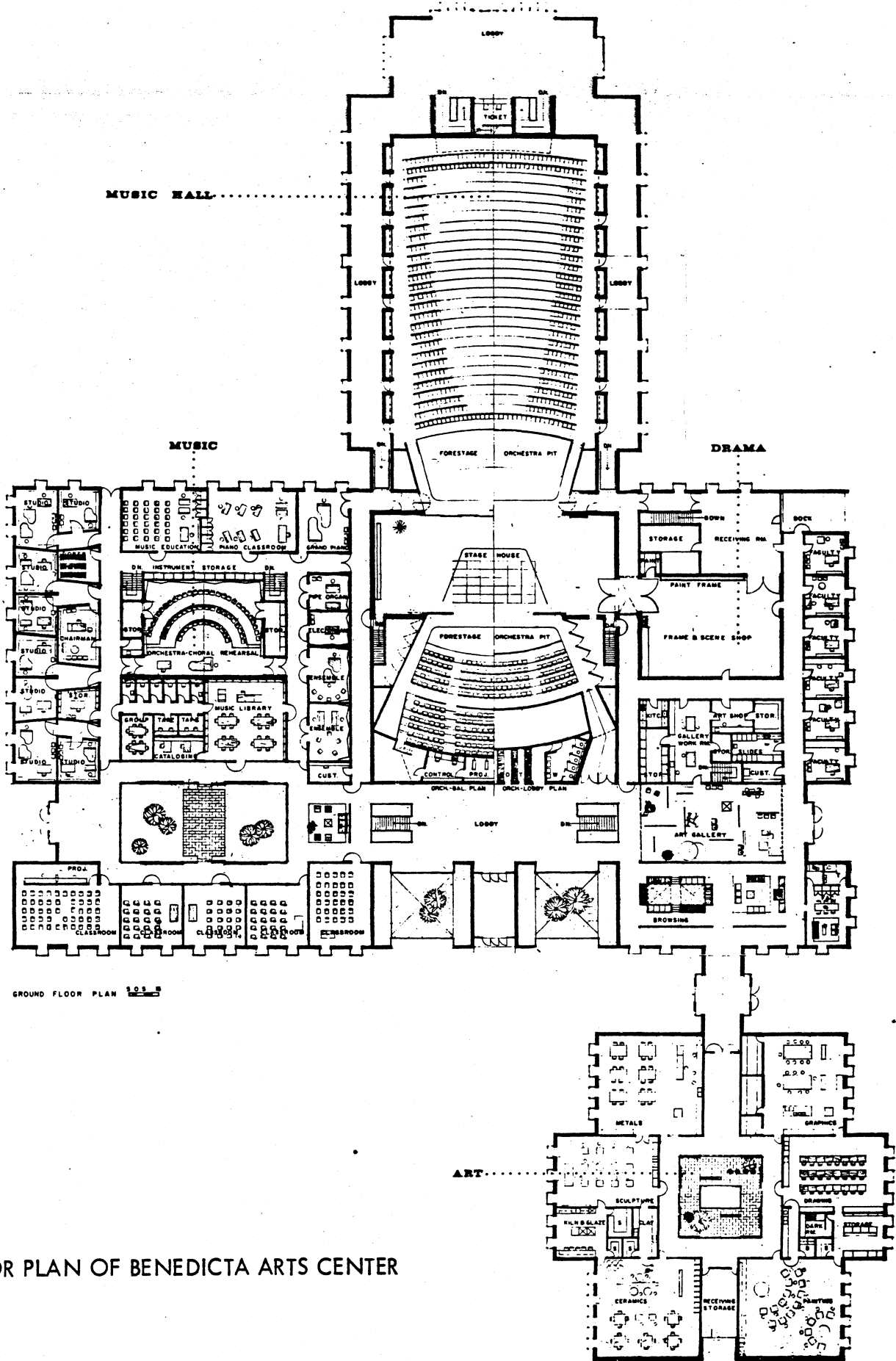
A flexible seating arrangement

Seat wagons which can be placed either for proscenium type plays or for arena style plays

An apron stage that is an elevator

The Auditorium, seating 1000 and providing 150 additional chairs on platform stages at floor level, is continental with no central aisle.

A common stage between the auditorium and theater



GROUND FLOOR PLAN 100 8

FLOOR PLAN OF BENEDICTA ARTS CENTER

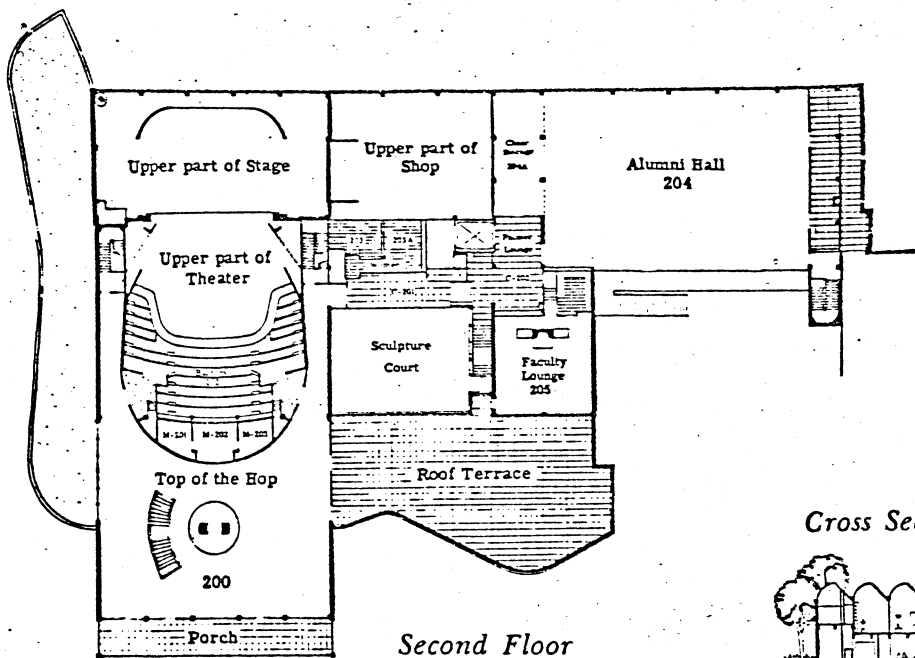
## Dartmouth College

The Hopkins Center was put together out of a collection of specific needs which in one form or another on their individual merits were on the College's planning agenda. Out of these identified needs in the instructional, the cultural, and the community aspects of Dartmouth life, the combination for the Hopkins Center was fashioned. (73)

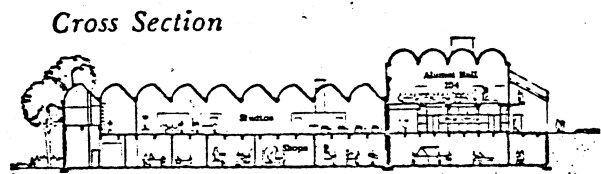
Each of the several dozen individual facilities of the Center has a prime function and validity of its own. The uniqueness of the Center, however, is in the interrelationship of these facilities both to each other and to the central concept.

The final grouping of facilities was guided by two main considerations: first, to gather together in a mutually advantageous relationship the instructional, the creative, and the cultural activities of drama, music and the arts; second, to combine these with widely-used academic and community facilities particularly appropriate to a cross-road site on the central campus.

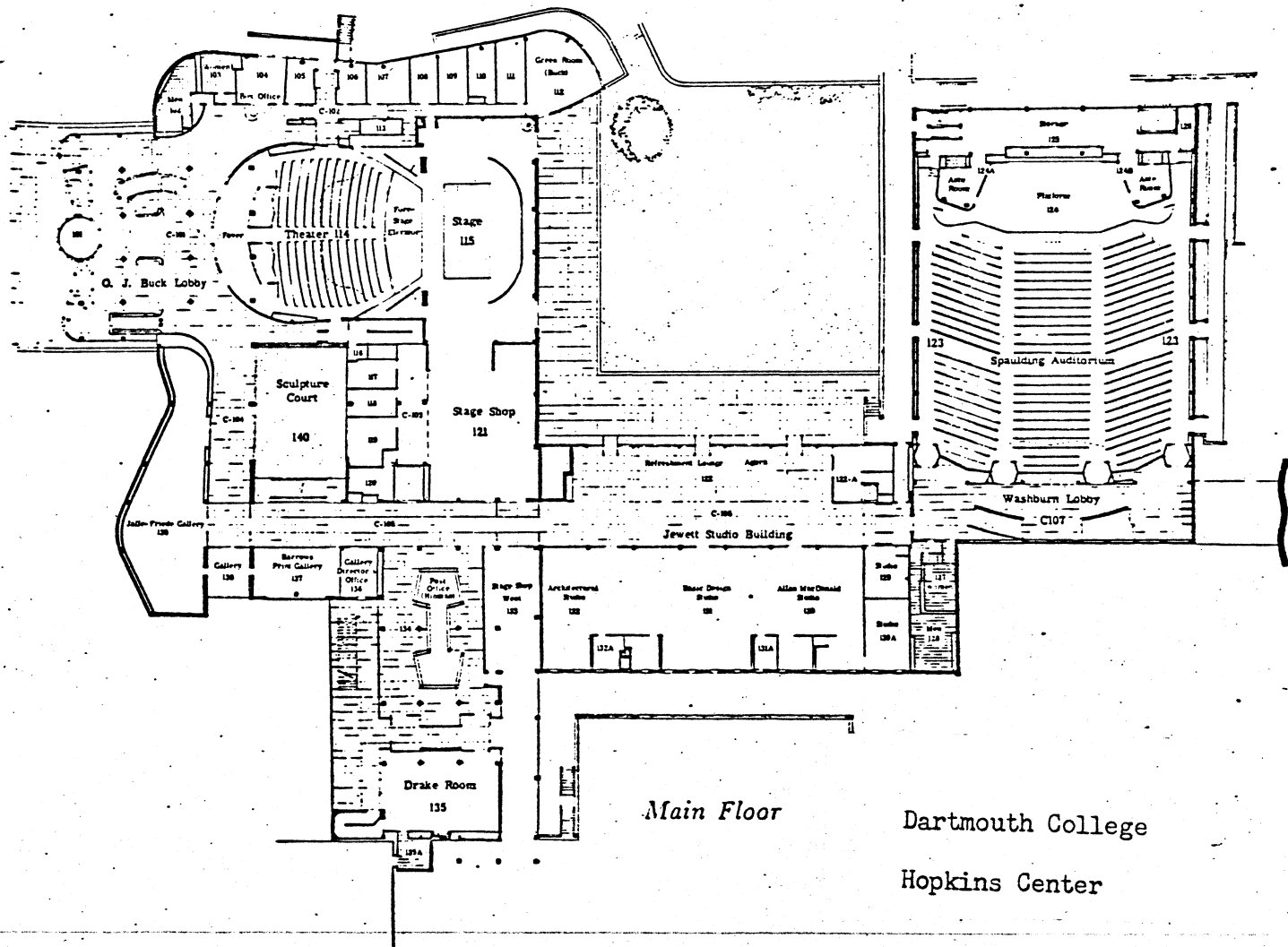
Besides designing the four main structures comprising the Center to their functions, each of the main facilities was planned for the utmost multiple use now and for flexibility in meeting future needs. The theaters and the concert hall are designed for general instructional use as well as their specialized purposes and most other areas of the Center will either be currently used at least in part for academic purposes or are convertible to such use when needed.



Second Floor



Cross Section



Main Floor

Dartmouth College  
Hopkins Center



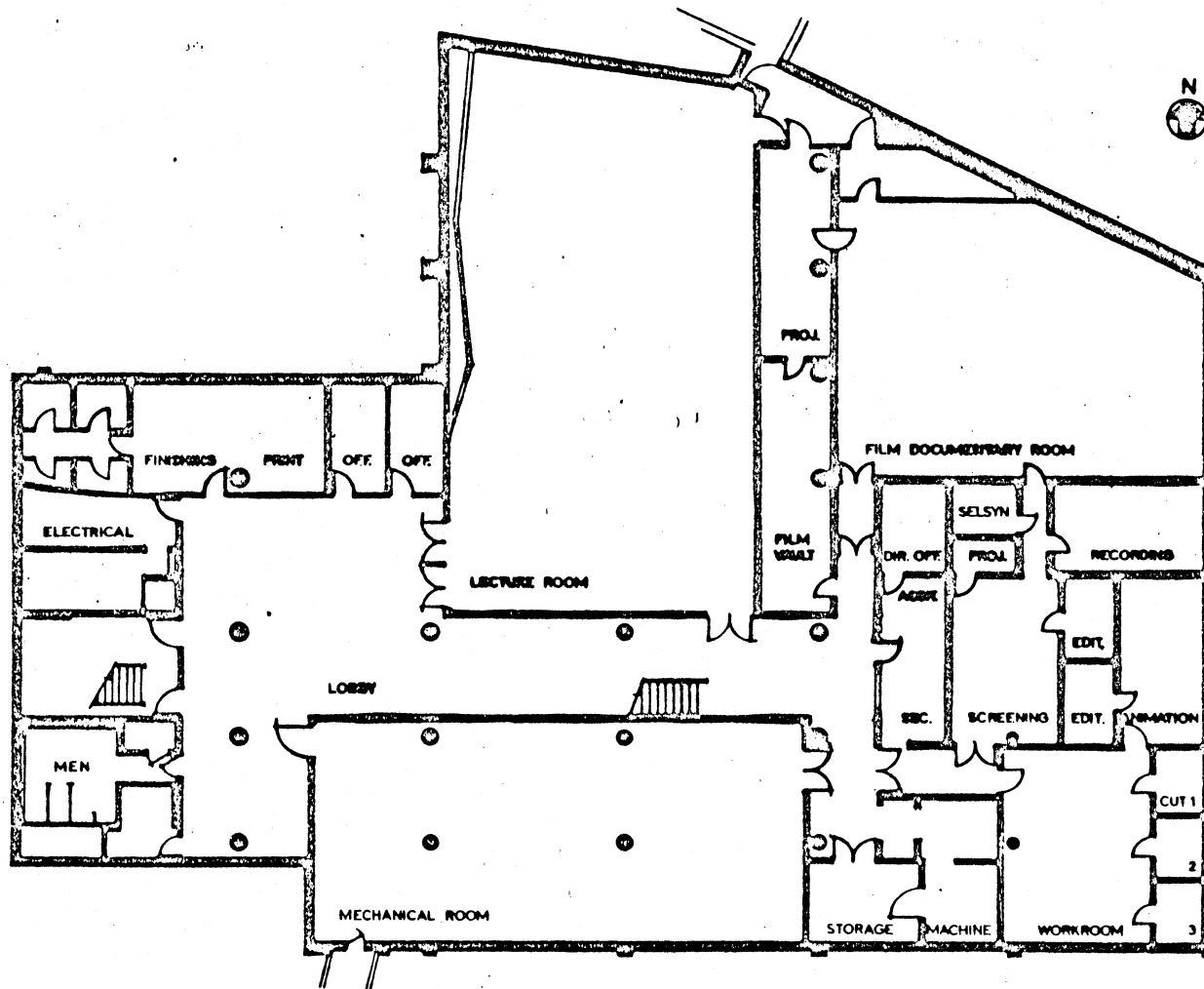
## Harvard

The Carpenter Center for the Visual Arts on the campus of Harvard is a masterpiece of architectural beauty. The beauty of the building is a main feature as it has been compared to a cubist guitar. The building has a curving independence from its neighbors, while at the same time it defines the spaces between in a subtle and skillful manner. The wall planes are continuous, stalled, or deeply angled in precise relationship to the movement of the sun, while the round columns are of varying circumference, each expressing by its size the load it carries. (57, 80)

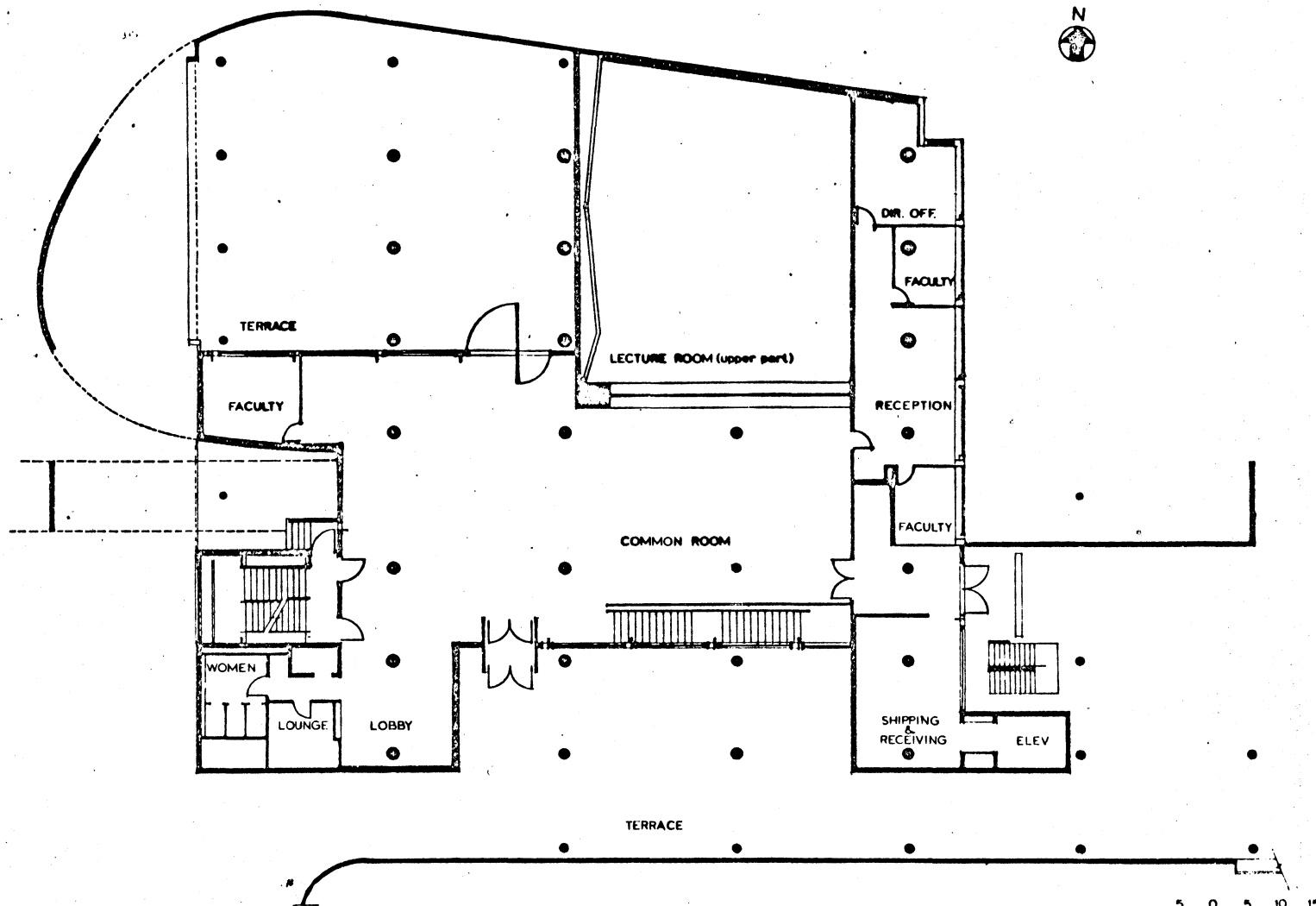
Another main feature of Carpenter Center is that it is heated by means of an air floor laid between the structural slab and the finished concrete floor.

A great curvilinear bisecting ramp connects the heart of the structure to both streets. From its center the main stair and the great exhibition space are accessible from any point within. Broad roof terraces have been designed to carry a foot of earth for grass after the dictum of Le Corbusier.

Carpenter Center for the Visual Arts was an expensive building to engineer and to detail according to Le Messurier. All cantilevers along the curving perimeters, for example, had to be designed to deflect solar heat.

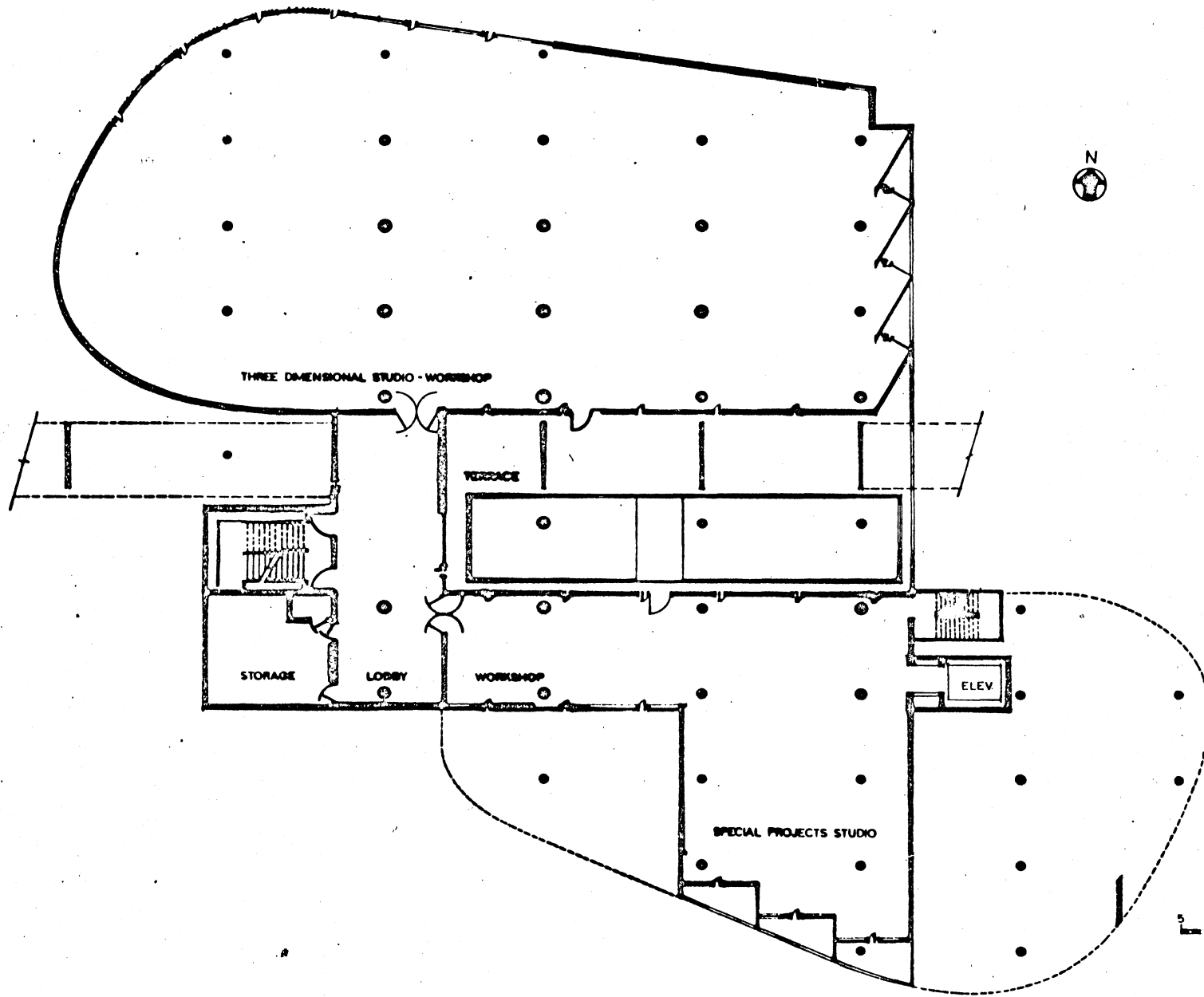


CARPENTER CENTER FOR THE VISUAL ARTS — BASEMENT FLOOR

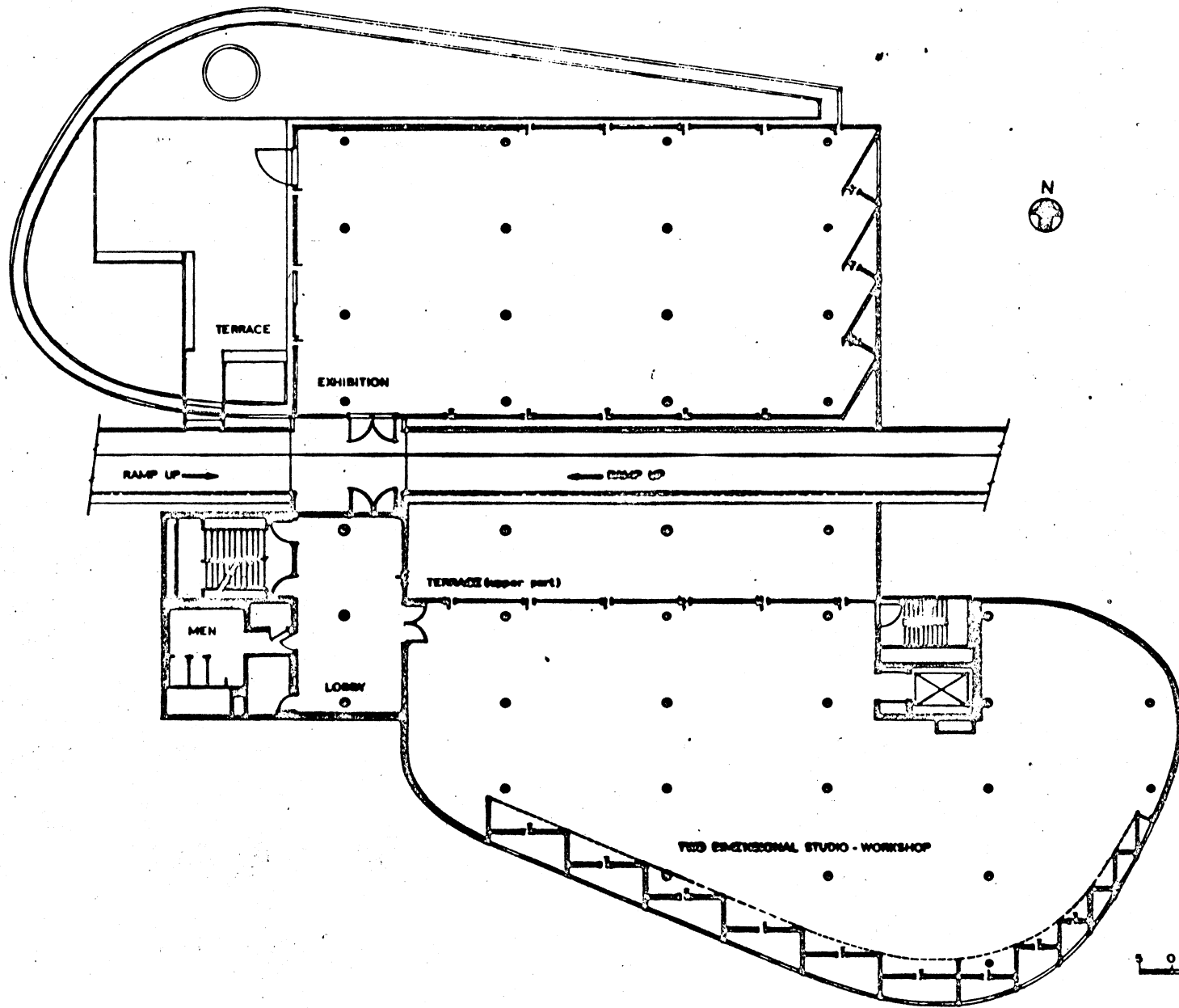


CARPENTER CENTER FOR THE VISUAL ARTS — FIRST FLOOR

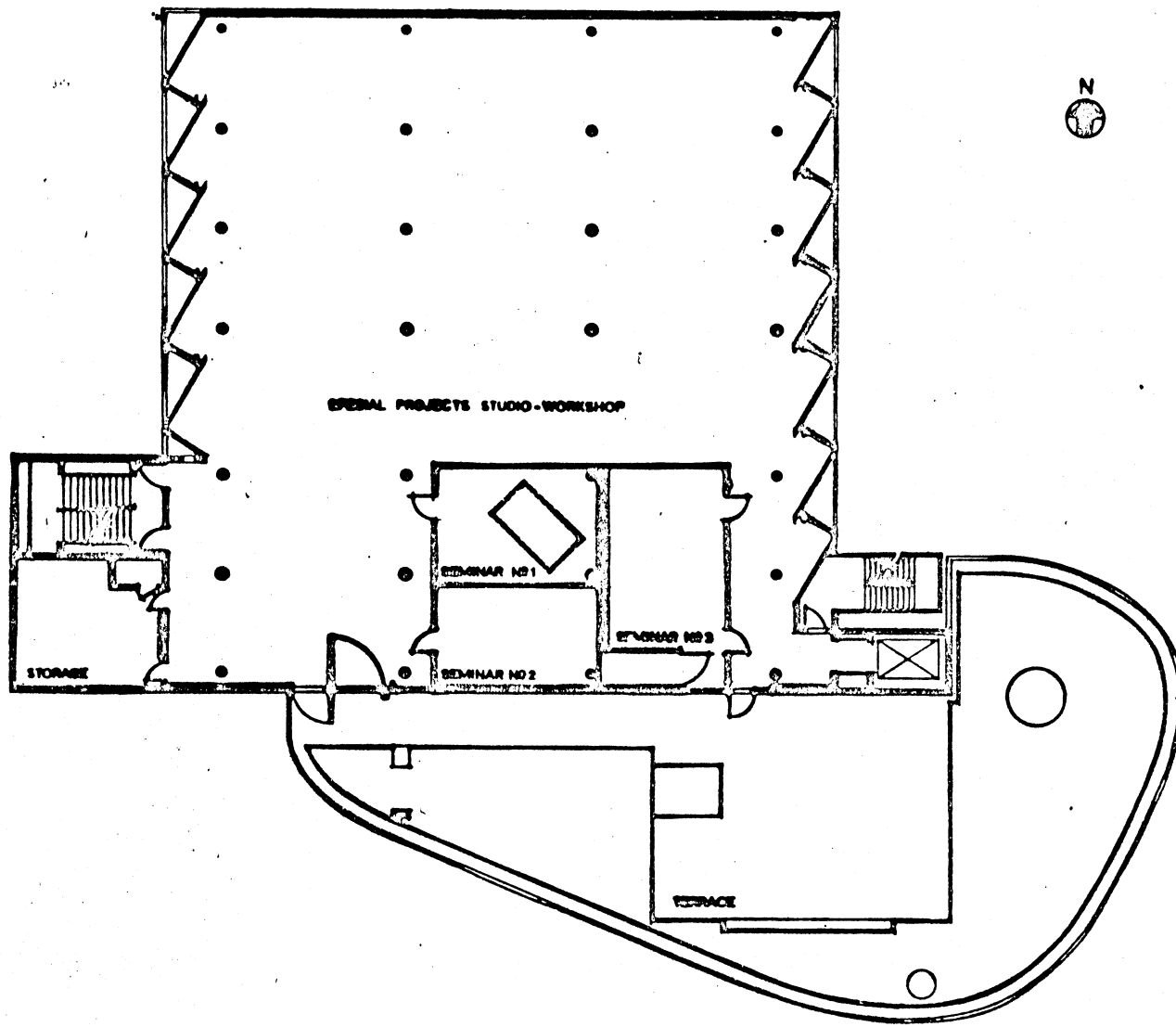




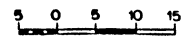
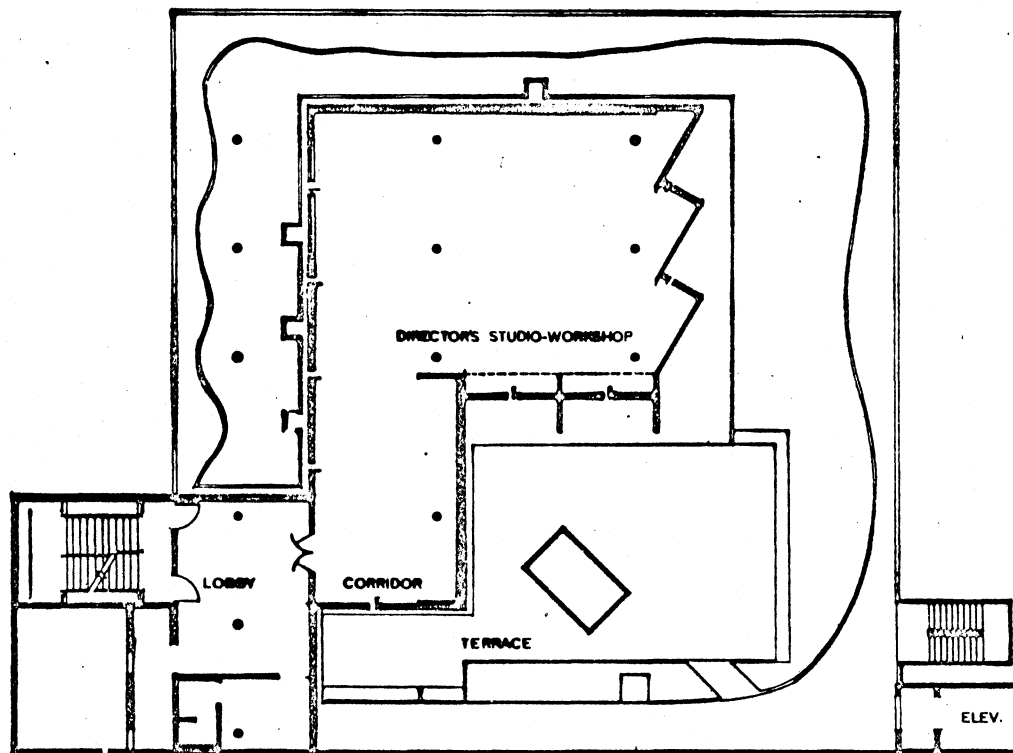
CARPENTER CENTER FOR THE VISUAL ARTS — SECOND FLOOR



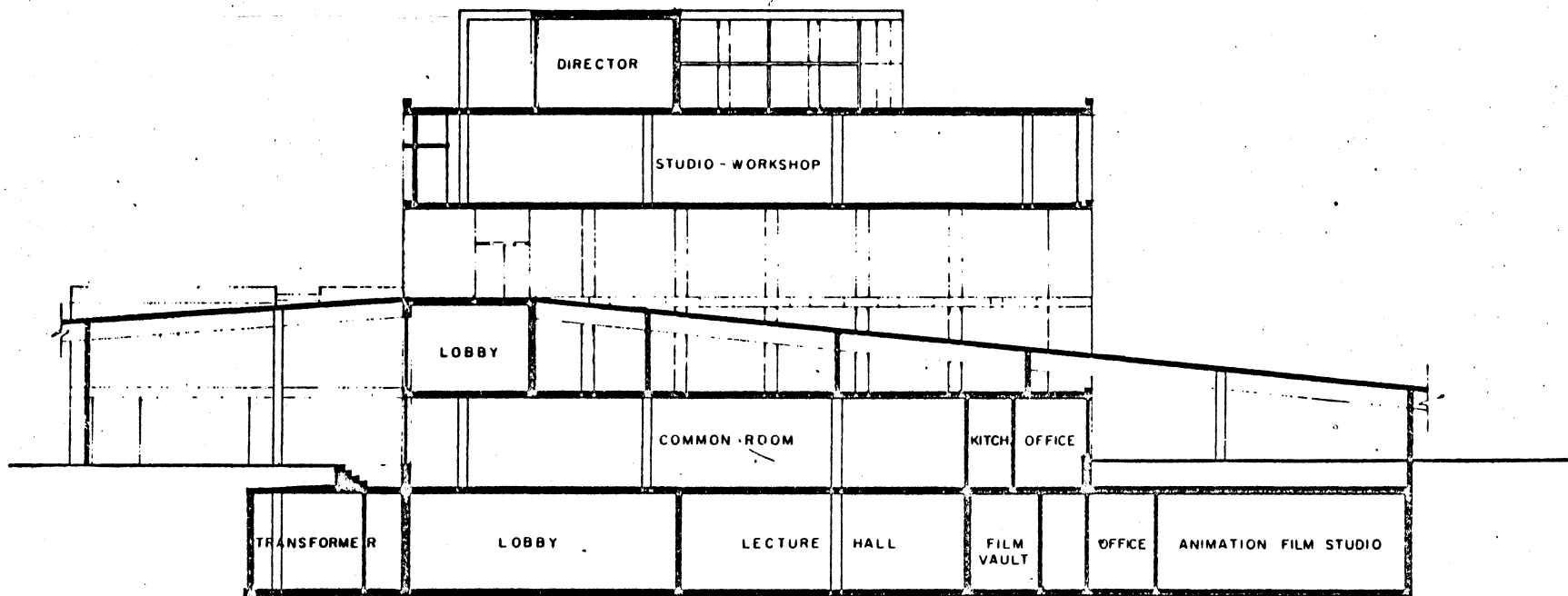
CARPENTER CENTER FOR THE VISUAL ARTS - THIRD FLOOR



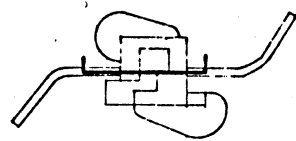
CARPENTER CENTER FOR THE VISUAL ARTS - FOURTH FLOOR

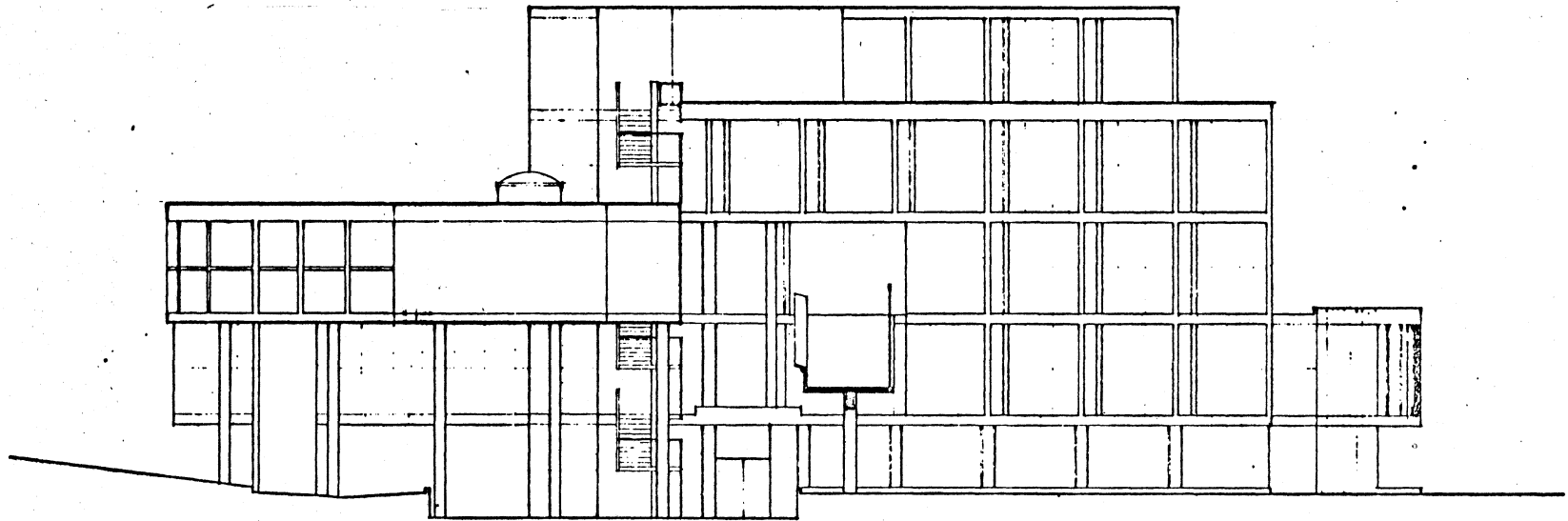


CARPENTER CENTER FOR THE VISUAL ARTS - FIFTH FLOOR



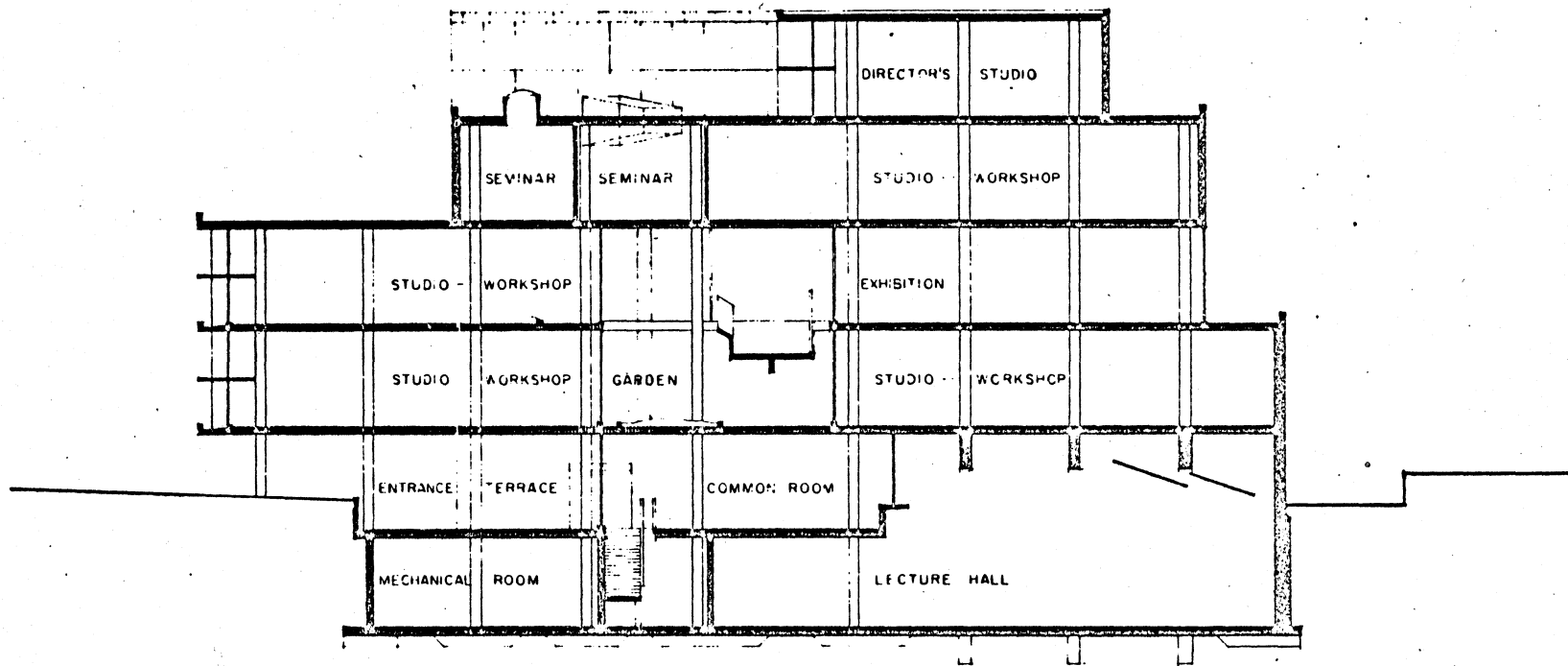
CARPENTER CENTER FOR THE VISUAL ARTS — SECTION LOOKING NORTH



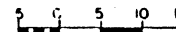
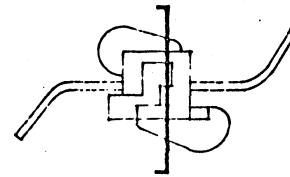


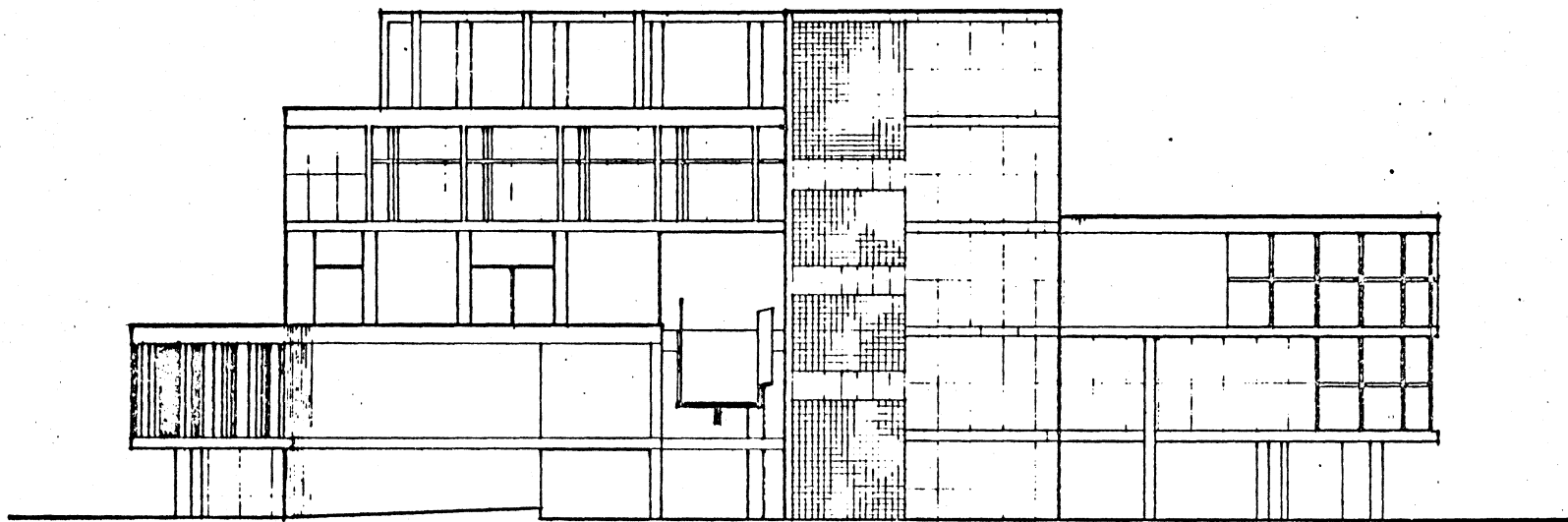
CARPENTER CENTER FOR THE VISUAL ARTS — EAST ELEVATION





CARPENTER CENTER FOR THE VISUAL ARTS — SECTION LOOKING WEST





CARPENTER CENTER FOR THE VISUAL ARTS — WEST ELEVATION





## Knox College

The Knox College Center for the Fine Arts is unusual in that it embraces several unique construction techniques and innovations. The building has several special features: (14, 87)

A unified design concept really embracing three buildings in one. The purpose in design was to provide separate but connected and related areas for the departments of art, music, and theater and speech.

"Floating floors" in the music wing. This method of construction was employed in order to isolate sound and prevent it from being transmitted throughout the building.

Complete air conditioning.

Projection rooms in key locations.

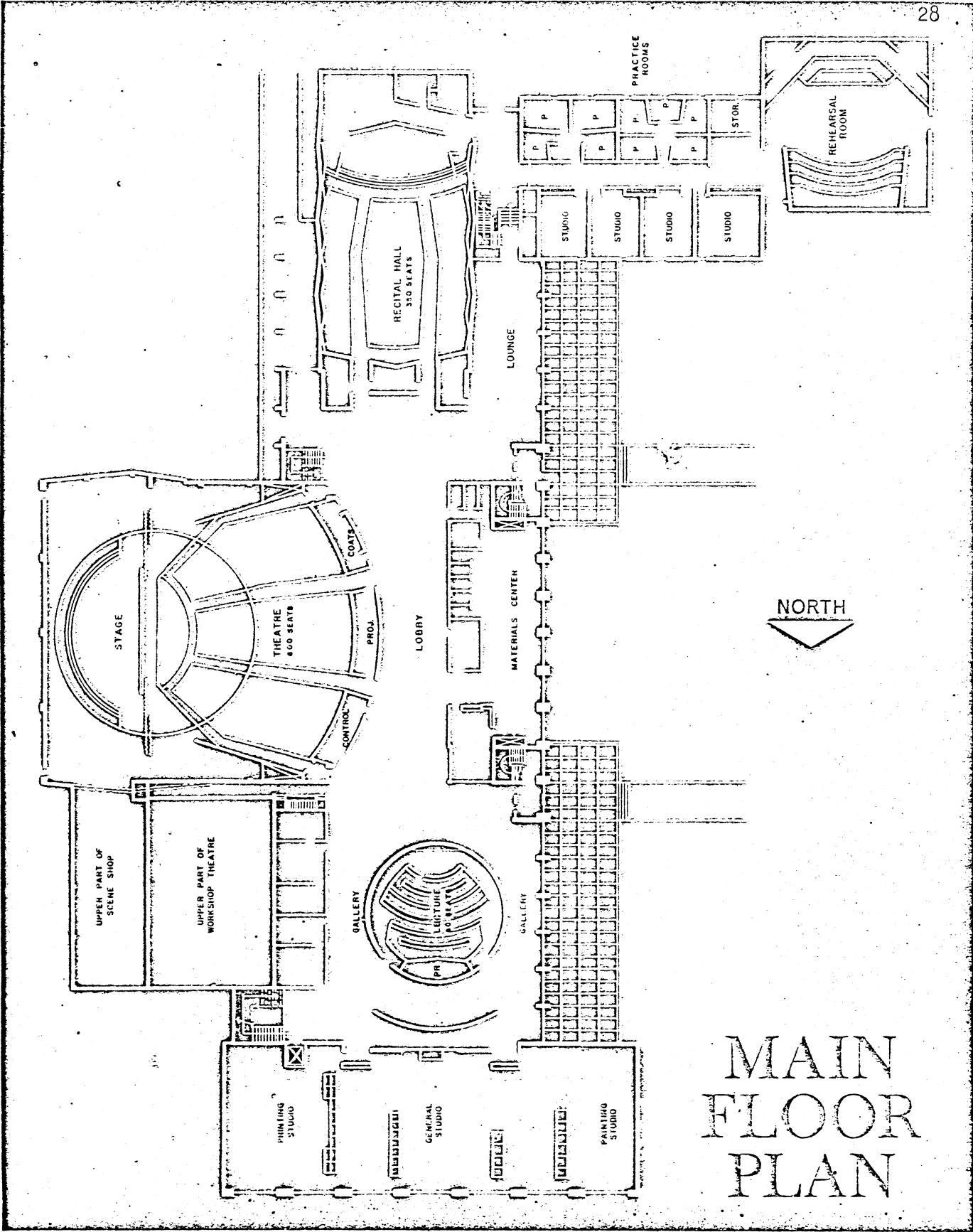
Low silhouette for stage house. The unique revolving stage in the Harbach Theatre--the only one of its kind anywhere in the nation--contains an area large enough to permit the use of scenery wagons, thereby eliminating the need for a high stage house and allowing for a roof silhouette compatible with the rest of the building.

An art area completely open.

A gabled roof and exterior design. Because of its overall proportions and magnitude, the Center was purposefully designed in a way to keep it from becoming overpoweringly massive on the campus.

The art lecture room is an important feature of the center.

The exterior wall of this unique room greatly increases the wall space available for exhibits. From the interior it becomes a second little gallery and a classroom-auditorium fully equipped for audio-visual instruction with a seating capacity of 80.



# MAIN FLOOR PLAN

Knox College: Fine Arts Center

## Macalester College

There are three different functions contained in the complex but housed separately. Drama, speech, music, visual arts, and humanities are located in separate structures. Each structure in the complex has its own auditorium that can be used for various purposes. (44)

The humanities building is a common-use building related to the other four. The other structures in the complex are designed for more specific needs with the needs reflected in the design.

The "main" theater for drama and speech is a teaching theater mechanized for quick change. The theater has an automated lighting system and 250 fixed seats. Individual spaces for different functions, for example a scene shop, surround the theater.

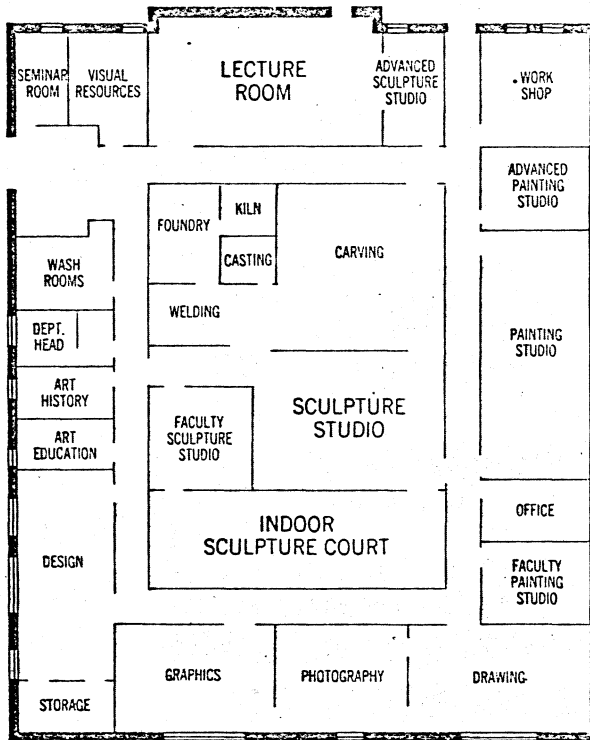
The art-history-appreciation lecture room seats 100 people and has automated equipment, electronic controls for telestration, large screen, special lighting, nearby audio-visual instructional materials room, and a seminar room equipped with closed-circuit television.

Art education facilities, machine shop, storage rooms, and faculty offices complete the visual arts building. Other features of the visual arts building are:

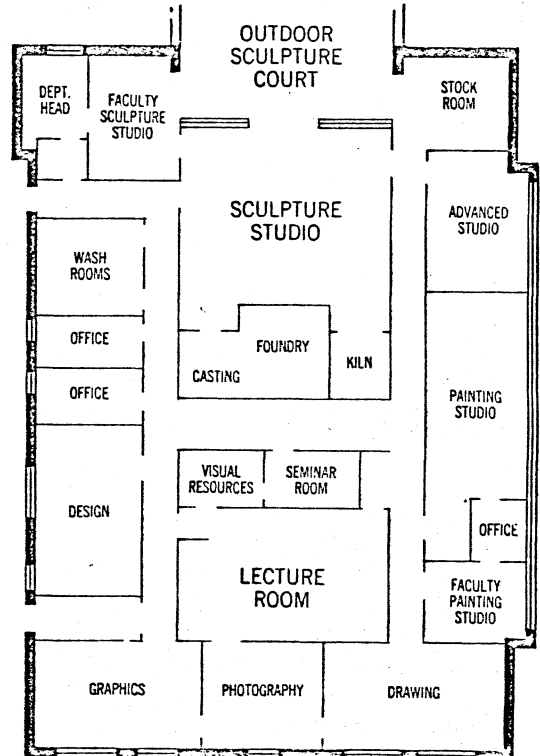
Spaces arranged according to function

No exhibition gallery; display areas throughout center

### HOW COMMISSION HELPED TO IMPROVE PLANNING



**BEFORE**



**AFTER**

These floor plans for the art building, drawn 14 months apart, show changes that resulted from the Commission's research and ideas. Sculpture studio was re-located to provide better light, easier access and an outdoor court. Lecture room, requiring no windows, was transplanted to inner core. Other functions of department also benefited.

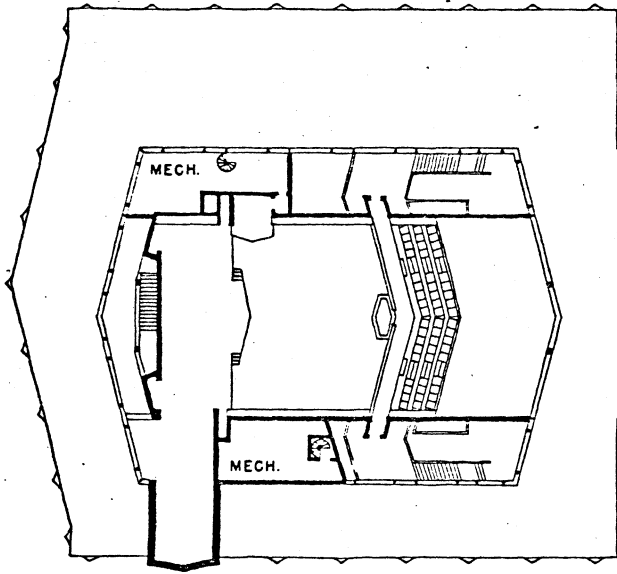
Macalester College: Janet Wallace Fine Arts Center

## Wellesley

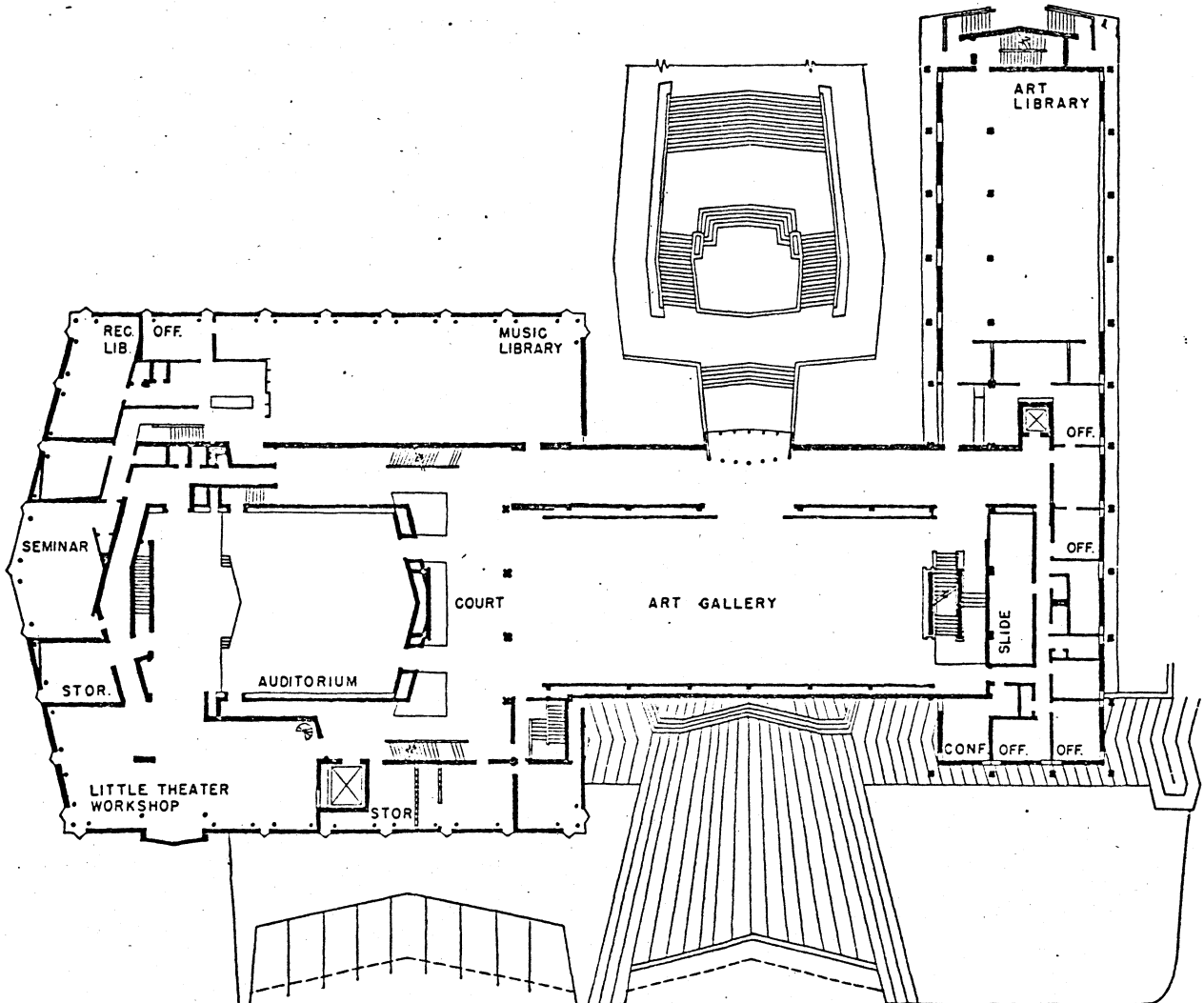
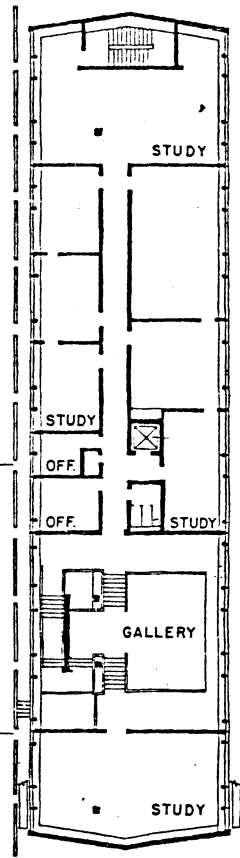
Three main elements comprise the building on the Wellesley campus. The low, music-drama unit consists of two stories of listening, practice, library, and office spaces wrapped about a central auditorium. The higher visual-arts unit contains work room, library, offices, and laboratories. These two units are disposed on the brow of a hill to complete an irregular quadrangle of academic and administrative structures that ring the crest. The third unit--a top-lighted exhibition gallery--links the music and art elements and bridges an open, elaborated stair within a central swale. Thus, the entire building becomes, in effect, a gateway leading to the building cluster.

The music-drama building houses a music library, a record library, drama rehearsal room, theater workshop, combination seminar-green room, listening rooms, practice rooms, classrooms, and offices. These spaces, occupying two levels, are wrapped around the central auditorium which serves variously as lecture hall, concert hall, cinema, and theater. (54, 64)

# Wellesley College: Jewett Arts Center



FLOOR PLAN FOURTH LEVEL



## Yale

The Art and Architecture building is probably best understood by considering its internal spaces. Essentially it focuses on two central areas. These are a jury pit, almost an arena, on the first floor, and a lofty drafting room on the third. The other functions are grouped around the central spaces according to a pinwheel pattern. (59, 78, 82, 93)

The building is designed to be used by student architects, planners, painters, sculptors and graphic artists. It is the hope that the placing of these various disciplines under one roof will help restore them to a measure of unity. The disciplines have their own particular areas but, when possible, they are brought into contact with each other. For example, the jury room for the architects is placed in the center of the exhibition area to allow anyone to observe the jury, if he so desires. The painters will use the jury room from time to time. There is a terrace top floor for out door painting and sketching. A penthouse apartment plus two additional guest rooms will house visiting critics. The building is arranged to give each discipline its most desirable light.

The upper two floors are planned for painters, but the architectural drafting room will also receive skylighting through shafts that reach up through the center of the building.

There has been a considerable degree of integration of structural and mechanical elements. The four hollow columns which mark the change of level of the various platforms provide vertical circulation for the mechanical systems. Hung acoustical plaster ceilings form plenums of the heating and the future air conditioning systems.

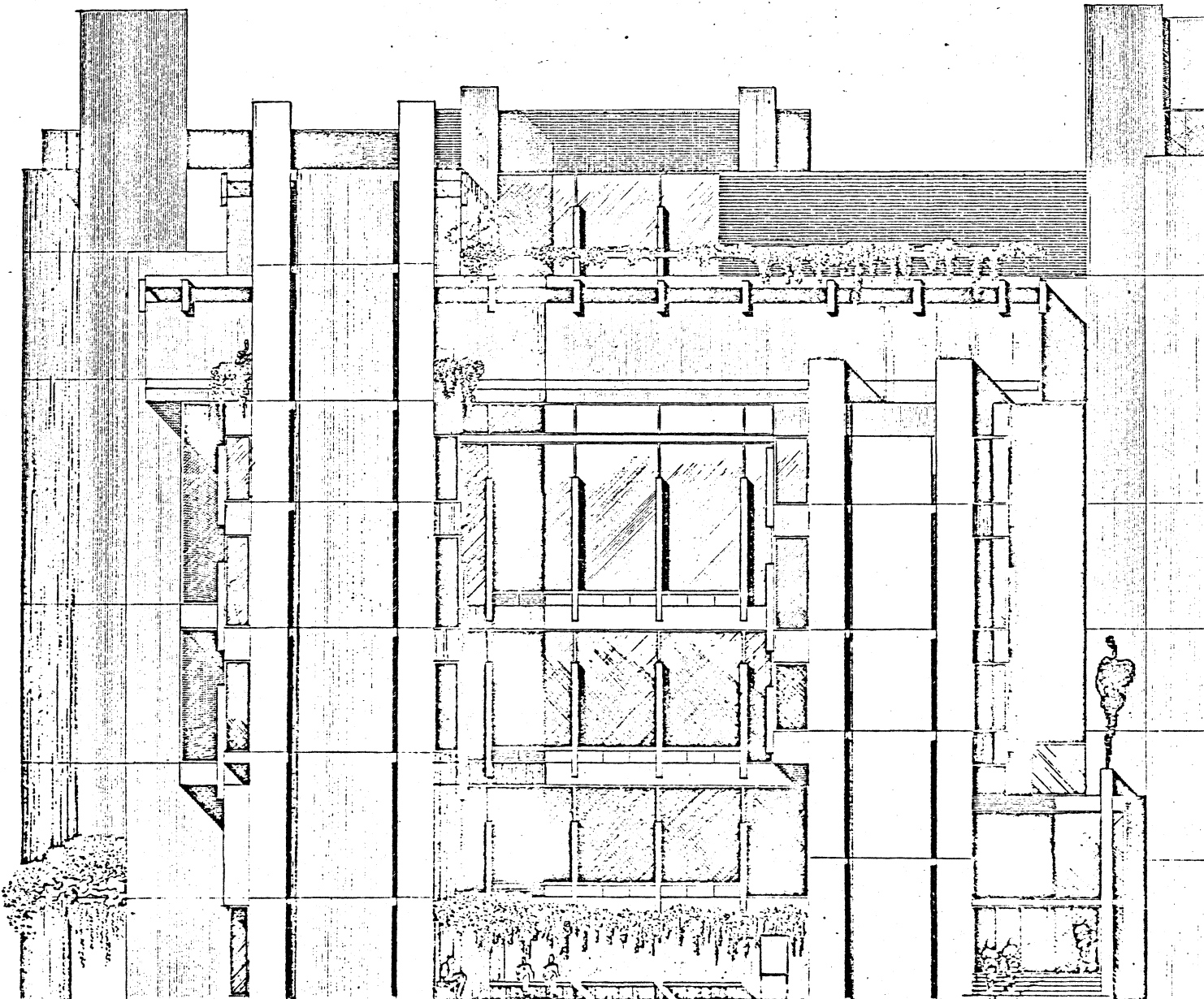
Rudolph, the architect of the center, describes his organization of the building's complex elements as follows: "Once having adopted the pinwheel scheme, the architectural problem became one of articulating it in three dimensions. A structure was adopted which allowed each leg of the pinwheel to be at a different height giving a kind of overlapping and interpenetrating series of platforms. These have been manipulated to vary the spaces in an intricate way which grows out of the use of the building. For instance, in the architectural drafting room, each of the five years has its own platform, but the drafting room is still one room taking up the entire floor in order to facilitate interchange of ideas between the students and faculty. Two mezzanines have been introduced to bring the planners into the same general area. This fundamental scheme allowed the ceiling heights to vary from 6 feet, 6 inches to 28 feet. An auditorium, a portion of an exhibition hall, the center of the architectural design drafting room, and two studies form a series of high central spaces."



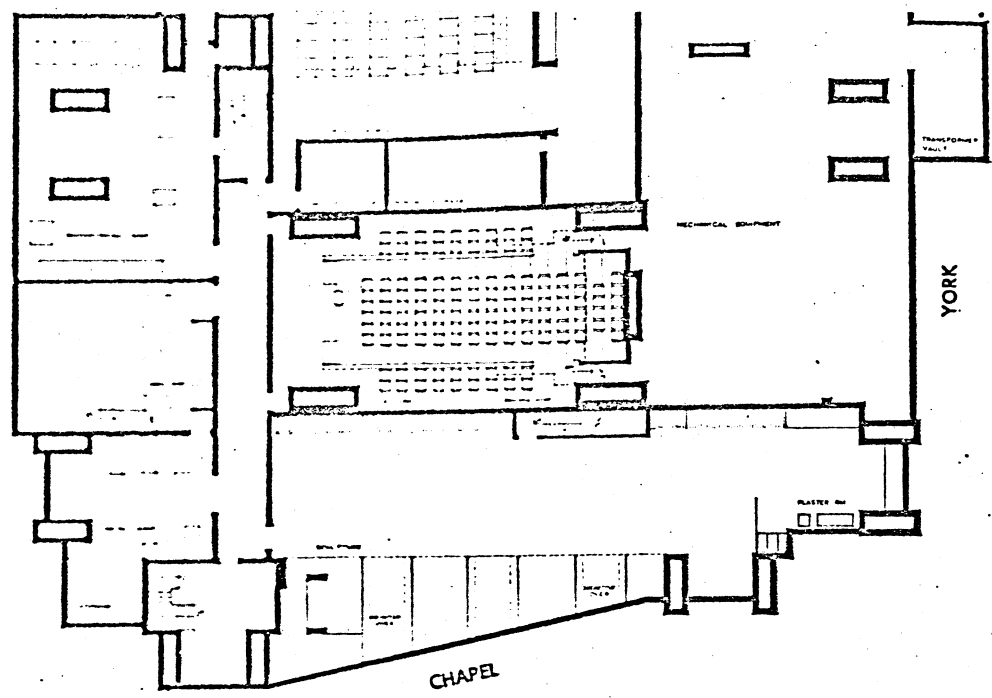
The building will have a rough textured concrete surface. Concrete will be poured in a sieve to allow the aggregate to come to the surface to be exposed without bush-hammering or sandblasting. This surface will be exposed on the inside and the outside.

# YALE'S NEW SCHOOL OF ART AND ARCHITECTURE

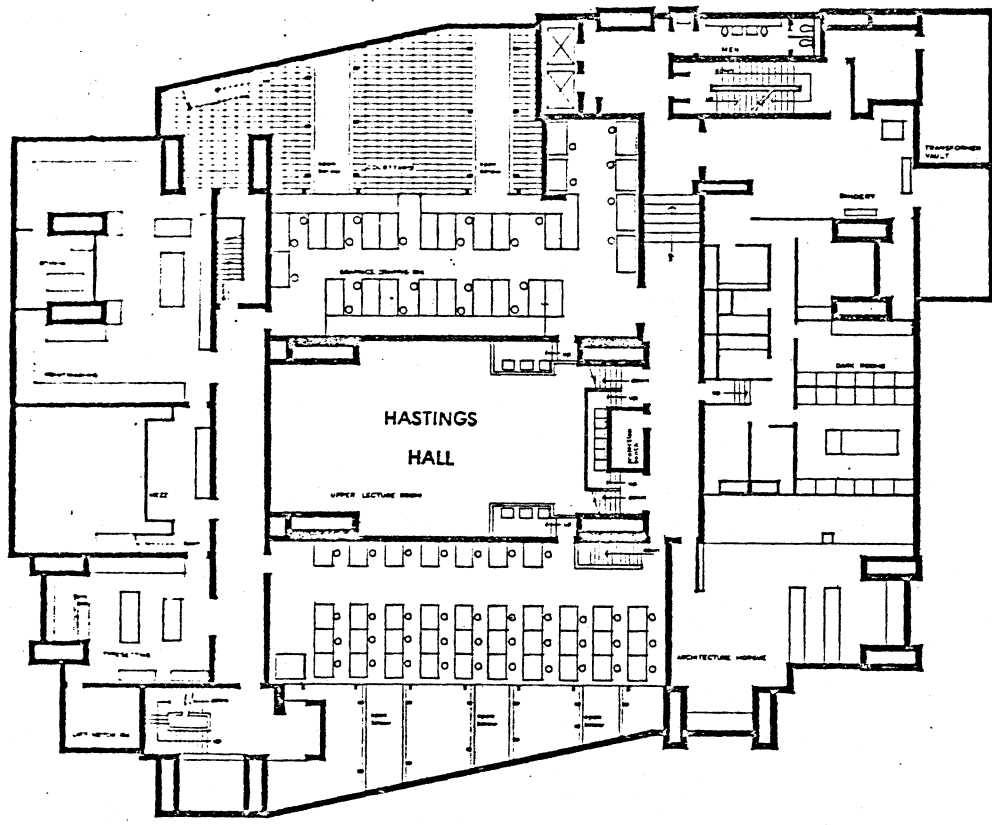
Designed by Paul Rudolph, it is now under construction



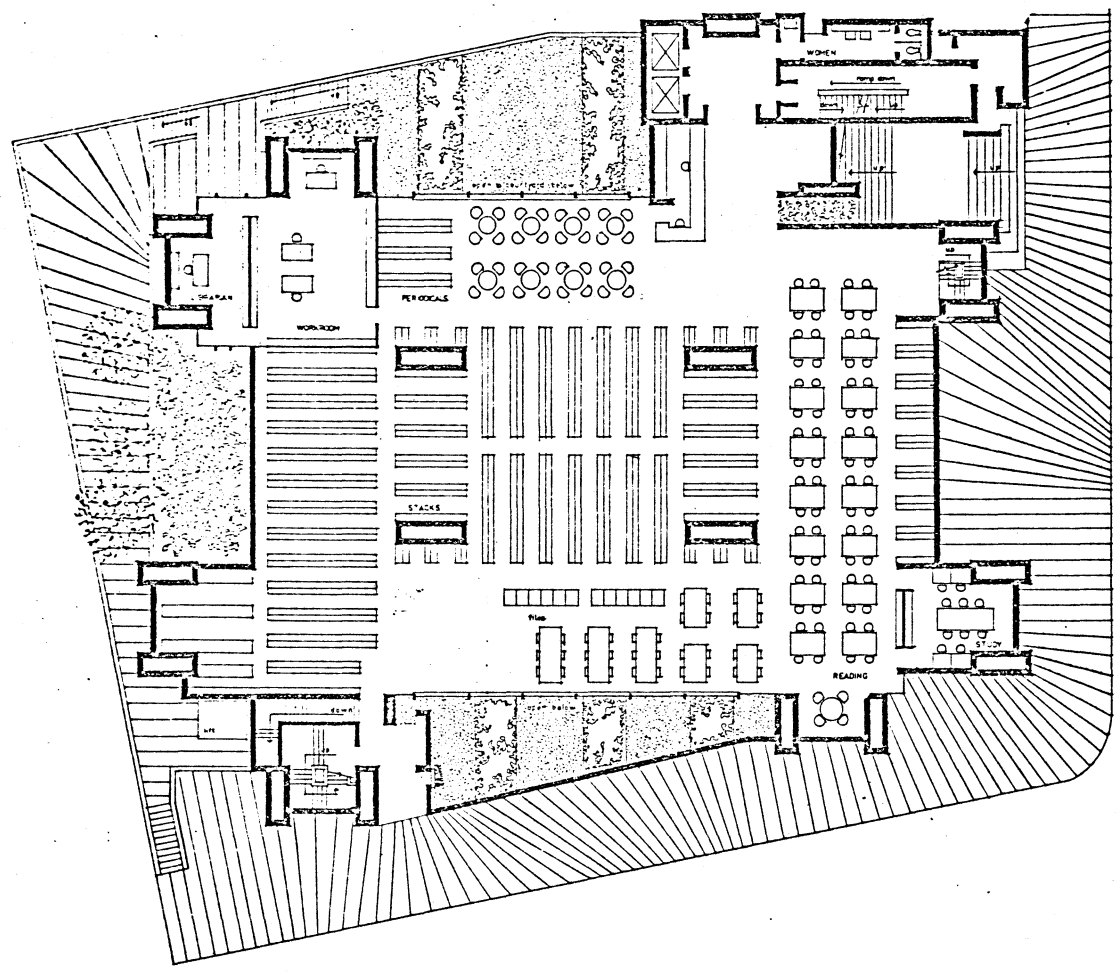
2nd Basement  
*Sculpture  
and other studios*



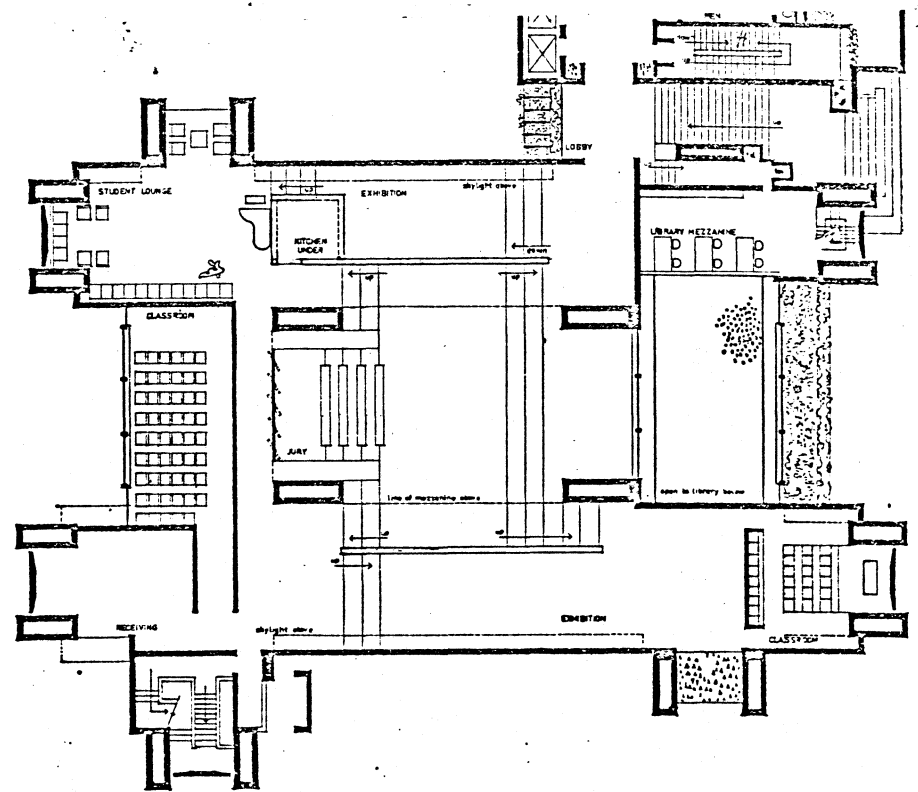
Basement  
*Architectural Design studios  
and Hastings Hall*



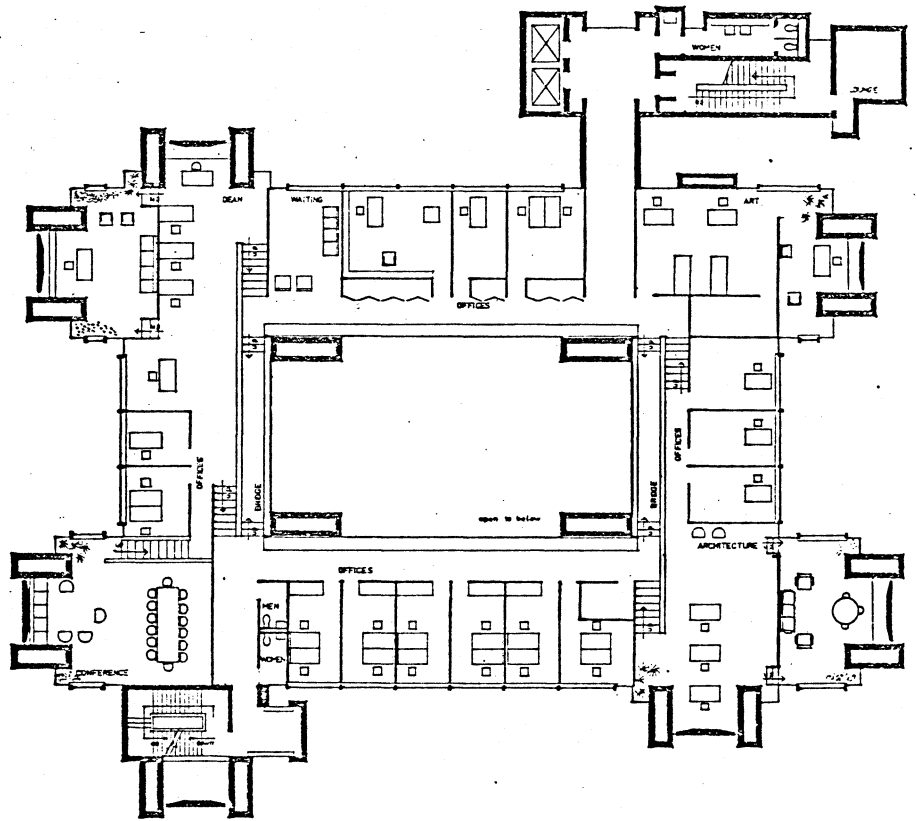
First floor  
*Art Library*



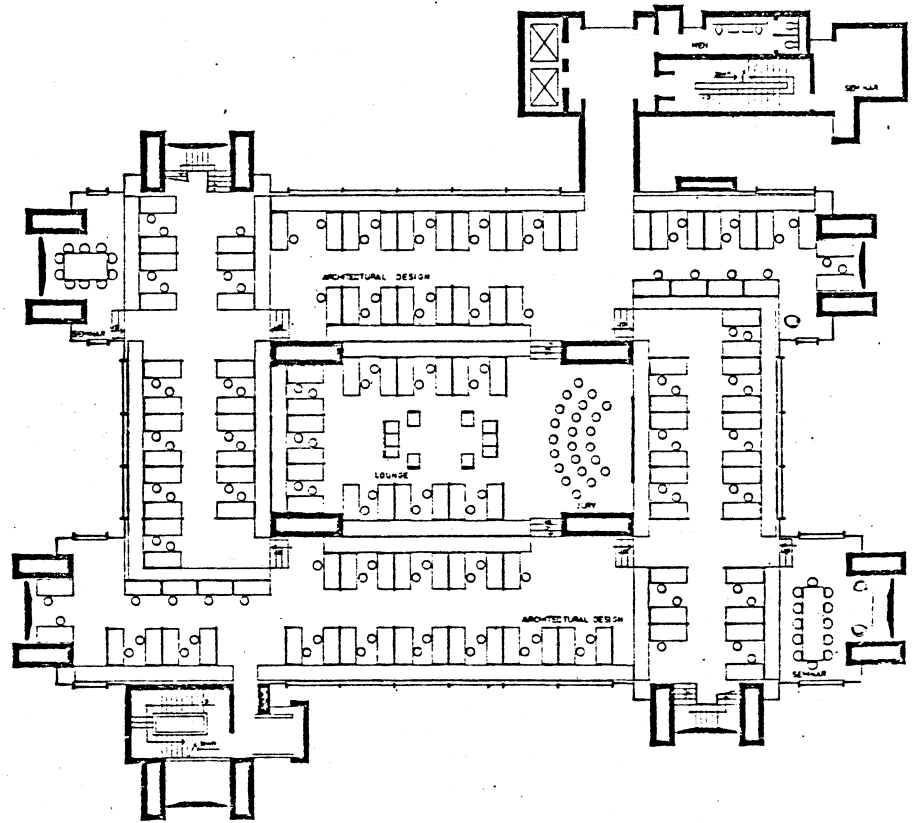
Second floor  
*Exhibition area, classrooms  
and student lounge*



Third floor  
*Offices of the school*

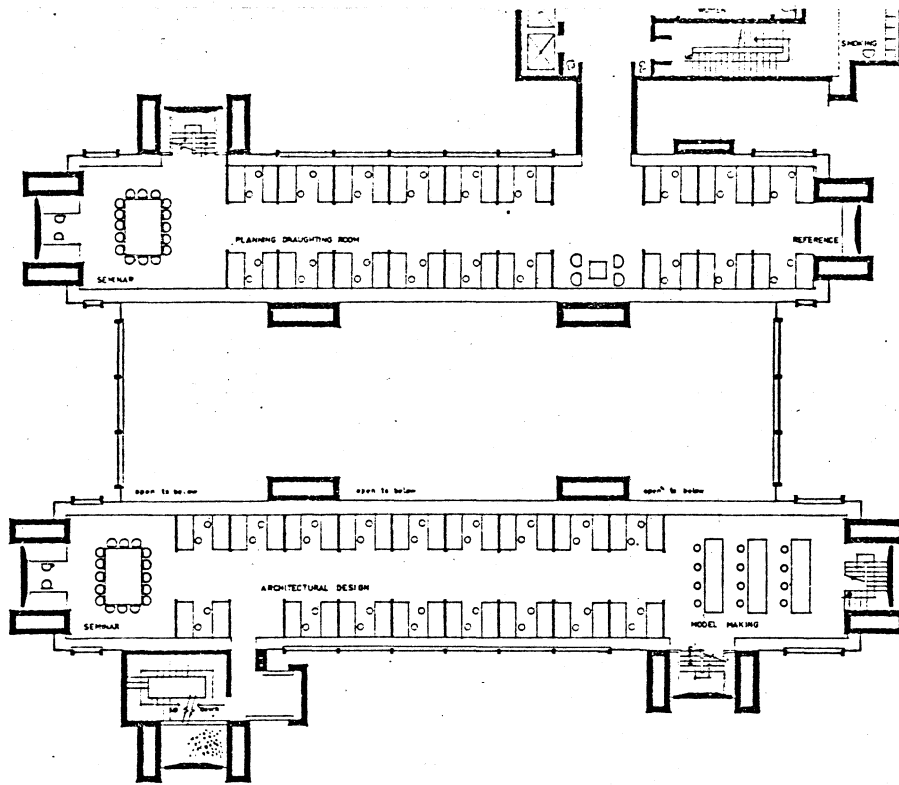


Fourth floor  
*Architecture drafting rooms*



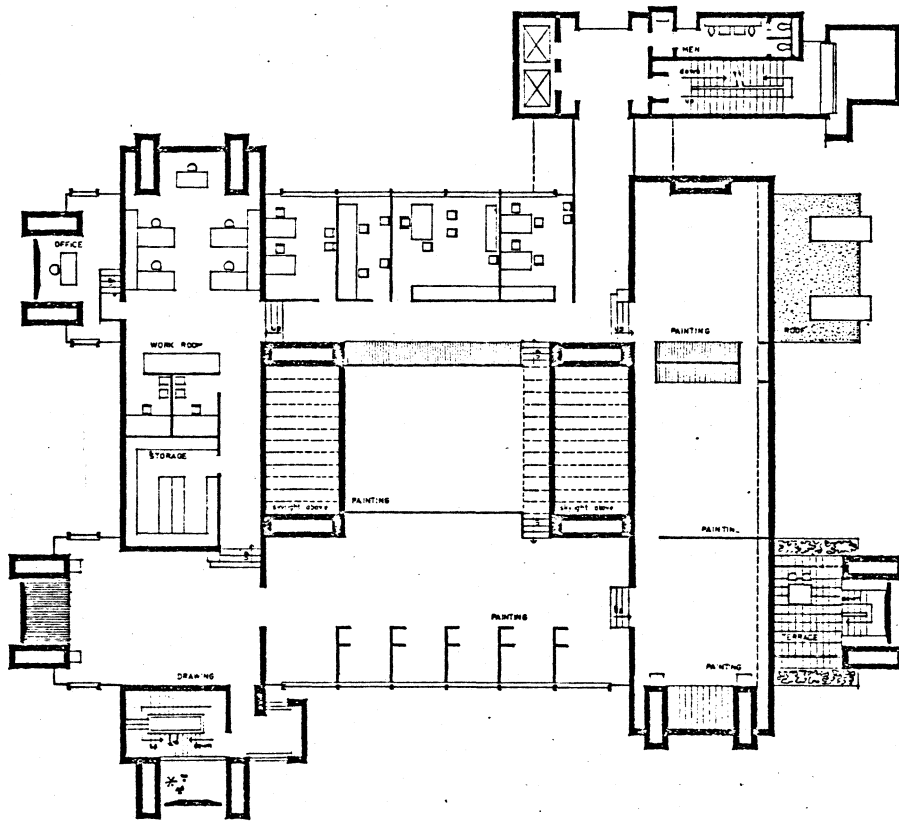
Fifth floor

Planning and drafting rooms

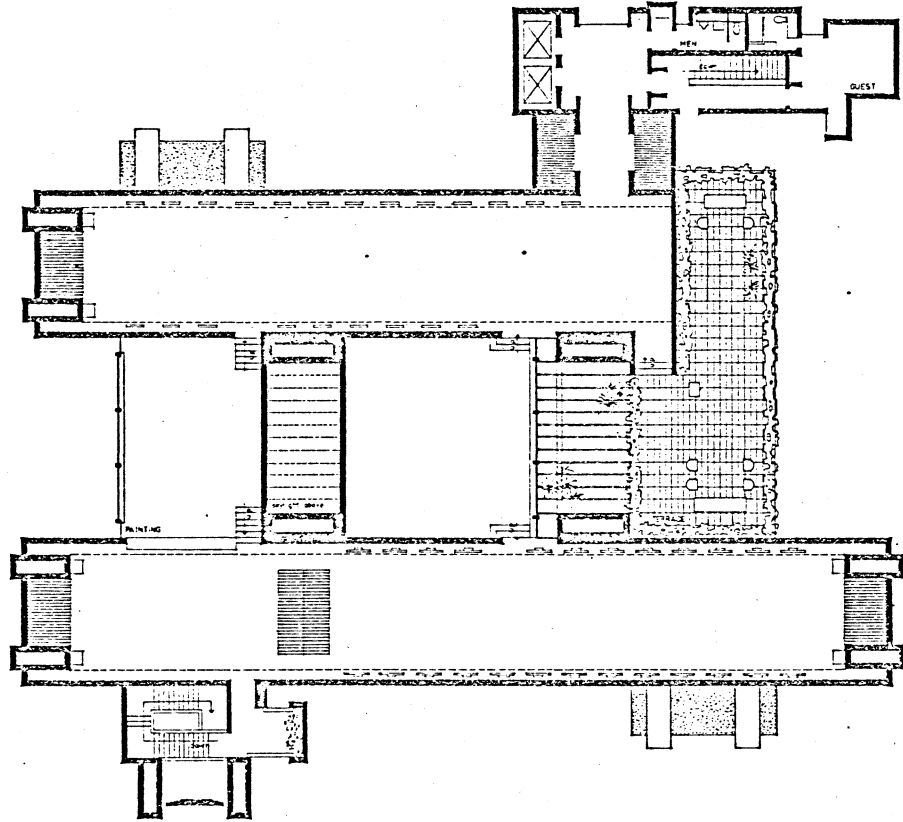


Sixth floor

Planning and painting studios



enth floor  
ainting studios



Yale University: School of Art and Architecture

Summary

The eight centers mentioned at the outset, such as, Macalester Center, Benedicta Arts Center, and Knox College Center for the Fine Arts may be regarded as prototypes. Others that could be added are at:

Agnes Scott College, Decatur, Georgia  
Art School of the Society of Arts and Crafts, Detroit, Michigan  
Brandeis University, Waltham, Massachusetts  
Grinnell College, Grinnell, Iowa  
Japanese Cultural Center, San Francisco, California  
Jesse H. Jones Hall for the Performing Arts, Houston, Texas  
Maryville College, Maryville, Tennessee  
Montgomery County Junior College, Rockville, Maryland  
Reed College, Portland, Oregon  
San Fernando State College, San Fernando, California  
University of Arkansas, Fayetteville, Arkansas  
University of Illinois, Urbana, Illinois and Chicago, Illinois  
University of Massachusetts, Amherst, Massachusetts  
University of Nebraska, Lincoln, Nebraska  
University of Rhode Island, Kingston, Rhode Island  
Wayne State University, Detroit, Michigan

For the committee members, administrators, or other individuals interested in the relative size of enrollment of colleges and universities the following listings are given.



Enrollment: less than 1000

College of St. Benedict, St. Joseph, Minnesota, one-building-community-college-fine arts center (Architectural Record, December, 1964).

Goucher College, Baltimore, Maryland: center for performing arts combined with the student center (Architectural Record, July, 1963).

Maryville College, Maryville, Tennessee, two buildings: music and visual arts (Architectural Record, December, 1951).

Sarah Lawrence College, Bronxville, New York; single building for the performing arts (Architectural Forum, December, 1952).

Enrollment: 1000 - 1500

Grinnell College, Grinnell, Iowa: two buildings: theatre and fine arts combined by foyer (Progressive Architecture, September, 1962).

Knox College, Galesburg, Illinois: "Fine Arts Center" for music, art, drama (College and University Business, May, 1964).

Lawrence University, Appleton, Wisconsin: "Music-Drama Center."

Swarthmore College, Swarthmore, Pennsylvania; part of the Student Activities Center (Progressive Architecture, February, 1962).

Enrollment: 1500 - 2000

Brandeis University, Waltham Massachusetts: four buildings for: music, drama, art (Architectural Record, March, 1959).

Colgate University, Hamilton, New York: "Creative Arts Center"; unusual design (Architectural Record, May, 1964).

Wellesley College, Wellesley, Massachusetts: One building contains three separate elements: visual arts, music, drama (Architectural Record, July, 1959).

Enrollment: 2000 - 2500

Oberlin College, Oberlin, Ohio: "Oberlin College Conservatory of Music": three buildings with connecting glass galleries (Architectural Record, December, 1964).

Enrollment: 3000 - 3500

Dartmouth College, Hanover, New Hampshire: One building for all the arts (Architectural Record, December, 1964).

Enrollment: 4000 - 4500

Butler University, Indianapolis, Indiana: "Clowes Memorial Hall" for the performing arts (Architectural Forum, December, 1963).

Enrollment: 5000 - 10000

Montgomery County Junior College, Rockville, Maryland: "Fine Arts Center": a large, single building for music, art, drama, and instruction.

University of Arkansas, Fayetteville, Arkansas: "Fine Arts Center" with wings (Architectural Record, February, 1958).

University of Rhode Island, Kingston, Rhode Island: "Fine Arts Center": a complex of small 12 buildings, connected by lobbies, galleries, and display areas, to house the visual and performing arts, and music.

Yale University, New Haven, Connecticut: "Art and Architecture Building": with 36 levels with vertical separations; a divisible auditorium; arts and architecture housed on various levels; important for ideas (Architectural Record, Architectural Forum, Progressive Architecture, February, 1964).

Enrollment: 10000 - 15000

Harvard University, Cambridge, Massachusetts: "Loed Drama Center" with first mechanized stage and "Carpenter Hall for the Visual Arts," Le Corbusier's only building in the U.S.A. (Architectural Record, April, 1963).

University of Georgia, Athens, Georgia: "Visual Arts Center", one building for all the visual arts (Architectural Forum, February, 1962).

Enrollment: 20000 -

Wayne State University, Detroit, Michigan: "Community Arts Building," a single building with four parts: music; art; auditorium (drama); and offices (Architectural Record, November, 1952).

Fine Arts Centers in the Planning Stage:

Columbia University, New York.

Lake Forest College, Lake Forest, Illinois.

University of Denver, Denver, Colorado.

University of Illinois, Urbana, Illinois. (Architectural Record, December, 1964).

## CHAPTER II

### PLANNING THE VISUAL ARTS CENTER: General Architectural Considerations

This section is introductory and considers the planning of the visual arts center as a whole. (44) Subsequent sections will deal more specifically with the respective areas that make up the center. A general starting point for planning is presented.

#### The Program

One of the starting points for a committee to consider is the total visual arts program itself. To a certain extent, this program determines what areas, spaces, and kinds of rooms are needed; in other words, it will suggest "space allocation."

While programs, courses, their names, and number of courses will vary from institution to institution, all visual arts programs, whether large or small, will have the following features in common:

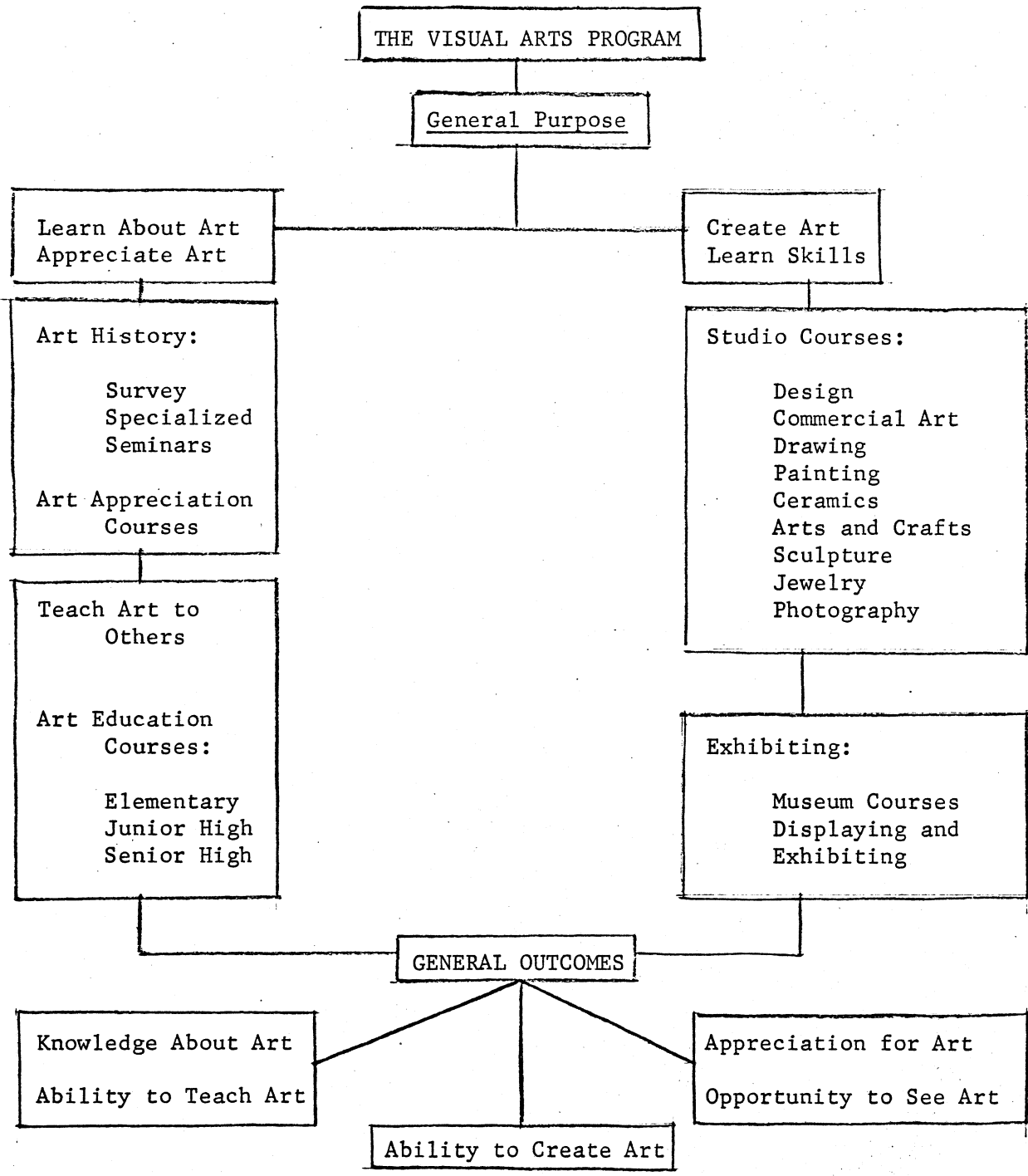
Art History and Art Appreciation

Art Education

Studio

Museum Education

The diagram on the following page graphically portrays the visual arts program, and purposes, courses to expedite those purposes, and outcomes as related to the total program. (40)



### Spatial Translations of the Program:

What is meant by this rather high-sounding subtitle is transforming the chart and ideas represented into a visual concept indicating the spaces that make up the general areas of the visual arts center. The purpose of the spatial translation - space diagram is,

To visualize ideas

To indicate architectural direction

To indicate certain architectural requirements

To indicate relationships

Further, for a visual arts center to function properly the following spaces need to be included:

Public

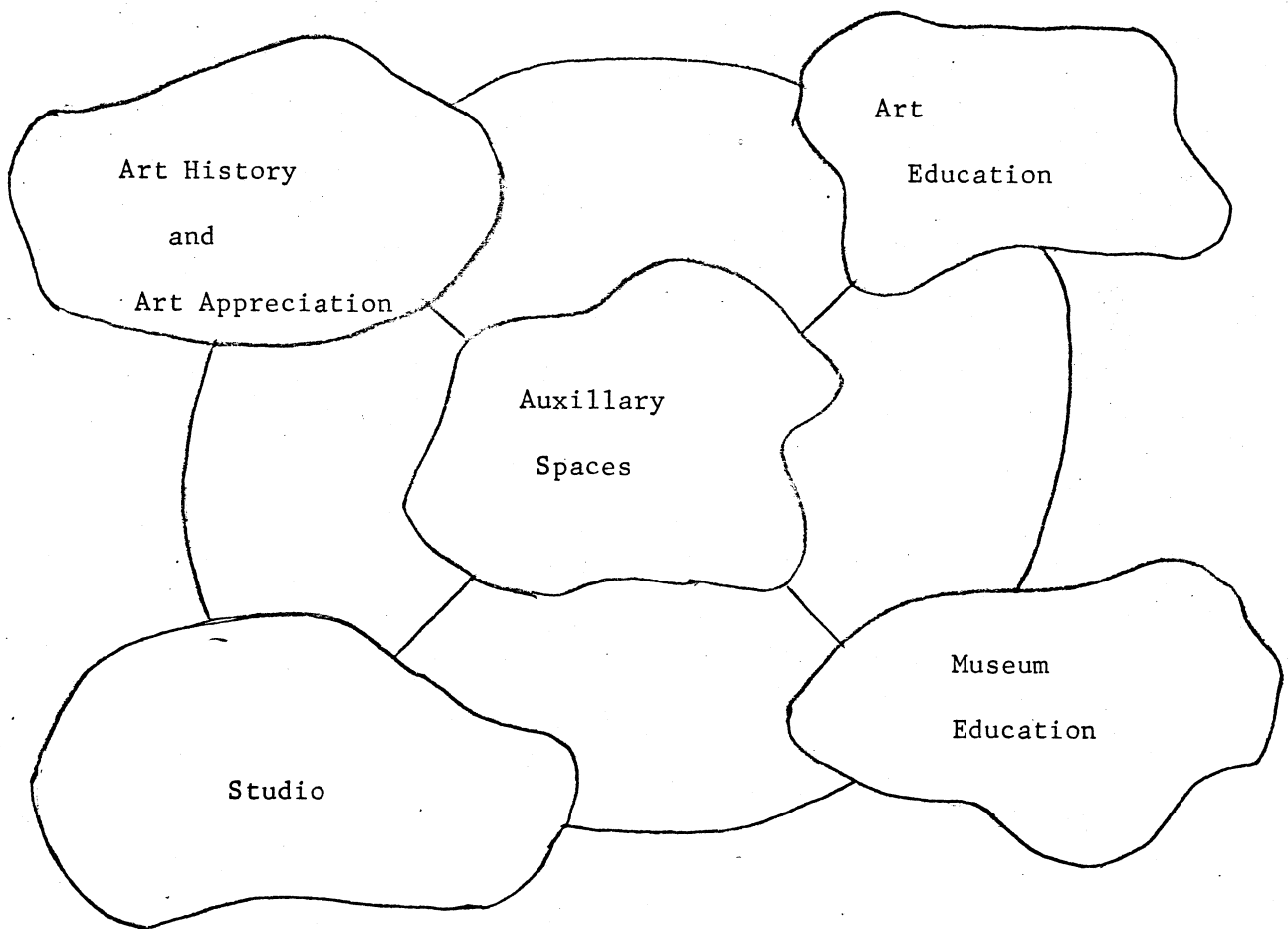
Office Space

Maintenance

Storage Space

Miscellaneous Space

Each one of the above should be a part of the major areas. To indicate this in the space diagram that follows these five areas will be called "auxiliary spaces."

Spatial Translations

Free-forms instead of rectangular or square areas are used to avoid suggesting a building form or that the building is rectangular in shape.

The lines indicate that there is an interrelationship between all the areas.

The lines fanning out from Auxillary Spaces to the other areas indicates that it is part of each area.

The above simply indicates the basic areas that make up the visual-arts center.

GENERAL ARCHITECTURAL REQUIREMENTS

Before discussing the respective areas of the visual arts center, general architectural requirements, such as architectural ideas, concept of flexibility, and specific architectural requirements need to be considered, since the latter apply to the center as a whole. The intent is to call attention to the latter (for additional information consult references).

Architectural Ideas (3, 10, 11, 13, 20, 26, 29, 31, 32)

The proper functioning of the visual arts center calls for consideration of the following ideas:

To humanize the building for a less institutional appearance

To design the building in terms of the human scale and equation

To make spaces within the building functional; designed for activity and teaching small as well as large groups.

It is also recommended that in regard to the structure of the building one consider the following items:

To include several large-group spaces (lecture and otherwise).

To make all areas more attractive, livable, and enjoyable.

To make use of outdoor spaces for outdoor classes when feasible.



The Concept of Flexibility (40, 41, 39, 46, 47, 48)

What is architectural flexibility? Does it imply something that is,

convertible

adaptable

divisible

movable

re-movable

changeable

multi-purpose

vari-purpose

de-partronable

Does it refer to:

Additions to the main plant or structural changes?

Rapid change of space sizes and configurations?

Immediate flexibility by means of furniture and

furnishings that can be grouped or moved, nested

or stacked, re-arranged or removed?

Having at least considered the latter, the implication is to build flexibility into the center, implying a need for a variety of spaces specifically designed and oriented within the total building to satisfy the needs of various groups and classroom activities.

Parenthetically, it can be said to a certain extent that flexibility is related to how the art program is organized and implemented. A visual arts program that exhibits imagination and some freedom in its structure, form and function, will lend itself to architectural flexibility; rigidity seldom leads to flexibility!

### Basic Architectural Requirements

The basic architectural requirements considered here are apropos to any building or part of a building, not just the visual arts center. In respect to the planning of the center, one can become rather involved with special features of the various rooms; frequently, such basic requirements as those indicated below are completely overlooked or neglected:

Acoustics and Sound

Color

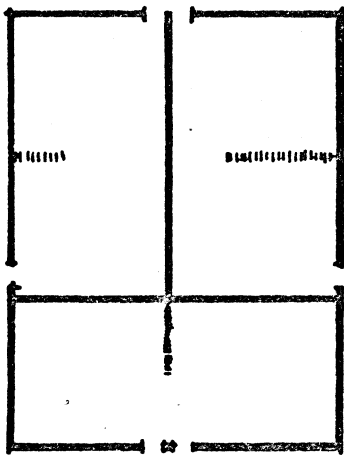
Controls

Lighting

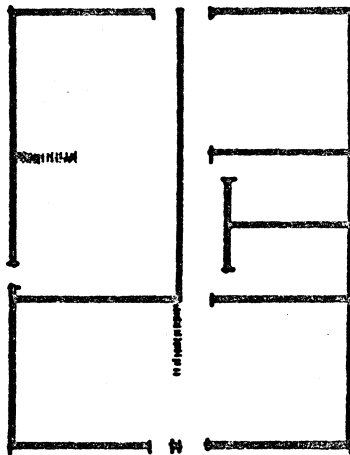
Room Temperature and Ventilation

Seating

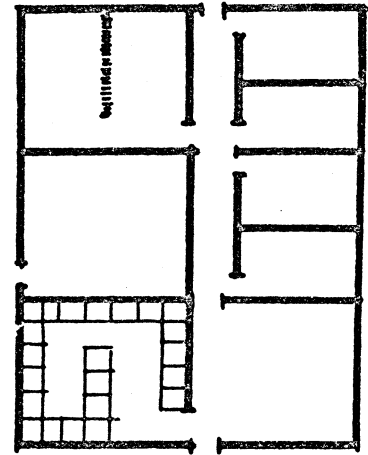
In the pages that follow general comments, suggestions, and recommendations are made in respect to the above as they generally apply to the visual arts center. (48)



*hour-to-hour & day-to-day flexibility*



*term-to-term flexibility*



*year-to-year flexibility*

*Other types of flexibility*

As previously mentioned, flexibility may be also achieved by providing a mix of facility types which are scheduled to meet varying needs and by allowing the interchanging of (age levels). It may be also achieved by under-utilization of the existing facilities. (48)

*Analyze type of flexibility by analyzing functions*

Analyzing learning spaces in terms of functions may help establish the appropriate type of flexibility:

- interchangeable functions: usually small spaces which can be converted from seminar to recitation to individual study, etc. The discipline is not the design standard: the varying functions it houses is. The key is convertability.
- specific functions, but multi-discipline usage: a lecture hall with media supports one educational process or one function; but it can be used by many different disciplines. The scheduling of these spaces provides flexibility.
- specific unidiscipline usage: some learning facilities can only house one function and one discipline; multiple uses are not appropriate.

*The architect is certainly faced with a real conflict between flexibility in one dimension and commitment in the other. What we're really looking for is some optimal compromise or "trade-off" between these two dimensions.*

*...Dr. John Cogswell*

## Acoustics and Sound (38)

Since the science of acoustics and sound is a complicated one, it is difficult to generalize; however, the following discussion may be helpful and cause one to think in the right direction, or at least to give more attention to this area.

Primarily, good acoustics and sound is dependent on the following:

- Control of sound in the room
- Control of sound outside of the room
- Floors
- Inter-space noise "controls"
- Intra-space noise "controls"
- Shape of the room
- Sound conditioning materials
- Sound systems
- Space dividers

These nine factors are basic to achieving good acoustics and should be discussed with an architect. Meanwhile, for background information it would be advisable for one committee member to read the Educational Facilities Laboratories Publication on acoustics, "Acoustical Environment of School Buildings."

Here acoustics is simply mentioned to call attention to the fact that it should not be neglected. The same holds true for the other factors that have been listed.

*Problems  
vary with  
size of rooms*

Good hearing conditions are obviously essential in all spaces where the learning process requires listening. Listening is essential in learning rooms of all sizes, from the small conference rooms to large auditoria, but good hearing conditions are seldom a problem to achieve in smaller spaces. As the size of the space increases, so also does the importance of acoustical design, and the proper planning of large spaces may require the assistance of acoustical experts.

*Small and  
medium size  
rooms*

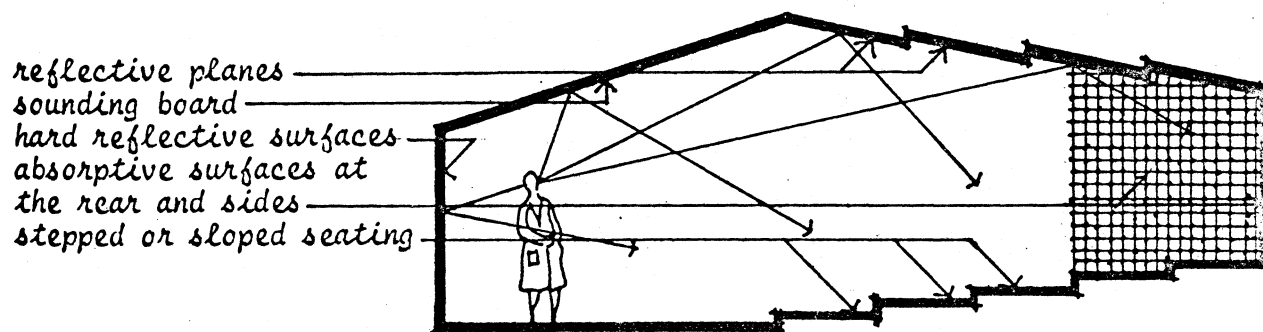
Surface treatments and finishes in small rooms have relatively little effect on hearing conditions. In the medium group spaces accommodating up to 60 persons, it will generally suffice to provide a peripheral area of absorptive material on all sides of the room except that occupied by the instructor. A major part of the ceiling area should be hard and reflective to reinforce the instructor's voice or other sound source.

*Large rooms  
cause  
biggest  
problems*

In the larger group spaces, the disposition of reflective and absorptive surfaces, including the shape of the room itself, becomes increasingly important as the room dimensions and the distances sound must travel become larger. The objective should always be to so dispose these materials within the room that occupants do not receive perceptibly delayed repetitions of sound. If the surfaces lining the room are hard, and therefore sound-reflective, sound waves are bounced back and forth many times before they die out, and a long "reverberation period" results. When large areas of porous, and therefore sound-absorbent material such as carpet, upholstered furniture or special acoustical "blankets" are introduced, the reflective energy is greatly reduced. Sound is largely absorbed and dies away quickly; the reverberation period is greatly reduced. (48)

*Acoustical  
facts of life*

These acoustical "facts of life" have important design implications. They dictate that surfaces relatively close to the sound source should be reflective to amplify and disperse the sound, while surfaces behind the audience, facing the sound source, should be absorptive to minimize reflection and reverberation. The provision, in



## Color (33)

Color, to say the least, is a complicated subject; at best, what can be said here is the refer to some basic facts about color and make a few recommendations. To begin with,

Colors are not confined to walls and woodwork;

There is color in materials: brick, stone, wood, metal, and the like;

There is also color in bulletin boards and their displays, furniture, drapery, and the like;

There is also color provided by the students - their clothing.

At the outset, there is more color than one realizes. Particularly the colors of the room must be co-ordinated rather than remain a riot of color. In respect to the latter, the following two approaches are suggested as guide lines for developing a well co-ordinated color scheme:

Employ the approach used by interior decorators, architects, and artists

Consult a good book on color design or interior decoration for elaboration on the subject

or

Also approach the matter of color from a scientific and analytical point of view in respect to reflective properties of color as related to proper lighting.

The brevity of this discussion of color is intentional. The concern is to call attention to color as an important factor in

room design; and that there are two approaches to color, the human side (interior decoration) and the scientific side, (reflection and lighting) which need to be considered carefully.

In other words, one must not treat color as an afterthought; color is very much a part of architectural design.

#### Controls (6, 48)

It has been said that a lecturer likes to have everything under control or at his fingertips. Thus, consideration should be given to the location of light switches, convenience outlets, and audio-visual equipment. Obviously, if controls are in the wrong place, teaching is greatly hampered, particularly in respect to the operation of projection equipment.

#### Lighting (6, 47, 48)

Lighting, like color, is a complicated business, and certainly is more than just placing some light overhead. This is particularly true of a room used for audio-visual purposes. The discussion that follows is intended to serve as guide lines and call attention to certain factors pertaining to lighting. These factors are enumerated as follows:

<u>Solution:</u>	Lighting experts do not present a single solution to the problem of lighting.
<u>Type of Room:</u>	These should be "high lighted" with "spots" or special fixtures.



- Windows: If there are windows in the room the factor of daylight needs to be considered. Appropriate blackout curtains may need to be considered here.
- Activities: In many respects, it is the kind of activities that are carried on which determines the type of lighting installation, such as,
- "Unaided" lecture: Good over-all lighting for taking notes is necessary.
- Chalk and bulletin: These should be "high lighted" with "spots" or special fixtures.
- Projected materials: In general, dimmers or special lights are required for note-taking:
- Rear Screen: Rear-screen projection makes it possible to leave over-head lights on if they are dimmed;
- Back-of-the-Room: Back-of-the-room projection generally requires that general illumination be turned off or dimmed considerably, or the use of concentrated ceiling spots.
- Glare: Another important factor that needs to be emphasized is that lighting be glare-free. Glare problems indicate that existing lighting is poor to begin with. In general, glare problems can be controlled in two basic ways:
- At source: The immediate source of light, the design of the fixture type of transmitting or diffusing shield angle of source to a glare-producing surface;
- At the task: Avoiding strong contrasts of light, such as light and dark areas, and reduction of reflecting surfaces, such as furniture, nearby surfaces, and paper.

There are other miscellaneous facts to consider, For instance, the student's concentration is reduced considerably by strong

contrasts of light. Also unshielded or undiffused lighting is distracting and direct sunshine entering a room causes acute visual strain. Furthermore, lighting, like color, can inspire, dramatize or emphasize, and call attention to, according to the type of installation and skill of the user. The diagrams that follow illustrate some of the ideas discussed. (48)

*Optimum conditions  
for viewing media*

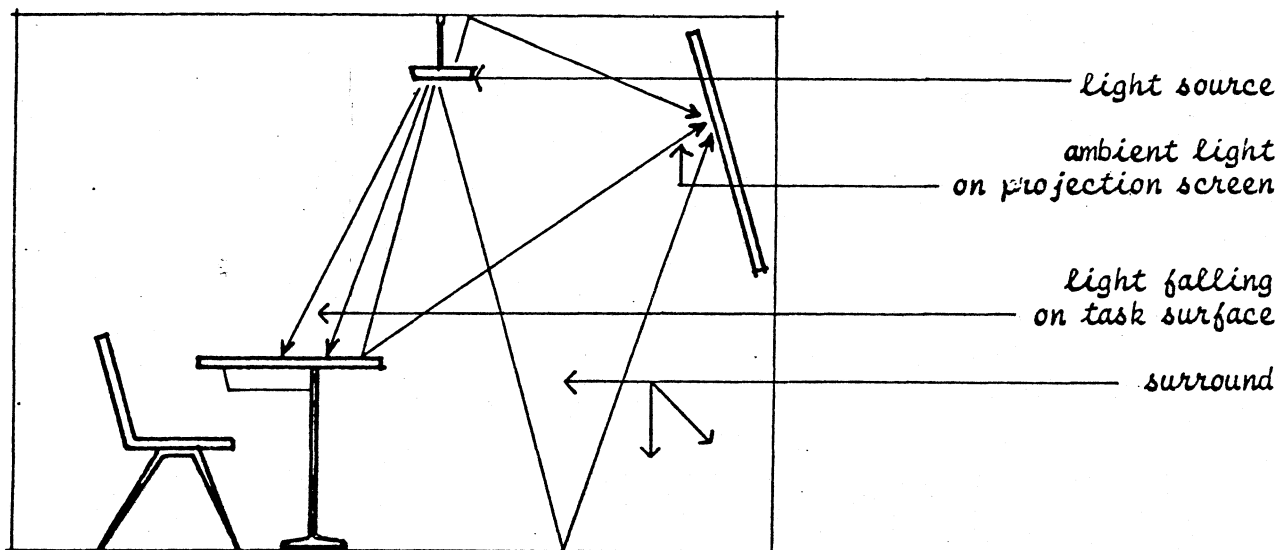
Optimum conditions for the viewing of projected media impose two basic requirements in respect to room lighting:

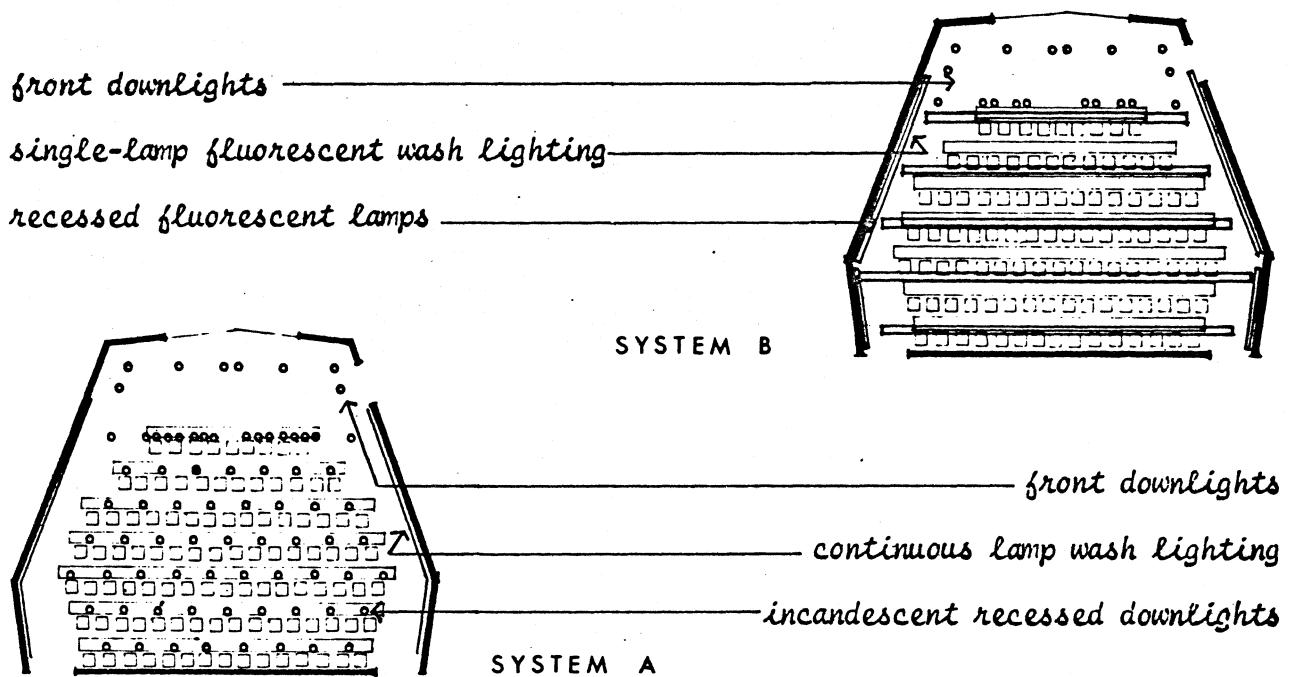
- the provision of appropriate levels and quality of illumination concurrently on the screen, the task surfaces and the surroundings, and
- the proper means and timing of lighting controls.

The typical conventional classroom is deficient on both counts. Usually darkening of the room necessitates lowering the window shades, or placing special blinds, then turning off the lights, and the light switch seldom is located convenient to the projector. Then there is insufficient light for notetaking, and if the presentation is lengthy, drowsiness overtakes many of the viewers.

*Understanding  
of terms  
important*

In any discussion of lighting the understanding of, and distinction between, certain fundamental technical terms is necessary. Actually we don't see illumination. We see only brightness or light; brightness as reflected from a surface or transmitted through some medium, such as a flame or the sun itself. The light radiating from a source is measured in footcandles; the brightness of a surface, whether due to the reflection or transmission of light, is measured in footlamberts. A lumen is a unit measure of light quantity (luminous energy), and is used in measuring both footcandles and footlamberts. Either one is equal to one lumen per square foot of surface. The essential distinction is that in one case it's light coming from a light source onto the surface (incident light), and in the other, it's light emanating from it, either by reflection or transmission. (48)





Two types of systems for large group

For larger spaces two basic types of systems are possible. System A uses incandescent recessed downlights located in the ceiling over the seating area, with auxiliary lighting of the side walls by means of a continuous band of lamps mounted on the wall behind an opaque fascia strip. The whole system is controlled at predetermined levels by means of dimmers. System B consists of recessed fluorescent troffers placed in continuous rows across the ceiling paralleling the seating rows, with a directional 45° cut-off, parabolic reflector grid located below the luminaires and flush with the ceiling. Another line of single-lamp troffers with similar reflector grids is placed in the ceiling along each side wall to provide wash lighting on the walls. This system does not require dimmer controls; instead, several lighting levels can be provided by circuitry and switching. In both systems, accent lighting of the display surfaces, chalkboards, demonstration area and instructor's station can be provided by units recessed in the ceiling. Both systems could be completely controlled from the instructor's station by automatic switching tied-in with the projector controls.

Choice of a system

Naturally there are modifications and combinations of these two systems that would perform satisfactorily. The choice must be made by weighing factors such as initial and operating costs, maintenance costs, reliability, operating noise, and quality of desired light.

### Room Temperature and Ventilation (6, 47, 48)

There is perhaps nothing more disconcerting and uncomfortable than a room that is too warm, cold, or stuffy. But, more important than this is that such conditions greatly reduce the effectiveness of teaching and learning. A few facts pertinent to the latter are indicated below:

Mechanical Equipment: It is important to insist on proper engineering and heating and cooling system.

Optimum Temperature: On the basis of studies made, the optimum comfortable range is between 70-75 degrees with a relative humidity of 20-50 percent. This comfort range should be maintained the year round.

Ventilation: The proper air circulation should be at the rate of at least six changes per minute and tempered and filtered.

In essence the point is to give this area careful consideration; it must not be taken for granted that this area will be properly engineered.

### Seating (48)

Often seating is over-looked as a factor in teaching and learning; poor, uncomfortable, hard seats obviously reduce efficiency. The accent should be on comfort.

Classroom Seats: Contour, plastic or wooden seats with tablet arms are most suitable.

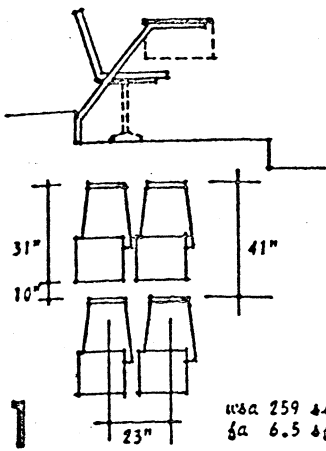
Auditorium  
and  
Large Lecture  
Room:

Cushioned or upholstered seats are best.

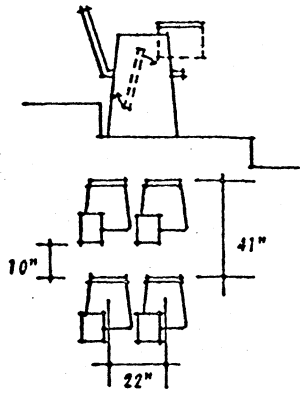
Selection of  
Seat:

The selection is dependent upon: size of room; level, stanted, or terraced floor; and color scheme.

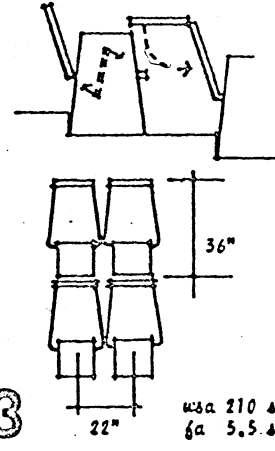
The diagrams that follow illustrate and comment upon additional ideas pertaining to seating. (48)



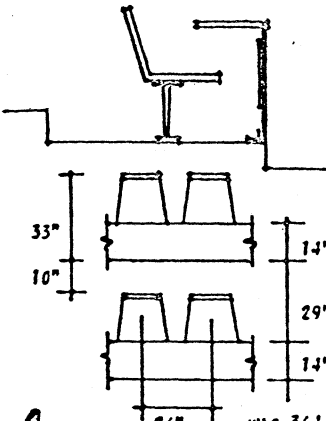
**1** wsa 259 sq  
fa 6.5 sq  
fixed seat & movable tablet arm



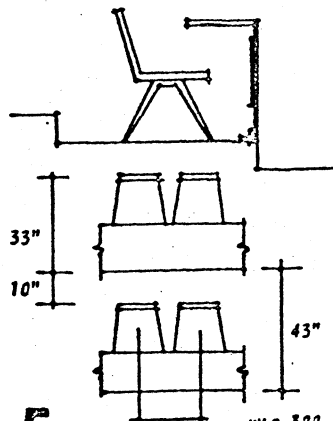
**2** wsa 98 sq  
fa 6.3 sq  
theatre seat & drop tablet arm



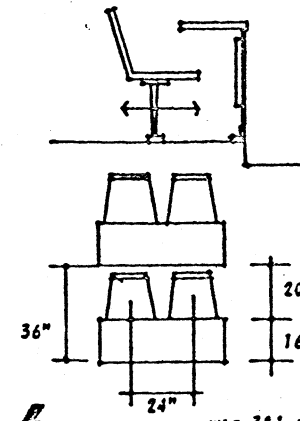
**3** wsa 210 sq  
fa 5.5 sq  
theatre seat & drop counter



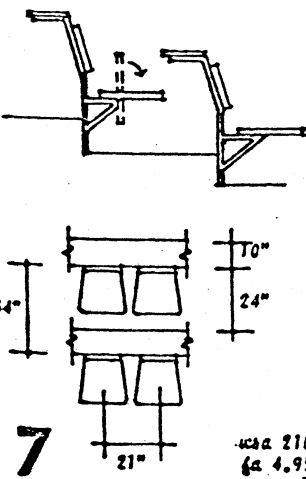
**4** wsa 364 sq  
fa 7.7 sq  
continuous counter & pivoted seat



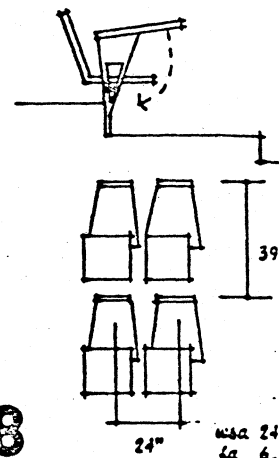
**5** wsa 322 sq  
fa 6.8 sq  
continuous counter & loose chairs



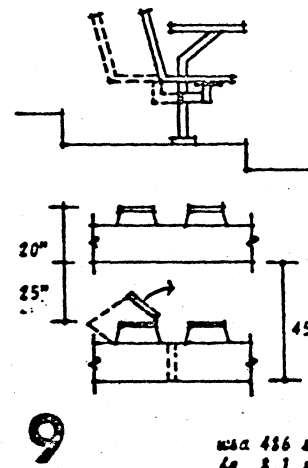
**6** wsa 384 sq  
fa 8.1 sq  
2-row counter & adj. pivoted seats



**7** wsa 210 sq  
fa 4.95 sq  
seat-back counter & folding seat



**8** wsa 243 sq  
fa 6.5 sq  
fixed seat & drop tablet arm



**9** wsa 486 sq  
fa 8.1 sq  
continuous counter & cantilever seat

wsa - writing surface area  
fa - floor area

(48) SEATING TYPES

3 / FURNITURE

CRITERIA FOR SEATING (48)

FUNCTIONAL VALUES

Writing surface: points for size and convenient location of surface. Surfacing material considered in comparing specific designs:

- maximum score.....14 points
- minimum score..... 6 points
- no surface at all..... 0 points

Book storage: points for adequate and convenient space in addition to writing surface:

- maximum score..... 5 points
- minimum score..... 2 points
- no storage at all..... 0 points

Adjustability: points for being able to adjust distance between writing surface and seat, and seat and floor; adequacy of legroom and knee-room:

- maximum score..... 6 points
- minimum if ample legroom:  
but no adjustment..... 3 points
- minimum score..... 0 points

Accessibility: ease of occupying and vacating seat and using writing surface without disturbing neighbors:

- maximum score..... 9 points
- minimum score..... 3 points

STRUCTURAL VALUES

Durability: points for strength, ruggedness of design, sturdiness of floor attachment, invulnerability to damage:

- maximum score.....12 points
- minimum score..... 4 points

Mechanical simplicity: points for lack of complex mechanisms and moving parts which increase costs of maintenance and repairs:

- maximum score.....10 points
- minimum score..... 3 points

EASE OF CLEANING

Cleaning floor: points for minimum interference of supports or attachments with cleaning the floor:

- maximum score..... 7 points
- minimum score..... 0 points

Cleaning total unit: points for minimum time and effort required for cleaning seat and writing surface:

- maximum score..... 5 points
- minimum score..... 2 points

ECONOMY OF SPACE

points for smallness of floor space required per unit:

- maximum score.....10 points
- minimum score..... 4 points

APPEARANCE

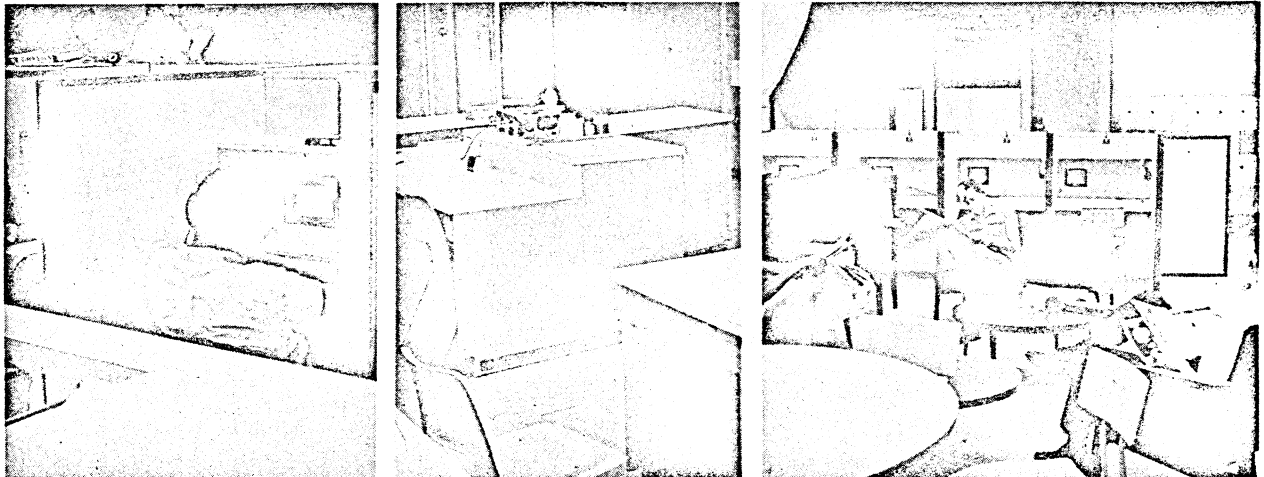
points for cleanliness and attractiveness of the design:

- maximum score.....10 points
- minimum score..... 0 points

COST

points for economy of installed unit:

- maximum score.....12 points
- minimum, if in normal  
cost range..... 5 points
- minimum, if exhorbitant... 0 points





### Summary and the Summary Chart

As has been stated a number of times, and indicated by the brevity of the discussion, the primary purpose of this section was simply to call attention to some basic architectural requirements that are often overlooked or neglected. These architectural requirements - acoustics and sound, color, controls, lighting, room temperature and ventilation, and seating - deserve the same consideration as the more seemingly important points made for each requirement that are summarized in the following chart.

## SUMMARY OF GENERAL ARCHITECTURAL REQUIREMENTS

Acoustics	<p>Control of sound important; likewise, noise</p> <p>Shape of room affects sound</p> <p>Hi-quality sound system = good sound</p>
Color	<p>Color is an important factor in room design</p> <p>Consider humanistic approach to color</p> <p>Consider scientific approach to color</p>
Controls	<p>Give consideration to location of switches</p> <p>Give consideration to location of outlets</p> <p>Controls in wrong place hamper teaching</p>
Lighting	<p>Give consideration to various types of lighting</p> <p>Give consideration to glare</p> <p>Give consideration to window black-out</p>
Room Temperature	<p>Do not take the engineering, installation of the heating - cooling - ventilating system for granted</p> <p>Temperature - ventilation related to comfort in dex</p>
Seating	<p>Classroom: contour, wood or plastic seats</p> <p>Auditorium: upholstered seats</p>

### Architectural Specifics

While the concern here is basically on preliminary planning, the committee should also be aware of the following specific factors:

- Responsibilities of Board
- Responsibilities of Administration
- Experts Consulted
- Educational Specifications
- Public Relations
- Sight Selection
- Contract with School Building Architect and Engineers
- Final Preliminary Specifications
- Statement of Preliminary Estimate of Cost
- General Conditions of Contract
- Cost Estimates Based on Final Plans and Estimates
- Problems Associated with Bidding
- Contracts of Construction
- Supervision of Construction
- Unit Costs and Their Interpretation
- Time Table for Bidding
- Legal Services
- Naming the Center

While considering architectural requirements, the committee may find the approximate square footage for various rooms and areas

helpful in arriving at the total square feet needed for the visual arts center.

#### Square Feet Per Student

Work Area and Stations . . . . .	.25'-40'	sq. ft.
Seating. . . . .	.5'-6'	sq. ft.
Average Cost per Square Foot . . .	\$.12-16	sq. ft.

#### Average Room Size Per Square Foot

Office . . . . .	.6'x10'
Storage Rooms. . . . .	.6'x10'
Small Audio Visual Classroom . . .	.30'x40'
Studio . . . . .	.30'x40'
Library Area . . . . .	.150'x250'
Large Lecture Facility . . . . .	.125'x150'-150'x200'
Art Gallery-Museum . . . . .	.150'x200'-200'x300'
Lobby. . . . .	.30'x70'
Reception. . . . .	.15'x20'
Art Education. . . . .	.49'-59'x25'-28'
Seminar. . . . .	.25'x35'-30'x40'

It should be understood that the specific factors listed here are extremely brief; however, a committee can use these factors as direction in planning.

### Extraneous Factors

In this section, as in the last, the purpose is to call attention, rather than fully discuss the various factors which have a definite influence on building and room design. Therefore, these factors should be "researched," looked into, and given careful consideration by planning committees. Some of the important features pertaining to those factors are commented upon in order to give the reader an idea in what ways they are related to architectural planning; perhaps this will be sufficient, not necessitating "research."

One may ask why they are called "extraneous factors." They are factors generally thought of being outside the realm of architecture, hence extraneous. In fact, what is listed are not factors at all. They are conditions, happenings, revolutions, and explosions listed below that may be regarded as factors.

Communications Revolution and Educational Technology

Knowledge Explosion

Population Explosion

Scientific Innovations

Social Revolution

The revolutions, explosions, and innovations have produced radical changes in the life of man and have opened up vistas, and an entire new way of life in the not too distant future; they

were hardly imaginable a few decades ago. In a sense, it is with these "dreams of the future," not the facts of the explosions and the like, that this section is concerned.

Communications Revolution and Educational Technology

(6, 7, 9, 15, 19, 31, 47)

The developments that have, are, and will take place in communications are far-reaching and earth-shaking and can rightly be referred to as a revolution. The following, for example, can certainly be regarded revolutionary:

- Automatic audio-visual devices
- Computers
- Copying machines
- Microfilm
- Miniaturized audio-visual devices
- Script Reader
- Teaching Machines
- Telcan
- Telemation
- Telstar and television
- Visual books

Undoubtedly, the reader is familiar with some of the "devices," but not all. For the record, they are commented upon collectively, emphasizing particularly the implications for education, teaching, classroom, and building design.

Miniaturized and transistorized equipment such as television receivers, tape recorders, and audio systems are the answer to learning spaces, such as carrells. It makes possible small compact units that can be arranged in a variety of ways. The light portable equipment can be built in as an integral part of each unit or brought to it.

Telcan, telstar, and television are all related. Telcan is a device which makes it possible to present a program which was shown earlier. In this way, timely programs via closed-circuit television can be presented as desired. Telstar, of course, brings the world to the classroom. As enrollments mount, teacher shortage increases more and further use of closed-circuit television is in order. Therefore, rooms need to be designed for television viewing.

Automatic Projectors, Computers, teaching machines, and telemation have one important thing in common; in various combinations they make possible a complete system of automated-programmed-instruction which does not require the actual presence of a teacher. Most introductory and survey courses will be taught by this method in the near future. Furthermore, one can no longer think in terms of the traditional class-room but new kinds of spaces in which to teach and learn.

Closely related to the above telemation which is a co-ordinated-integrated audio-visual system which improves the efficiency and effectiveness of audio-visual instruction considerably. It is a

system which readily lends itself to automated visual presentations or programmed instruction. Such a specialized system imposes specific design and room requirements which cannot be by-passed or ignored.

The laser beam, while it does not directly affect room design, is mentioned here because it opens up a completely new method of "signal transmission," by means of which many more signals can be transmitted over the beam at the same time than can be done by conventional means. This technique may have a great potential for "classroom" television.

Copying machines, microfilm, script reader, the visual book, and paper backs indirectly affect room design since they are related to new ways of teaching and learning. Copying machines, such as Xerox, eliminate laborious note-taking; the script reader visualizes microfilmed materials; the visual book which presents ideas visually (now being developed) is correlated with the audio-visual method of instruction. Also the readily available paper backs affect instructional-learning procedures and reading habits.

This brief discussion of the implications of the various devices is intended more as a "listing" than an explanation; the latter will be elaborated upon in the appropriate section. For purposes of reference, meanwhile, a summary chart of the important implications, and those for that of the other revolution are added to this section.



Knowledge Explosion (6, 7, 9, 19, 23, 39, 46, 47, 48)

Perhaps to alert one to the full meaning and implication of the knowledge explosion is to cite this startling statistic: all of the knowledge that has been accumulated since 8000 B.C. to 1949 A.D. has doubled in one decade, 1950 to 1960, and will double again by 1975!

The importance of this for the processing, dissemination and retrieval of information in respect to education, teaching, and learning, is now just beginning to be realized. In essence what it means is that any traditional approach in coping with the explosion of knowledge will not work, such as the usual lecture-textbook-classroom-library procedures.

Coping with the knowledge explosion means the development of brand new concepts and approaches to the whole educational process, particularly in respect to:

Curriculum

Teaching-method

Textbooks

Classes (size and schedule)

Library

Further, it means the utilization of every audio-visual device, teaching machine, and computer to expedite teaching and learning. In one respect, this is what the communications revolution is all

about: The development of better and new devices to cope with the ever-increasing amount of knowledge.

Finally, in view of the foregoing as it relates to architecture, it means that the "school house," likewise, will have to change to provide new spaces for the accumulation of knowledge and its dissemination, and new spaces in which to teach and learn.

#### Population Explosion (6, 7, 25, 47, 48)

Paralleling the knowledge explosion and the problems it has created is the population explosion. As in the case of the knowledge explosion, solutions to the population problems, increasing enrollments, shortage of teachers, and lack of classroom space call for radical changes in the educational process, teaching, and learning, implying again, that a new kind of "school house" is needed.

Stop-gap solutions will work for a while; however, eventually the latter will get overwhelmed by the population explosion, which has not stopped, leaving no other alternative but to try the "radical solutions," the same as proposed above and elsewhere.

#### Scientific Innovations (6, 47, 48)

Many scientific innovations and advancements have been commented upon in respect to the communications revolution; pertinent ones are:

Automation

New building materials and techniques

It is not what automation is but some of its consequences are that is of importance here. Sociologists and educators have pointed out that various types of educational programs will have to be developed to occupy the great amount of leisure time created by automation. This means that old facilities will be taxed to the utmost and new ones will have to be planned accordingly. The implications for planning a new visual arts center is obvious.

The new building materials, such as aluminum, laminated wood, plastic, structural glass, stainless steel, and re-enforced concrete, and the consequent new methods of construction, will obviously provide the new shapes and spaces in which to teach and learn. They are demanded by the innovations taking place in education. Therefore, consideration should be given to this entire area.

#### The Social Revolution (47)

The social revolution that is taking place, and will continue to take place, has created a new society, a new way to live, and a new attitude toward life which manifest themselves in such observable externals as:

Affluency

Casualness

Comfort

Individualism

Instantaneousness (speed)

Mobility

Self-service

The first four are self-evident as to what effect they have had or will exert on all of education, teaching and learning, students' attitudes and demands, and building design. For example, the latter account for the "plush," luxuriously furnished schools which are casual and informal in appearance and plan, emphasize comfort, and cater to the needs of the individual.

The last three are interrelated as are characterized in the idea of getting to and fro and getting things done as quickly as possible. This, of course, is where computers, data processing, programmed instruction, automated-audio-visual-presentations, open-stock and "automated-electronic-libraries," retrieval systems, and response systems came in; they all get the job of teaching done faster and more efficiently.

Thus not only to meet demands of the students, teachers, and public, but for the proper functioning of the devices, is it necessary to design and build the so-called "plush" schools. The implications of the above and this statement will become apparent as different areas of the center are considered.

## THE COMMUNICATIONS REVOLUTION

<u>Factor</u>	<u>Implications</u>
AUTOMATIC PROJECTORS: FILMSTRIP MOTION PICTURE SLIDE	<p>The fact that these projectors are automatic makes it possible to incorporate them as part of automatic-programmed-audio-visual-computer-instruction.</p> <p>This method is particularly suitable for presenting basic content of a course; thereby giving the instructor time to concentrate on the more difficult aspects of the course.</p>
COPYING MACHINES	Eliminates tedious note taking, copying or tracing of drawings, plans, and the like.
SCRIPT READERS READING MACHINES	Programmed content of course readily adapted to script reader and "reading machines" eliminates "bungled" lectures and organizes reading.
STEREO EQUIPMENT	Projectors, tape recorders, phonographs, television, and other audio-equipment can be plugged into it; thereby improving the quality of the sound as well as making them a part of the communication system.
TAPE RECORDERS	Can be used both for instruction and learning.
TEACHING MACHINES	Programmed instruction can be readily adapted to the various types of machines that have been developed.
TELE-CAN	Makes possible the "play-back" of educational T.V. programs via closed-circuit-television at any desired time.
TELEVISION	Eventually, the basic subject matter and content will be imparted by means of closed circuit television; eliminating the instructor and the classroom.

## INNOVATIONS IN EDUCATION - A RANDOM LISTING (48)

Grouping Students

Frequent regrouping  
 Variations in grouping  
 Independent study and projects  
 Small-group study and projects  
 Large groups in single lecture spaces  
 Large groups in multiple spaces  
 Large groups via radio and television  
 Flexible groupings  
 Multi-age and multi-class groupings  
 Stay-at-home learning  
 Pyramidal groupings  
 Little schools and schools-within-schools  
 Redeployment plans  
 Educational parks  
 Middle schools

Designing Curricula

Homogeneous and heterogeneous tracking  
 Independent learning  
 Elective sequences  
 3- and 4-track plans  
 Core curricula  
 Enrichment programs  
 Nongrading and continuous progress  
 methods  
 Home study and correspondence courses  
 Job retraining  
 Special programs for the gifted, disabled,  
 handicapped, and culturally-deprived  
 Continuing or broadening education  
 Pre-school programs  
 Learning systems analysis  
 Cooperative "work-learn" programs  
 Regional curriculum development projects  
 Curriculum study groups (PSSC, SMSG, etc.)

Organizing Time

Accommodating variable groupings  
 Individualized scheduling  
 New scheduling cycles  
 Extended and modular class periods  
 Frequent or continuous rescheduling  
 Student-planned class periods  
 Extended school day and week  
 Evening courses  
 Summer school remedial and enrichment  
 programs  
 Full school year  
 Trimester and quartermester plans  
 Co-operative "work-learn" plans

Utilizing Staff

Team planning and teaching  
 Discipline-oriented teacher teams  
 Multi-discipline teacher teams  
 Teacher cycling  
 In-service training programs  
 Echelon organizations  
 New teacher types and specialists  
 Teacher aids and assistants  
 Regional adjunct or supplementary staff

Improving Administration

Computer-based scheduling and registration  
 Automated data processing for routine work  
 Tracking and evaluation techniques  
 Automated test-scoring  
 Simulation models and techniques  
 Systems design of school administration  
 Regional administrative assistance  
 Space and resource utilization studies  
 Library mechanization  
 Computer-based requisitioning and inventory

Expanding Resources and Media

Systems approaches to using media  
 New types of printed and graphic materials  
 Programmed textbooks  
 New "write-on" surfaces  
 Audio and video recording equipment  
 Local, regional, international radio  
 Telephone and Tele-lecture communication  
 Language and audio laboratories  
 Sound slides and filmstrips  
 Single-concept films  
 Film cartridge projectors  
 Overhead, opaque and micro-projectors  
 Systems of audio and projection components  
 School and regional distribution systems  
 Miniaturized aids  
 Student response systems  
 Commercial educational television  
 Closed-circuit and 2500 mc. television  
 Airborne distribution systems  
 Teaching kits  
 Computer-assisted instruction  
 Simulation techniques  
 Computer-based resource listing and handling  
 Regional resource collections  
 Regional production of instructional aids  
 Regional broadcast origination  
 Information Storage and Retrieval

Here media  
are all  
these

Not wishing to belabor definitions, but desiring only to establish scope, this report deals with media in all these ways insofar as they affect space. Naturally more emphasis is placed on the newer media.

Historic  
development  
of media

The rapid expansion and development of learning media has been a phenomenon of this century, and the second world war can be identified as the major impetus. During the war, films, film strips, slides and records were perfected for helping to train the required civilian and military personnel. To these were added the opaque and overhead projector, and further refinements in film projectors in the period following the war. The 1950's brought the major development of television for education and more recently we have seen the growing use of programmed instruction and electronic-based information retrieval and data processing systems.

Maybe too  
many things  
to choose

From the listing of current media, one conclusion is evident; the educator has many—maybe too many—alternatives available as he structures learning situation with media.

#### LEARNING MEDIA -- MATERIALS AND METHODS (48)

<p><u>visual display</u></p> <p>projected-----8, 16, 35mm motion pictures slides, 2"x2" to 3 1/4" x 4" film strips overhead transparencies opaque materials shadows of 3-V objects</p> <p>non-projected--chalkboard surfaces charts, illustrations, graphics printed materials</p>	<p><u>combined audio-video</u></p> <p>sound motion pictures sound slides printed materials with recorded sound kits of audio-video materials</p>
<p><u>audio presentation</u></p> <p>recorded--records and tapes telephone broadcast radio systems for sound distribution</p>	<p><u>television</u></p> <p>broadcast and closed-circuit live and recorded reception by monitors, receivers, or projector</p>
<p><u>three-dimensional</u></p> <p>models, demonstrations, miniaturized materials</p>	<p><u>programmed instruction</u></p> <p>visual display and texts audio presentation combined audio-video presentation</p> <p><u>information systems</u></p> <p>film-recorded computer-based</p>

Media used  
to increase  
efficiency  
and  
effectiveness

Media have been used in education for two purposes—to increase both the efficiency and effectiveness of education. The book increased efficiency by making information available to more people economically; the chalkboard made classroom instruction more effective; and the training developments of the World War were certainly geared to efficiency. The current boom in learning media, supported by federal, state, foundation, and industrial programs, continues to be directed to increasing efficiency and effectiveness.

## THE KNOWLEDGE AND POPULATION EXPLOSION

<u>Factor</u>	<u>Implications</u>
THE KNOWLEDGE EXPLOSION	<p>In the past fourteen years (1950-1964) the cumulative knowledge "compiled" since 8000 B.C. to 1950 A.D. has doubled, and will double again by 1975; what this implies is:</p> <p>Traditional lecture method cannot possibly disseminate even the minimal amount of information.</p> <p>Libraries cannot possibly house all the necessary books.</p> <p>Suggested Solution:</p> <p style="padding-left: 40px;">New methods of instruction, plus A.V. - programmed method of instruction A.V. - electronic libraries Independent study</p>
THE POPULATION EXPLOSION	<p>Ever-increasing population has increased enrollments at all levels of education.</p> <p>The "solutions" attempted, now: restricted admissions policies, putting up more buildings, junior colleges, and the like is only a stopgap; solution is to be found in:</p> <p style="padding-left: 40px;">Converting, where feasible, all educational procedures to A.V. - electronic techniques;</p> <p style="padding-left: 40px;">An entirely new concept of education, procedures, teaching, and learning.</p> <p style="padding-left: 40px;">Completely re-design "classroom" buildings and dormitories.</p>



## THE SCIENTIFIC INNOVATIONS

<u>Factor</u>	<u>Implications</u>
AUDIO VISUAL DEVICES *	Aside from improved projection equipment, transistorized and miniturized T.V. sets and tape recorders open up many possibilities for teaching and independent study.  They can readily be checked out or be included as standard library carrell equipment along with teaching, copying, typing, reading, film-filmstrip- slide viewing-machines.
AUTOMATION AND COMPUTERS *	Computers make possible the automation of practically every educational process:  Student records Registration Teaching-learning by means of programmed instruction Programming audio-visual devices Automating audio-visual devices
LASER LIGHT	Makes possible multiple transmission of communication signals which have great potential for educational television.
NEW BUILDING MATERIALS AND CONSTRUCTION METHODS	Buildings can now be constructed that fulfill the new educational demands, such as special audio-visual-lecture-auditoriums and "classrooms."
TELSTAR *	International-educational-television is now possible: direct, live programs can be presented in the classroom; such as "Greek Sculpture in the British Museum."
AUTOMOBILE JET PLANE	These have transformed a relatively static society to a highspeed mobile society.

\* These three listed and discussed in confuction with communications Revolution; included here because they are also scientific achievements.

## THE SOCIAL REVOLUTION

<u>Factor</u>	<u>Implication for Education</u>
AFFLUENCY	<p>"Easy money" has accentuated wants and desires which, in many instances, have priority over education.</p> <p>For the college student: car, job, date, self-gratification, then education.</p>
CASUALNESS	<p>Way of life has changed from formal to informal; likewise, for manner of dress; both have invaded the classroom.</p>
COMFORT	<p>Comfort, in its larger connotation, implies that one is no longer willing to make sacrifices; educationally, this means students want good grades without doing anything.</p>
INDIVIDUALISM	<p>As automation, social pressures, complexities of life, and ever-increasing population gradually submerge and render man obsolete, he tries to gain recognition in bizarre ways -- ways that frequently create problems in the classroom.</p>
INSTANTANEOUSNESS	<p>While the tempo of life has increased considerably and schools have accelerated their programs, the basic point, here, is:</p> <p>regardless the task, get it done as quickly as possible, irrespective of quality; or students are no longer willing to spend any great amount of time on their studies:</p> <p>They want immediate results.</p>
SELF SERVICE	<p>A cardinal feature of the new way of life is self-service as exemplified by the pushcart and the super-market, drug, hardware, "dime" and book stores.</p> <p>Similarly, as many "educational services" as possible, should be put on the same basis, such as library (open-stack), registration, and book-store.</p>

## FACTOR SUMMARY CHART

Factor	Architectural Implications
Visual Arts Program	Provide special spaces for each of the four areas.
Media	Collectively, media influences all aspects of architectural design.
Activities	Design "active" and "passive" spaces.
Instruction	Different methods of instruction impose special spatial requirements.
"Extraneous" Factors	Influences all aspects of architectural design.
Communications Revolution	"Classroom" will eventually disappear.
Knowledge Explosion	Demands a new type of classroom to dispense knowledge and new type library to store it.
Population Explosion	Demands contractible, expandable, and flexible spaces.
Scientific Innovations	New technology and new materials make possible new types of buildings.
Social Revolution	Building must reflect social needs and attitudes of the people, e.g. comfort and speed.

## FACTOR SUMMARY CHART (CONTINUED)

Factor	Architectural Implication
Architectural Requirements	Specific architectural, construction, and technological details need to be given careful consideration.
Acoustics	To a certain extent determines shape and location of room.
Color	Aside from interior decoration aspects, it is important to maintain a balance between the scientific and humanistic qualities of color.
Controls	This requires special wiring circuits.
Lighting	Each area of the center demands special kind of lighting.
Room Temperature	Be sure heating-cooling-ventilating system is adequate, installed properly, and functions.
Seating	Should be arranged in terms of lines of sight and angle of viewing; should be comfortable and attractive.

## CHAPTER III

### THE ART HISTORY AND APPRECIATION AREA

Not too long ago it was a commonplace spectacle to see a student practically running across campus, carrying a projector in one hand and cannisters of film in the other, going somewhere, perhaps an art appreciation classroom. It was not uncommon that the room for showing films was totally inadequate. Fortunately this situation is gradually being changed as a result of the many centers that are being built on many a college and university campus. (39)

The art history and appreciation department occupy a position of importance in the visual arts program. This was brought about largely as the result of upsurge of interest in this area, requiring art appreciation for graduation, adding more courses in art history for art majors, and increased enrollment. (44) Accordingly, for the art department to carry on its program adequate space is needed; a couple of classrooms will not suffice. Thus, in the centers that have been constructed, adequate space has been given over to this area; a study of the plans will reveal this. (53-93)

Obviously, these plans are not too explicit. Little can be learned from them as to how a committee plans facilities for art history and art appreciation. This section considers this highly specialized area of the visual arts or fine arts center.

One way a planning committee can begin developing ideas for the art history and appreciation area is to think in terms of the media in the same manner that the center as a whole was considered. (19) In this section a step by step approach to planning will be presented using essential data to make the ideas clear. Subsequent areas -- studio, art education, and library -- here; to do so would only be a repetition of the same material. If need be, this section can be used as a reference.

#### Designing in Terms of the Media (48)

Planning is in terms of the media; the rooms are a result, not a starting point. At the outset, the nature of the media is analyzed in respect to,

kinds of activities

kinds of teaching

kinds of materials

that are carried on. These will be suggestive of the kinds of spaces that are needed. Upon further analysis of the activities, teaching, and

materials, the "specifics" of the various rooms can be spelled out. In other words, the kinds of teaching, activities, and materials not only determine the spaces needed, but the design, shape, and size of the rooms.

In respect to activities the natural question is: what kind? Similarly, what kind of teaching and what kind of materials? Accordingly, lists can be compiled and organized into a type of chart so that everything can be seen at a glance.

The next step is to interpret the chart which serves as the basis for the space allocation. This is followed next by an analysis of the factors that determine the design, shape, and plan of the rooms that make up the total area and those that need special attention.

The chart that follows refers to the media discussed above.

MEDIA CHART FOR ART  
HISTORY AND ART APPRECIATION

What Students Do	What Instructors Do
Sit Listen Take notes Look Study slides, prints Write reports Take tests Read Congregate before and after class	Lecture Prepare lectures Counsel students Conduct seminars Prepare demonstrations Put up bulletin boards Select slides, films, and other visual materials Use audio-visual devices
Materials *	Audio-Visual Devices *
Chalk Books Slides Filmstrips Prints Tear Sheets Films Art Replicas Transparencies Charts - Diagrams Works of Art Records Pointer	Computers Slide and Filmstrip Projectors Motion Picture Projector Overhead Projector Opaque Projector Tape Recorder Record Player Television Bulletin Boards Chalk Boards Easel Teaching Machines
Teaching Methods	
* The teaching method involves these two categories and is thus some combination of lecture and audio-visual method of instruction.	



## DIAGRAM OF DIFFERENTIATIONS IN PROGRAM

	<u>Art History - Appreciation</u>	<u>Other Areas</u>
<u>Activity</u>	<u>Passive:</u>  Sitting Looking Listening Note-taking	<u>Active:</u>  Moving Painting Drawing Sculpture, etc.
<u>Teaching</u>	Lecture- audio-visual	Lecture- audio-visual  Demonstration
<u>Materials</u>	Books  Audio-visual- instructional- materials	Paints, metal, charcoal, clay, wood, stone, paper, etc.

These are general differentiations - obviously there is and will be overlapping - and are diagrammed in this fashion simply to emphasize the differences between the respective areas.

Further, this chart, in conjunction with the preceding one, are one of the starting points for planning the visual arts center.

## General Interpretation of Chart

### Student Activities

It can generally be said that students primarily sit, look, listen, and take notes. However, seating should be comfortable with good lines of sight, sufficient lighting, good acoustics, and provisions for note-taking in respect to writing surface such as desk or table arm.

In respect to study in general, students should have a place for such purpose, namely an art library, or study room.

Since students are prone to congregate outside of the classroom before and after class, space such as a foyer, lobby, or lounge area should be provided, thus eliminating congestion in corridors and classrooms.

### Teachers Activities

Aside from teaching and the use of audio-visual devices and the like, upon which comment will be made later, preparation of lectures requires an office and perhaps an additional work space. Also for counselling students, an office or conference room will be needed; for conducting a seminar, a room for that purpose will be necessary.

## Materials

Collectively, the materials listed imply that a type of central storage area be provided for them, either in conjunction with the art library or as a separate space.

The next step is to break down the latter into respective areas and rooms. This process is called "determining spatial relationships."

### Determining Spatial Relationships

On the basis of the interpretation it is evident that various kinds of areas and rooms are needed as indicated by this list:

Public area (lobby and lounge)

Student area (lounge)

"Classrooms"

Offices

Storage rooms

Seminar rooms

Workrooms

Counselling and conference rooms

Maintenance room

Study room (Library)

Faculty Lounge

Many questions readily come to mind in respect to the above, such as:

Does the area need to include all the facilities listed above?

How many classrooms, offices, seminar rooms, storage rooms, work rooms must there be?

In regard to over-all area, what types of rooms, for how many students and instructors should be included?

What is the relationship of this complex to other areas of the center to duplication of facilities?

What is the relationship of the art history and appreciation complex to the total cost of the center or the percentage of the cost?

These are sensible and practical questions that naturally come into the minds of committee members. Some will be answered immediately so that the spatial translations can be properly made. Others will be accounted for later.

Number of Students: Facilities are planned for a university enrollment of approximately 10,000 students; 2,500 will be taking courses in this area per year with 300-500 art majors.

Number of Classrooms: On the basis of studies made, two large-scale lecture-type rooms for 100-200 persons and two small ones for 35-100 people are found. Also one large or two small divisible "auditoriums" are possible solutions.

Number of Offices: The average for a department in a university of this size is six offices, one for the chairman and five for the staff members. Actually the number

may vary between a low of three and a high of twelve. An outer office should also be included.

Number of seminar and counseling rooms: One seminar and one counselling room will suffice in accommodating approximately 15-20 people.

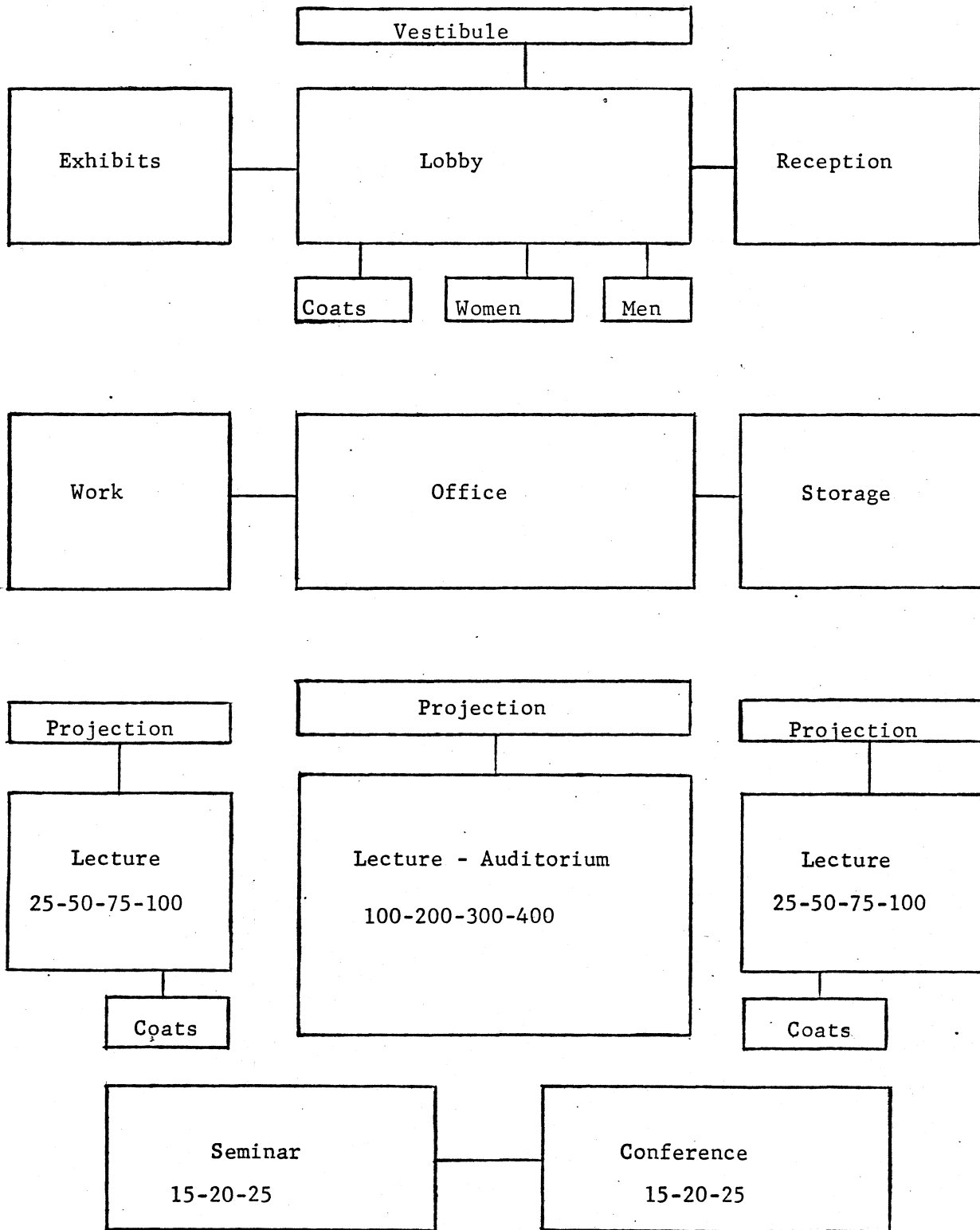
Number of Lounges: Two lounges are recommended, one for the faculty and one for the students accomodating 15-35 people per room.

The remaining areas such as lobby, vestibule and the like are related to the center as a whole, and it is difficult to specify how many are needed. However, one must recognize the fact that they are needed.

The study room could readily be a part of the art library. On the other hand, if the art library is part of the central library, then a study room is needed so that students can read and study slides and prints. A portion of this area could serve as the "storage room" for instructional-visual materials; the latter may be stored in the art library. As pointed out, designating these areas serves as a reminder that final decisions do not have to be made at once.

Now that some interpretations and answers have been made, the art history appreciation area can be translated into the following space diagram.

ART HISTORY - APPRECIATION SPACE DIAGRAM



### Designing the Facilities

Now that the spaces have been generally allocated the real task of planning begins. This step considers the many factors that determine room size and shape and other features of the room. Some of these have been discussed previously and should be kept in mind, and to these will be added many more.

Meanwhile, returning to the space diagram, it will be seen that the complex is made up of several smaller areas:

Instructional space

Office space

Public space

Student space

Service spaces

These will be discussed in the order listed. The order in which they are listed bears no reference to the importance of one over another for the sake of architectural logic. The instructional area determines to a certain extent the architectural requirements pertaining to the other areas. In any case, it is expedient to start with the instructional area.

#### Instructional Space

Referring to the space diagram it will be seen that it consists of the following:

"Classrooms"

Seminar - Conference

Study-Library

In respect to the instructional area a few general comments are in order. It is here where the real work of the department goes on and facilities must measure up to the task. The architecture must enhance the teaching learning process. Failing to do this reduces and often completely nullifies the effectiveness of teaching, learning, and the program in art history and art appreciation. The four areas indicated are all needed; to omit one begs the question implying that teaching-learning is only as strong as its weakest or missing link.

"Classrooms":	"Classrooms" implies <u>audio-visual rooms</u> especially designed for the use of <u>instructional-visual materials</u> ; an ordinary classroom, unless adapted, will not suffice.
Seminar - Conference:	Seminar - Conference indicates that one room can serve a dual function and facilitate a type of instruction; large spaces should not be used for this purpose.
Study-room Library:	This library is needed for the learning process. The "classrooms" is the springboard for learning, not the place of learning. Due to the importance of the study-room library, it will be considered in a separate section.

On the basis of omissions, there remain two types of rooms for consideration in the instructional area. They are the audio-visual room(s)



and the seminar-conference room(s).

Before launching into a discussion of these and subsequent areas, one must pause at this point and consider the art history-appreciation area as a whole in respect to various ideas discussed in the previous section. Architectural requirements and "extraneous factors" were among these ideas. The latter will be grouped together under the general heading of Factor Summary Chart.

Then, keeping these area requirements in mind, the specific audio-visual factors that influence room design can be considered.

## FACTOR SUMMARY CHART

Factor	Architectural Implications
Visual Arts Program	Provide special spaces for each of the four areas..
Media	Collectively, media influences all aspects of architectural design.
Activities	Design "active" and "passive" spaces.
Instruction	Different methods of instruction impose special spatial requirements.
"Extraneous" Factors	Influences all aspects of architectural design.
Communications Revolution	"Classroom" will eventually disappear.
Knowledge Explosion	Demands a new type of classroom to dispense knowledge and new type library to store it.
Population Explosion	Demands contractible, expandable, and flexible spaces.
Scientific Innovations	New technology and new materials make possible new types of buildings.
Social Revolution	Building must reflect social needs and attitudes of the people, e.g. comfort and speed.

## FACTOR SUMMARY CHART (CONTINUED)

Factor	Architectural Implication
Architectural Requirements	Specific architectural, construction, and technological details need to be given careful consideration.
Acoustics	To a certain extent determines shape and location of room.
Color	Aside from interior decoration aspects, it is important to maintain a balance between the scientific and humanistic qualities of color.
Controls	This requires special wiring circuits.
Lighting	Each area of the center demands special kind of lighting.
Room Temperature	Be sure heating-cooling-ventilating system is adequate, installed properly, and functions.
Seating	Should be arranged in terms of lines of sight and angle of viewing; should be comfortable and attractive.

### Special Factors that Influence Design

For purposes of reference, "the special factors" that determine the design, shape, and size of the audio-visual room are listed alphabetically. The "special factors" are those that are specifically related to the requirements imposed upon room design by the audio-visual method of instruction and the various audio-visual devices.

#### Bulletin Boards and Chalk Boards

It is sometimes forgotten that bulletin and chalk boards are an integral part of audio-visual instruction. For relatively "small" rooms the walls can literally be turned into one gigantic or continuous bulletin board interspersed in strategic places with chalk boards. (6, 17, 27, 30, 48) Consideration should be given also to the mobile and pole-cat type of boards. For details see the diagrams that follow.

#### Lecterns and Teleprompters

The kind of lectern and teleprompter considered here are the electronic type. The implication of these devices on room design is to provide adequate space "up front" so this kind of equipment can be used properly without obstructing vision or being too close to the screen. (6, 46, 47)

Lenses and Screens

Lenses and screens, in respect to focal length and screen width, "dictate" room size, length and width. The charts that follow, relative to 35 mm slide and filmstrip projectors, opaque projector, overhead projector, and 16 mm motion picture projector, indicate how room sizes (dimensions) are affected by varying focal lengths and screen widths.<sup>1</sup> The diagrams that follow the tables are a "visual interpretation of some of the specifications".

**2" x 2" DOUBLE FRAME 35MM SLIDES**  
APERTURE WIDTH — 1.34"

LENS FOCAL LENGTH	SQUARE SCREEN SIZE												
	40"	50"	60"	70"	84"	8'	9'	10'	12'	14'	16'	18'	20'
3"	7.5	9.3	11.2	13.1	15.7	17.9	20.1	22.4	26.9	31.3	35.8	40.3	44.8
4"	10.0	12.4	14.9	17.4	20.9	23.9	26.8	29.9	35.8	41.8	47.8	53.8	59.7
5"	12.4	15.5	18.7	21.8	26.1	29.9	33.6	37.3	44.8	52.2	59.7	67.2	74.6
6 1/2"	16.2	20.2	24.3	28.3	34.0	38.8	43.7	48.5	58.2	67.9	77.6	88.3	97.0
7"	17.4	21.8	26.1	30.5	36.6	41.8	47.0	52.3	62.7	73.1	83.6	94.0	104.5
8 1/2"	21.1	26.4	31.7	37.0	44.4	50.7	57.1	63.4	76.1	88.8	101.5	114.2	126.9
10"	24.9	31.1	37.3	43.5	52.2	59.7	67.2	74.6	89.6	104.5	119.4	134.3	149.3
12 1/2"	31.1	38.9	46.6	54.4	65.3	74.6	84.0	93.3	111.9	130.6	149.3	167.9	186.6
15 1/2"	39.3	48.1	57.8	67.5	81.0	92.5	104.1	115.7	138.3	161.9	185.1	208.2	231.3
20"	49.8	62.2	74.6	87.1	104.5	119.4	134.3	149.3	179.1	209.0	238.8	268.7	293.5

**35MM SINGLE FRAME FILM STRIPS**  
APERTURE WIDTH — .805"

LENS FOCAL LENGTH	SCREEN WIDTH												
	40"	50"	60"	70"	84"	8'	9'	10'	12'	14'	16'	18'	20'
3"	11.3	14.1	16.9	19.8	23.7	27.1	30.5	33.9	40.7	47.5	54.2	61.0	67.8
4"	15.1	18.8	22.6	26.4	31.6	36.2	40.7	45.2	54.2	63.3	72.3	81.4	90.4
5"	18.8	23.5	28.2	32.9	39.5	45.2	50.8	56.5	67.8	79.1	90.4	101.7	113.0
6"	22.6	28.2	33.9	39.5	47.5	54.2	61.0	67.8	81.4	95.0	108.5	122.0	135.6
7"	26.4	32.9	39.5	46.1	55.4	63.3	71.2	79.1	94.9	110.7	126.6	142.4	158.2
8"	30.1	37.7	45.2	52.7	63.3	72.3	81.4	90.4	103.5	126.5	144.6	162.7	180.8

**OVERHEAD PROJECTION**

LENS FOCAL LENGTH	APER- TURE SIZE	SQUARE SCREEN SIZE												
		50"	60"	70"	84"	8'	10'	12'	14'	16'	18'	20'		
6 1/2"	5"	5.4	6.5	7.6	9.1	10.4	13.0	15.6	18.2	20.8	23.4	26.0		
12"	7"	7.1	8.6	10.0	12.0	13.7	17.1	20.6	24.0	27.4	30.9	34.3		
12 1/2"	7"	7.4	8.9	10.4	12.5	14.3	17.9	21.4	25.0	28.6	32.1	35.7		
8.8"	10"	3.7	4.4	5.1	6.2	7.0	8.8	10.6	12.3	14.1	15.8	17.6		
12.5"	10"	5.3	6.3	7.3	8.8	10.0	12.5	15.0	17.5	20.0	22.5	25.0		
14"	10"	5.8	7.0	8.2	9.8	11.2	14.0	16.8	19.6	22.4	25.2	28.0		
15 1/2"	10"	6.5	7.8	9.0	10.9	12.4	15.5	18.6	21.7	24.8	27.9	31.0		
18"	10"	7.5	9.0	10.5	12.6	14.4	18.0	21.6	25.2	28.8	32.4	36.0		
22"	10"	9.2	11.0	12.8	15.4	17.6	22.0	26.4	30.8	35.2	39.6	44.0		
24"	10"	10.0	12.0	14.0	16.8	19.2	24.0	28.8	33.6	38.4	43.2	48.0		
26"	10"	10.8	13.0	15.2	18.2	20.8	26.0	31.2	36.4	41.6	46.8	52.0		
30"	10"	12.5	15.0	17.5	21.0	24.0	30.0	36.0	42.0	48.0	54.0	60.0		
36"	10"	15.0	18.0	21.0	25.2	28.8	36.0	43.2	50.4	57.6	64.8	72.0		
40"	10"	16.7	20.0	23.3	28.0	32.0	40.0	48.0	56.0	64.0	72.0	80.0		

**16MM MOTION PICTURES**  
APERTURE WIDTH — .380"

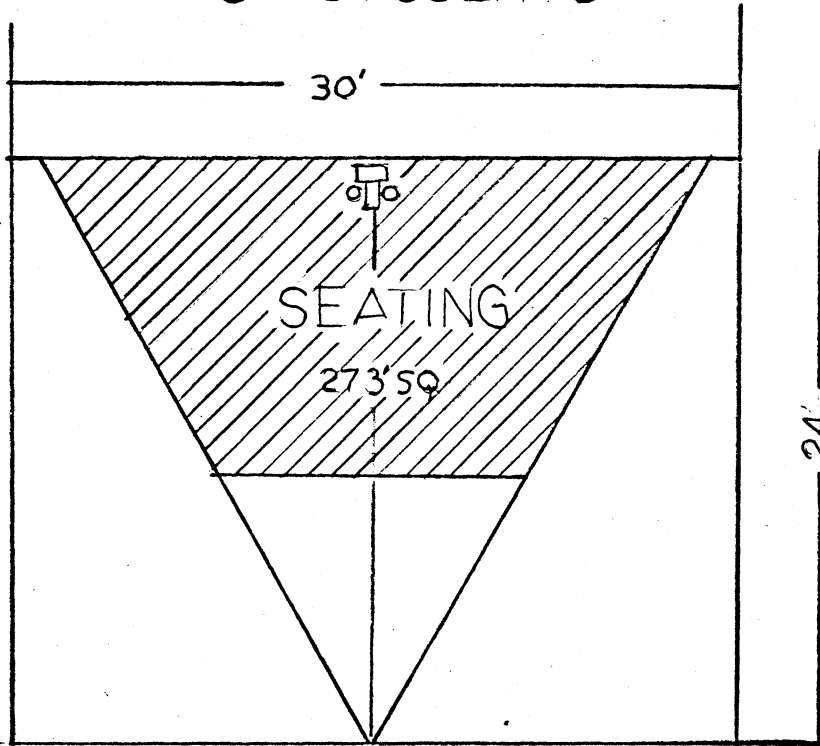
**OPAQUE PROJECTION**  
APERTURE WIDTH — 10"

LENS FOCAL LENGTH	SQUARE SCREEN SIZE						
	50"	60"	70"	84"	8'	10'	12'
18"	7.5	9.0	10.5	12.6	14.4	18.0	21.6
22"	9.2	11.0	12.8	15.4	17.6	22.0	26.4
26"	10.8	13.0	15.2	18.2	20.8	26.0	31.2

LENS FOCAL LENGTH	SCREEN WIDTH																	
	40"	50"	60"	70"	84"	8'	9'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'
5/8"	5.5	6.9	8.2	9.6	11.5	13.2	14.8	16.4	19.7	23.0	26.3	29.6	32.9	36.2	39.5	42.8	46.1	49.3
1"	8.8	11.0	13.2	15.4	18.4	21.1	23.7	26.3	31.6	36.8	42.1	47.4	52.6	57.9	63.2	68.4	73.7	78.9
1 1/2"	13.2	16.4	19.7	23.0	27.6	31.6	35.8	39.5	47.4	55.3	63.2	71.1	78.9	86.8	94.7	102.6	110.5	118.4
2"	17.5	21.9	26.3	30.7	36.8	42.1	47.4	52.6	63.2	73.7	84.2	94.7	105.3	115.8	126.3	136.8	147.4	157.9
2 1/2"	21.9	27.4	32.9	38.4	46.1	52.6	59.2	65.8	78.9	92.1	105.3	118.4	131.6	144.7	157.9	171.1	184.2	197.4
2 3/4"	24.0	30.2	36.2	42.2	50.7	57.9	65.1	72.4	86.8	101.3	115.8	125.0	144.7	159.2	173.7	188.2	202.6	217.1
3"	26.3	32.9	39.5	46.1	55.3	63.2	71.1	78.9	94.7	110.5	126.3	142.1	157.9	173.7	189.5	205.3	221.1	236.8
3 1/2"	30.7	38.4	46.1	53.7	64.5	73.7	82.4	92.1	110.5	128.9	147.4	165.8	184.2	202.6	221.1	239.5	257.9	276.3
4"	35.1	43.9	52.6	61.4	73.7	84.2	94.7	105.3	126.3	147.4	168.4	189.5	210.5	231.6	252.6	273.7	294.7	315.8

<sup>1</sup>1965 Industrial Photographic Catalog. Indianapolis: The H. Lieber Co., Inc.

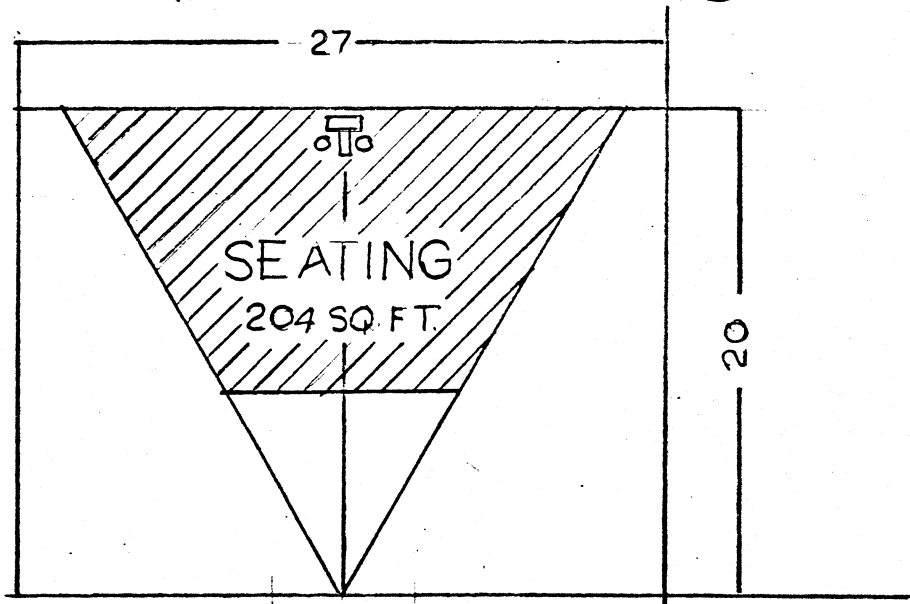
### A 203 36 STUDENTS



70in SCREEN 50in IMAGE

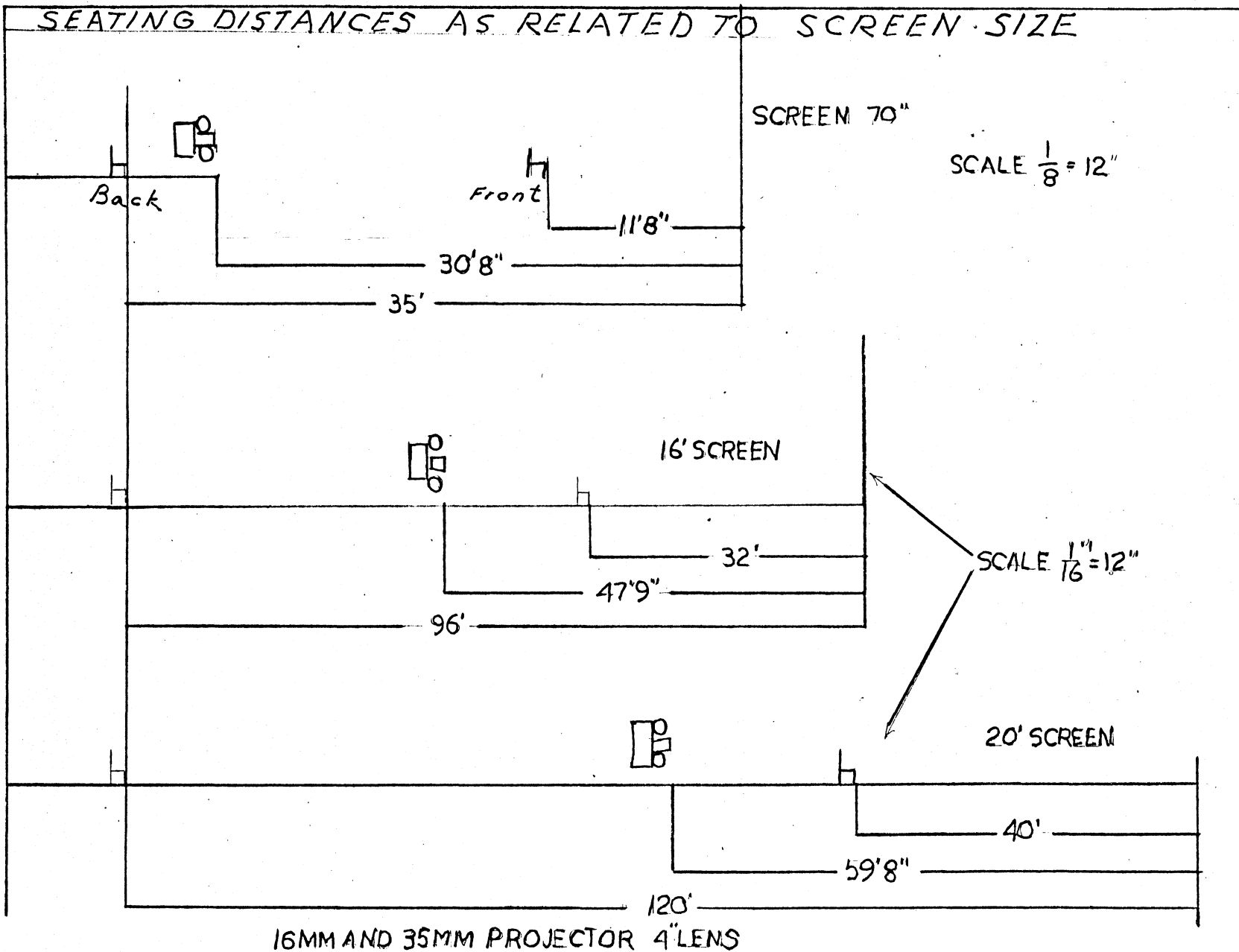
*Seating As Related To Sq. Ft and Image*

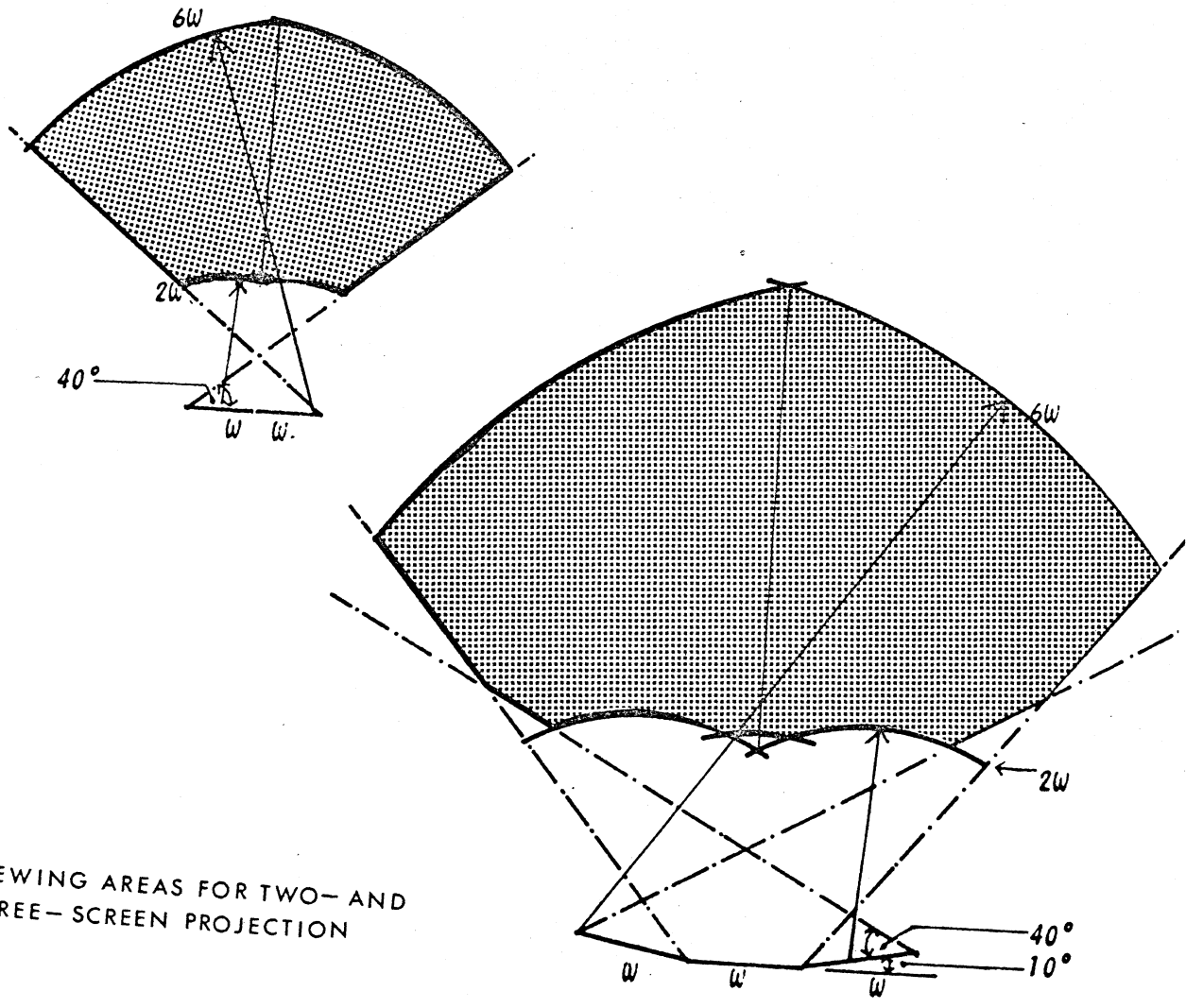
### COLEMAN 20 STUDENTS



70in SCREEN 40in IMAGE

SEATING DISTANCES AS RELATED TO SCREEN SIZE





VIEWING AREAS FOR TWO- AND THREE- SCREEN PROJECTION

### PLANNING THE PROJECTION SYSTEM (48)

Steps in design

Whether front or rear projection is to be used, the design of the projection system itself involves determining:

- a) the size of viewing area required
- b) the appropriate screen size
- c) the proper type of screen
- d) the appropriate projector(s)—the required lumen output, focal length and location
- e) the maximum permissible level of ambient lighting on the screen.



## STANDARDS (48)

Professional standards accepted by the Society of Motion Picture and Television Engineers have been developed for viewing front and rear projected images. These standards provide excellent images. However, for the purpose of economy in classroom use of projected media, it is felt that some standards based on the poorest seat in the room can be lowered, particularly for gross images. The following resume of standards indicates by asterisk (\*) those that are less than the professional standards.

Screen Brightness

## Motion Pictures:

- 5 Ft.L. - Minimum\* (gross images)
- 10 Ft.L. - Satisfactory
- 15 Ft.L. - Excellent
- 20 Ft.L. - Maximum (flicker threshold for some observers)

## Slides:

- 2.5 Ft.L. - Minimum\* (gross images)
- 5 Ft.L. - Minimum for slides with detail
- 10 Ft.L. - Satisfactory
- 20 Ft.L. - Excellent

## Projected TV:

- 2 Ft.L. - Minimum\* (gross images)
- 20 Ft.L. - Maximum (flicker threshold for some observers)

## TV Monitors:

100 lumens per square foot

Brightness Ratio

- 2:1 - Excellent
- 3:1 - Very good
- 10:1 - Acceptable\* under some conditions

Contrast Ratio

- 100:1 - Pictorial scenes
- 25:1 - Good legibility of printed characters
- 5:1 - White letters on black background
- 30:1 - Minimum\* contrast ratio for poorest seat dictated by higher levels of classroom light and many types of projected materials.

Contrast ratio is determined in part by non-image brightness which, in turn, is related to screen reflectance and room ambient light. Therefore, controlling the amount of ambient light reaching the screen is important. For large screen installations, if the amount of ambient light occurring at the screen is held to 1-2 Ft.C., the contrast ratio will normally be adequate.

Writing Surface Lighting Levels

Ideally, an average ratio of 1:1 between writing surface brightness and screen brightness should be maintained, while not spilling excessive ambient light on the screens. Since screen brightness varies for each seat in the viewing area, the average condition of brightness for each broad class of projected material should be approximately satisfied. For a medium to large size room, three lighting levels would be in the range of:

- 5-10 Ft.C. - Projected TV and films
- 10-20 Ft.C. - Slides
- 30 + Ft.C. - Other class activities

## Lighting

Aside from the usual type of lighting, the audio-visual room, large or small, requires special lighting, such as localized spots distributed throughout the ceiling for note-taking, and spots for highlighting bulletin and chalk boards, easels, displays, demonstrations, panel discussions, dramatizations, television cameras, the the like that are especially needed for a large audio-visual room.

Further, the entire lighting system should be wired -- control boxes instead of switches -- so that various lights can be turned on and off at the lectern and "back stage" in case that a technician is responsible for the lighting sequence. (6, 46, 48)

## Location

Large Audio-Visual Room (48)

Since it is likely that the large audio-visual room will be used for other than class purposes, such as for public lectures, and since large groups of students will be going to and from it every hour during the day, it should be located at ground level.

Large bodies of students going up and down stairs would create too much confusion among other things. If plans call for an upper or sub-level location, ramps instead of steps will partially solve the problem.

It should be remembered, however, that the best location for a large audio-visual facility is at ground-level.

Small Audio-Visual Room (48)

Since relatively few students will be coming and going to the smaller audio-visual rooms, they can be located on the second floor in order that they not take up valuable ground-level space. However, if such rooms are part of the art-history-appreciation complex, locating them will split the instructional area.

On the other hand, the smaller audio-visual rooms may be part of the large facility, or the latter is sub-divided into smaller areas

as desired. Actually, this may be the best solution, not only in respect to location, but for equipment installation.

#### Method of Instruction

The following are the teaching methods that do not rely on the use of audio-visual devices:

Demonstrations

Dramatizations

Moders, Replicas, Real Things, Use of Panel Discussions

Collectively, listed below are teaching techniques requiring performance space:

Demonstrating:	Ceramic techniques
Dramatizing:	dance group - demonstrating various types of rhythms
Panel Discussion:	group, about a table, discussing some aspect of art.

Demonstrations generally require a demonstration table (roll-on-type) and some equipment. If demonstrations are televised to other areas or for "closeups," additional equipment is needed, such as television cameras and lights.

Dramatizations take many forms, and may or may not require props; however, they will require performance space.

Panel discussions usually take place at a table with microphones. If televised, additional special equipment is needed.

In spite of the brevity of the description, it should be evident that to carry on the teaching techniques effectively "performance space" and "television space" are required. These spaces are indicated in the diagrams that follow.

#### Models, Replicas, and Real Things (6, 14, 47, 48)

These are very much a part of audio-visual teaching techniques. Displaying, requiring space and props, and their use are the factors related to room design. For example, tables and props are used for display purposes. There is also the need for the instructor to walk around the displays as he points out different things about them.

Another factor to consider is that the displays be seen beyond the front row; this is particularly important with large lecture rooms. A slanted or terraced floor will help some; likewise, the installation of a reflecting mirror tilted at a 45 degree angle thereby reflecting "unseen" parts of display on background screen.

Transmitting the displays to television screens is another solution which, as pointed out, requires additional space for equipment and their operation.

#### Programmed Instruction (6, 7, 23, 47, 48)

It was mentioned elsewhere (Communications Revolution and Educational Innovations) that programmed instruction, in the not-too-far-distant-future, will automatically "teach" practically all of the survey--introductory, freshman and sophomore level--courses. Thus, it is expedient to see in what ways programmed instruction affects room design. There are certain aspects of programmed instruction which may influence room design, size, and shape, particularly, if such instruction makes use of special equipment or "hardware."

The latter may refer to the various types of teaching machines, visual scopes and keyboards, response systems, and "desk units," which may or may not, be integrated with a computer, telemation, or both. On the other hand, such instruction may be via closed circuit television. In either case, some special demands are made. For example, visual scopes and keyboards require a special type of installation called "stations." This implies that each student occupies a station. An installation of this type is appropriate for small group instruction. Similarly, teaching machines and desk units require a type of station or desk. Basic to each is the special seating and desk or station arrangement.

Programmed instruction via closed circuit television or telemation, on the other hand, does not involve desks or stations but they only meet their special installation requirements. The latter are discussed in subsequent sections.

### Projection Equipment

In respect to determining over-all dimensions of the room in terms of projection equipment, consideration should be given to other factors than focal lengths of projection equipment. Space is occupied by the equipment itself and the space taken up by the type of "installation" to be considered. These two and the focal length of the lenses together determine the approximate final dimensions of the audio-visual room.

Actually, it is the manner of installation that is the determining dimensional factor. For example, in classrooms one finds the projection equipment -- usually a motion picture projector and two slide filmstrip projectors -- on projection carts at the back of the room. This represents one type of installation, and the other are projection booth and rear screen.

The first, as pointed out, is most common because of its simplicity of installation; however, the other two are more complicated of the structural elements involved--that is, the booth (a structure) may be an adjacent room or a "room" in the middle of the audio-visual room.

Rear screen implies that additional room-like-space is needed behind the screen.

The advantages and disadvantages of each are listed below and should be taken into consideration before deciding which type of installation to use as well as the diagrams that follow which also show the effect the respective installations have on room dimensions and related factors.

#### Projection Cart:

##### Advantages:

Equipment can be moved in and out of room as desired.

Equipment can be moved to any position in the room.

Appropriate for small audio-visual rooms and classrooms.

Facilitates operation of equipment (manual, re-mate control, or automatic).

##### Disadvantages:

Carts take up in-room space, creating operational problems and seating problems if room is relatively small.

Noise from machines may interfere with lecturing, discussing, and hearing.

Room must be relatively dark.

Projection carts may create a hazard.

Equipment can readily be stolen, if room is not always locked when in use.



Projection Booth:

Advantages:

- Eliminates taking up space in the room.
- Eliminates machine noise and cord hazards in the room.
- Appropriate for larger audio-visual rooms.
- Safe-guards equipment.
- Booth, if large enough, may serve as storage and work room.

Disadvantages:

- "Fixes" equipment.
- Requires additional space beyond that of the room, itself, whether inside or outside of room.
- Room must be relatively dark.

Rear Screen:

Advantages:

- By clever installation, equipment occupies very little space.
- Because projection equipment is close to screen it produces bright images.
- Lights in room only have to be dimmed slightly. No special ones are needed for note-taking.
- It lends itself readily to telemation and it is appropriate for any size room.
- Noise and cord and theft hazards can be eliminated.

Disadvantages:

- None: it is the ideal solution to projection and the audio-visual method of instruction.

Summary: Which one to select depends upon specific needs; however, regardless of which type of installation is decided upon, the space requirements must be taken into consideration. The diagrams that follow indicate what is implied.

Note: Programmed instruction, safe-guarding equipment, telemation and television will provide additional ideas.

#### Response Systems (6, 47, 48)

A response system, whether simple or complex, in essence, enables a "give and take" between instructor and student or class as a whole--a "device" which is most suitable for large classes. In fact, it is by means of the response system that the basic problem of large classes--the lack of any kind of contact between instructor and student--has been solved.

By means of microphone, buttons, or keyboard the student can ask questions or answer them or respond to test questions electronically. While a response system does not actually determine room size, it is mentioned here because wiring and outlets are required and need to be strategically placed. Since there may or may not be an immediate need for such an installation, the proper wiring and outlets should be put in accordingly.

### Safe-Guarding Audio-Visual Equipment (6, 48)

On the surface, it may seem that safe-guarding equipment has little to do with room size, shape, and design, as the following discussion will indicate.

Audio-visual equipment is expensive and should be protected against theft, mistreatment, and damage. While moving equipment in and out from a storage room, bulb filaments break, and other weaknesses develop. Equipment therefore should not be moved any more than necessary but should be installed permanently.

Such installations have been commented upon previously in respect to space and room design. Here, the safety factor is emphasized. Also, one more type has been added, the built-in. Comments will be made upon the items mentioned and on other helpful ideas.

#### Built-in

The term "built-in" means mounting speakers in the ceiling or on the corners and walls of the room. The speakers being out of reach makes it difficult to remove them. It is advisable to install part of the audio-system in the electronic lectern or in the wall behind closed panels. Especially designed cabinets will also work as a deterrent.

In general, built-ins apply to audio-visual devices other than projection equipment. Also, built-ins provide additional security in case the doors to the audio-visual room are left unlocked or someone actually breaks in.

#### Rear Screen and Booth

The relevant point in respect to these two installations is that all equipment (including projectors) is "housed" in a separate room which is secured behind doors that can be locked. This arrangement eliminates all temptation from the lecture room itself.

#### Summary

Regardless which type of installation is decided upon, adequate space and room preparation for built-ins must be provided. "Locking the barn after the horse is stolen" simply begs the question. Thus, due consideration should be given to the ways audio-visual equipment and devices can be safe-guarded.

For relatively small audio-visual rooms, the built-in approach is recommended and, for large ones, rear screen and booth installation.

## Team Teaching (6)

Team teaching, as in the case of the audio-visual method of instruction, imposes certain demands upon room design. It is for this reason, plus the fact that it frequently makes use of projection equipment that team teaching is "included" with the audio-visual devices.

In essence, however, team teaching demands performance space. Furthermore, aside from numbers of teachers involved in the team, it is a method of instruction which involves at times the following:

Audio-visual presentations

Creative Approaches and Activities

Demonstrations

Lecture

Multiple Presentations (2 or more teachers)

Panel Discussions

Single Presentations (one teacher)

What is needed is a room which is flexible enough to meet the demands of team teaching. Such a room, of course, is the audio-visual room.

## Telemation (6, 47, 48)

"Telemation" is a name coined by the Teleprompter Corporation to designate their automated and integrated system of audio-visual devices. The latter refers to the motion picture projector, slide projectors, record player, tape recorder, and television receiver which are linked together into a co-ordinated and automated system.

It is a system especially suitable for large scale instruction; however, it can be adapted to smaller class situations, even a seminar room. In any case, telemation is worth considering because of these special features:

It gives a new dimension to the audio-visual method of instruction.

It is more efficient and effective since presentation is pre-programmed.

It permits showing of multiple images: 2, 3, or 4 at one time, such as, single large image and a number of details.

All equipment is automated, but it can be controlled manually from lectern or it can be set in motion by means of a pre-punched tape which activates the equipment.

This system, thus, makes it possible to automate instruction for an entire course without the presence of an instructor.

### Installation

In respect to its installation, which is rear screen, it is readily adaptable to any size of audio-visual room, ranging from various size

various size conference and seminar rooms, small to large audio-visual rooms, and to the very large, separate, lecture auditorium type.

Conference-Seminar

These rooms are sometimes relatively large and telemation would be quite suitable; and by adapting the equipment would lend itself to the smaller rooms accommodating only 15-25 students.

Relatively small  
Audio-Visual Rooms

By "relatively small" is meant one that accommodated 30-60-90 students. Here, perhaps, more equipment could be added, bringing the fuller dimension of telemation to the group than is possible in the small seminar situation.

Lecture-Auditorium  
Audio-Visual Room

This is the large-scale audio-visual room, accommodating 100-150-200-300-400 or more students. It is here that the full possibilities inherent in telemation can be realized.

Summary: If this brief discussion failed to shed any light on what telemation really is, perhaps, the diagrams that follow will be a little more revealing. Meanwhile, the concern was in what ways telemation, as an installation, affected room size and shape.

In respect to the latter, and particularly after looking at the diagrams, it should be evident that, as the size of the facility is increased, the installation varies. Also, it should be apparent that the full potential is realized in the larger facility, particularly, the separate structure. It is in respect to the latter that the building is truly designed for the audio-visual equipment.

In any case, whether telemation is installed in a small seminar room or large audio-visual room, it will greatly enhance the teaching-learning process by virtue of the fact that the "rooms" are designed for telemation.

The Xerox diagrams that follow exemplify the various ideas that have been presented. The various types of audio-visual rooms and other details that are presented are indicative of the kind of room designs will function in terms of the media. For additional discussion and diagrams, the reader should refer to the excellent publication by the National Education Association: Planning Schools for Use of Audio-Visual Materials. (48)<sup>1</sup>

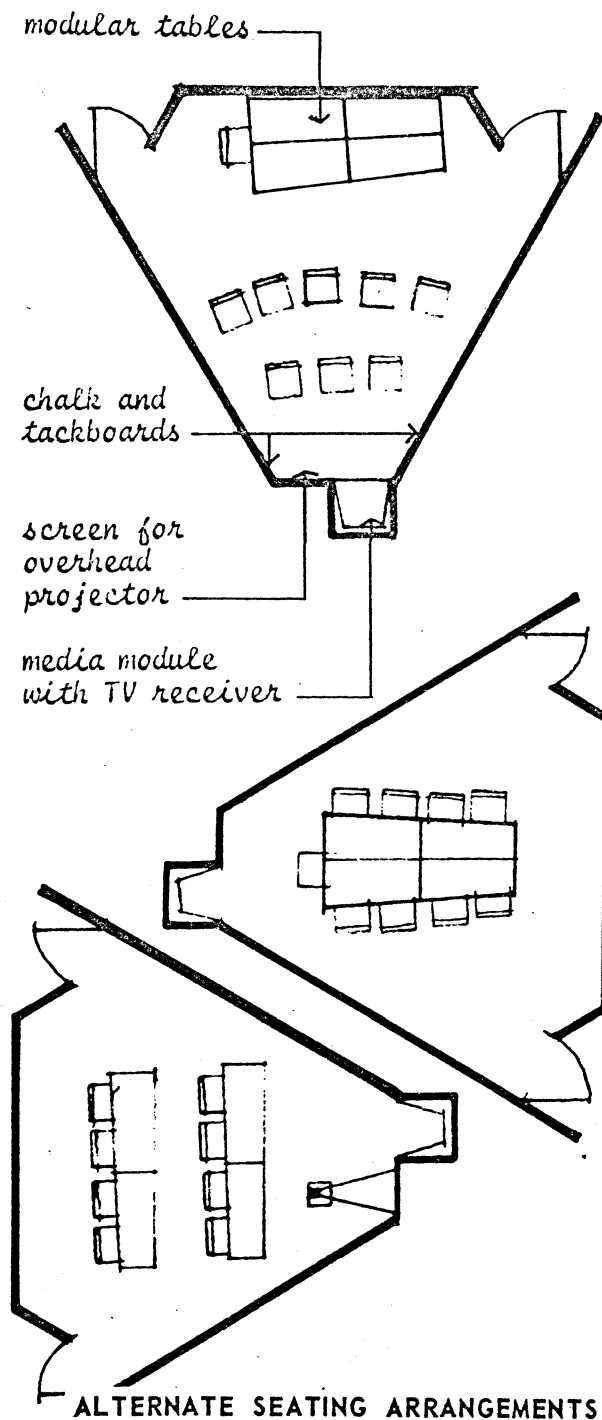
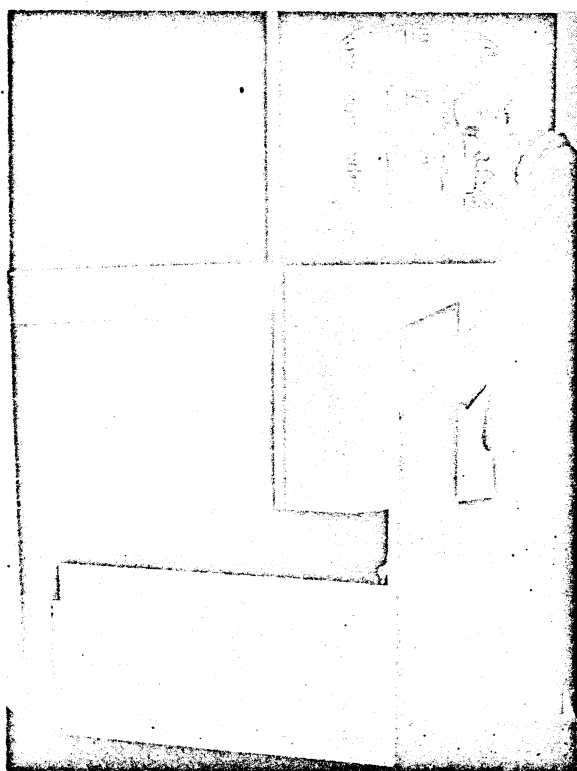
<sup>1</sup>Xerox diagrams are derived from this publication (48); also, Austin Tex. Fac. (41)



### SMALL-GROUP (STUDY SG-2) (48)

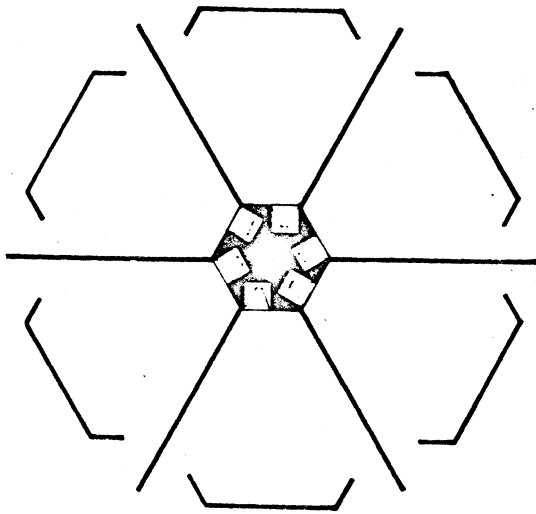
Wedge-shaped spaces can work well as conference and seminar rooms, and can also lend themselves to groupings for economy of space and circulation. Here three rooms, each based on an equilateral triangle and each planned with double access, a media module for slides or films, and an overhead projector are shown with different seating arrangements. In one, chairs can be grouped in circles or semi-circles, with the tables against the wall. For more formal presentations, chairs and tables can be arranged in rows facing the apex or media module. Finally, the tables and chairs can be put together in typical conference form. In any case, the seating occurs within the appropriate viewing area for the screens; the screens would have the characteristics of narrow viewing angle and high gain.

When several such rooms are clustered together, an equipment and service core is created. Media modules can be built-in or temporarily set in this core, utilizing common wiring and power service.

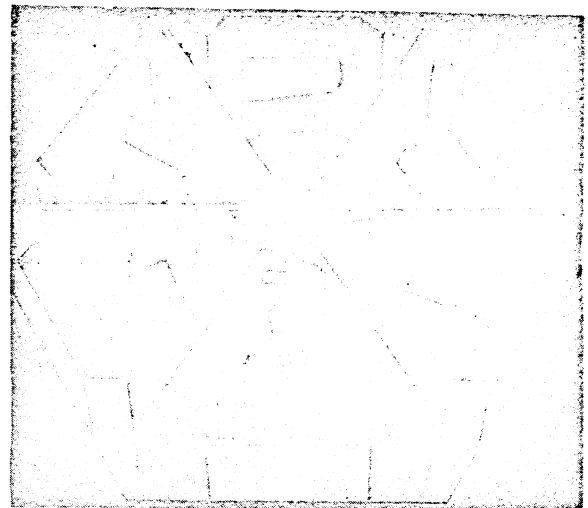


[Groupings of rooms such as these would work well for seminars and conferences at the secondary and higher levels of education, and could also serve as project rooms.] As elementary education programs move into nongradedness, some

rooms of this type will find their way into the elementary school. [Also, in a cluster of rooms of this type, one or two might be designated as teachers rooms or offices—probably with double occupancy—creating a “teacher office and seminar center.”]



PLAN



MODEL

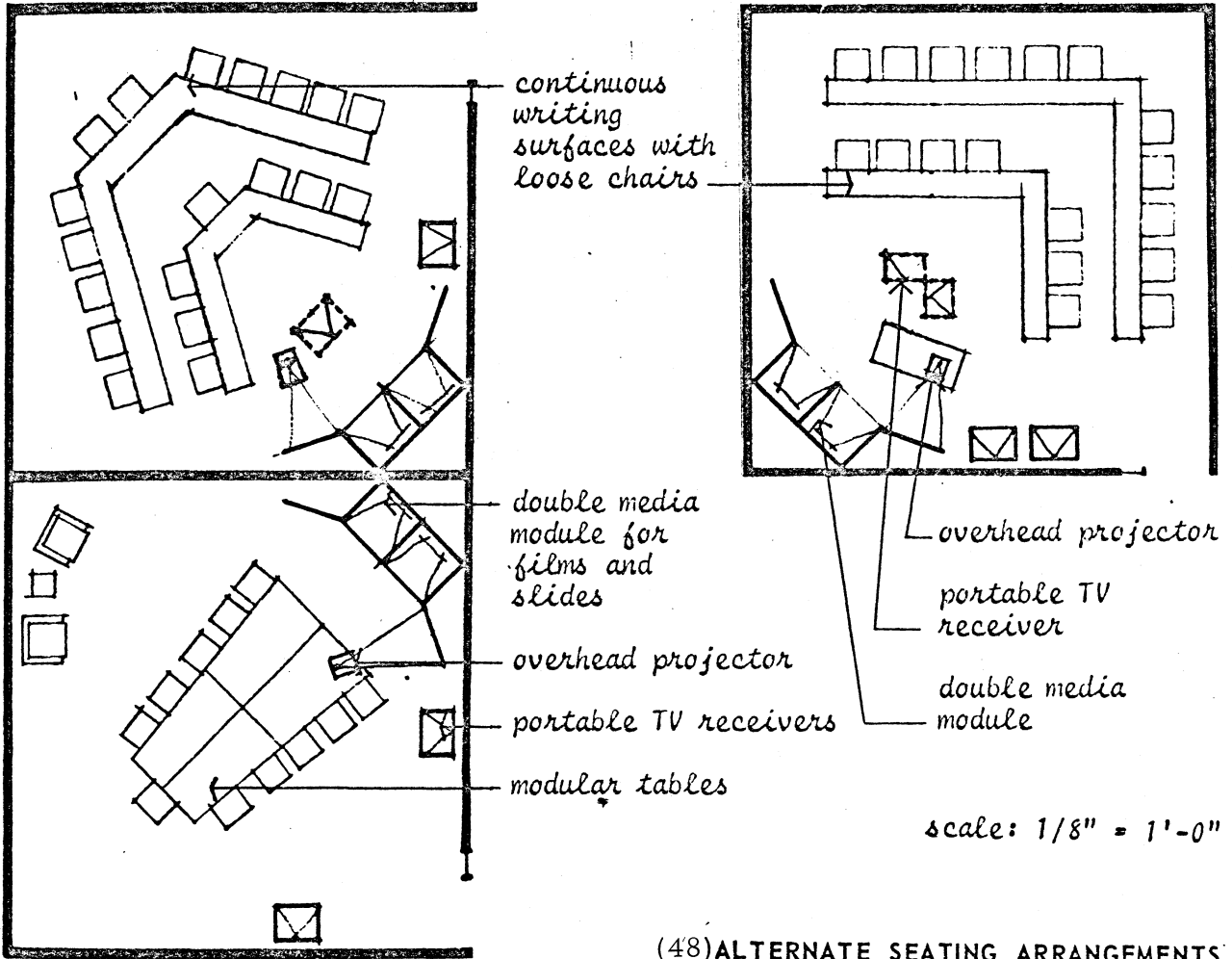
### [SMALL-GROUP (STUDY SG-3) (48)]

[When more extensive uses are made of media, and when multiple ways of displaying information are desired, the small group room will take on a more rectangular shape. Here, three plans indicate a basic square room with the media and display surfaces organized in one corner, toward which students will be focused. In this relatively small room, the arrangement will allow for a TV receiver, two media modules or screen surfaces, a front projected overhead projector, and chalk and tackboard surfaces, all of which fall within the appropriate viewing area. The different seating arrangements include modular tables and chairs for rearrangement possibilities, and the horseshoe-shaped fixed counters with loose seats. The small plan and model show how such seminar rooms can be grouped together. Obviously,

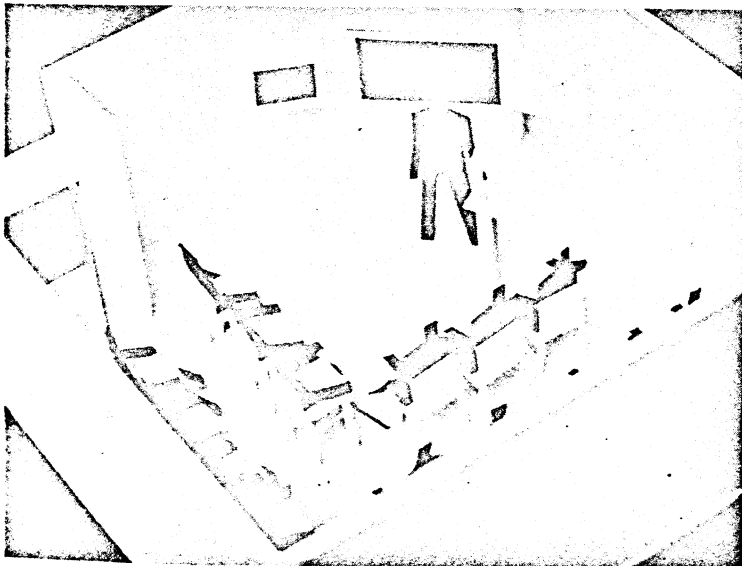
this basic plan is very adaptable to renovated and remodeled space. It shows that a corner orientation can make a square room appropriate for media, and economical of space.]

[In these schemes, the pieces of equipment may be either fixed in place as built-in furniture or may be mobile units which can be moved from room to room and rearranged as the instructional situation demands.]

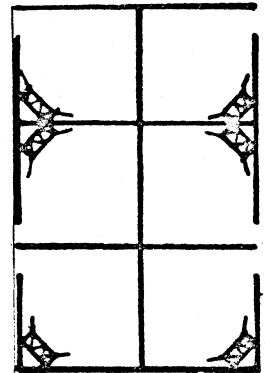
[This type of room seems most appropriate at the (secondary and) college level, and would likely be provided in banks or rooms loosely scheduled to allow “slack” for informal learning situations.]



(48) ALTERNATE SEATING ARRANGEMENTS



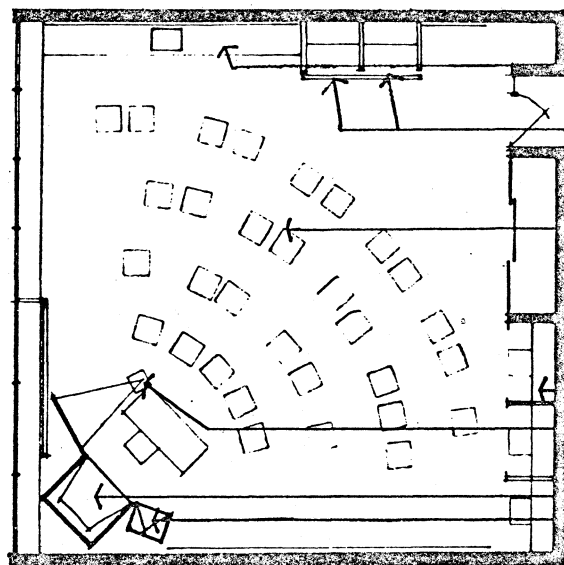
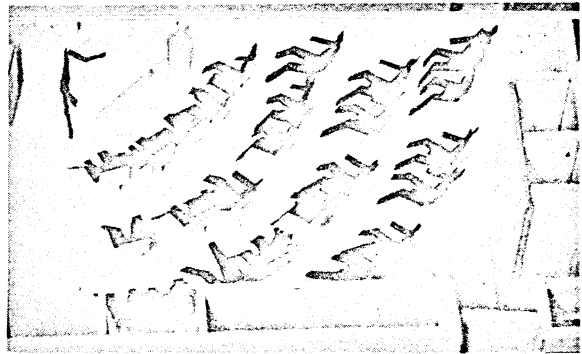
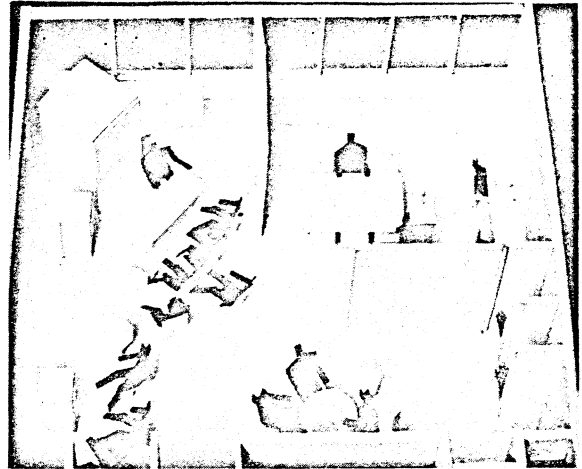
GROUP ARRANGEMENT



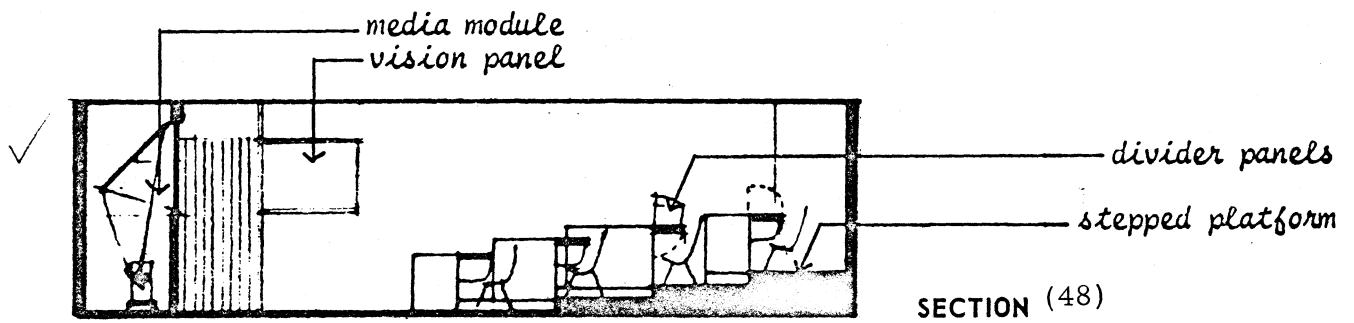
**MEDIUM-GROUP STUDY MG-1** (48)

The basic point illustrated by this scheme is that a square room is the optimum shape for medium-group spaces. The 30-odd seats are oriented to a variety of display surfaces and types of media located in one corner of the room. This orientation, in a square room, best encloses an optimum viewing area as shown in the plan by the arrangement of the seats. Around the periphery of the room are located project areas, coat area, independent study stations, and supplementary display surfaces. By using the media module, windows on the one wall may be as extensive or limited as desired, although draperies or shades will be required behind the media area to prevent glare in the face of the viewers.

The other plan and model indicate how the room can be quickly reorganized into a series of small-group and independent study activities. The loose tables and chairs are reoriented in seminar fashion; one or two groups may use the media modules and TV monitors. In all groups, the use of the overhead projector is made possible by the media module screens and the swing-out space dividers.

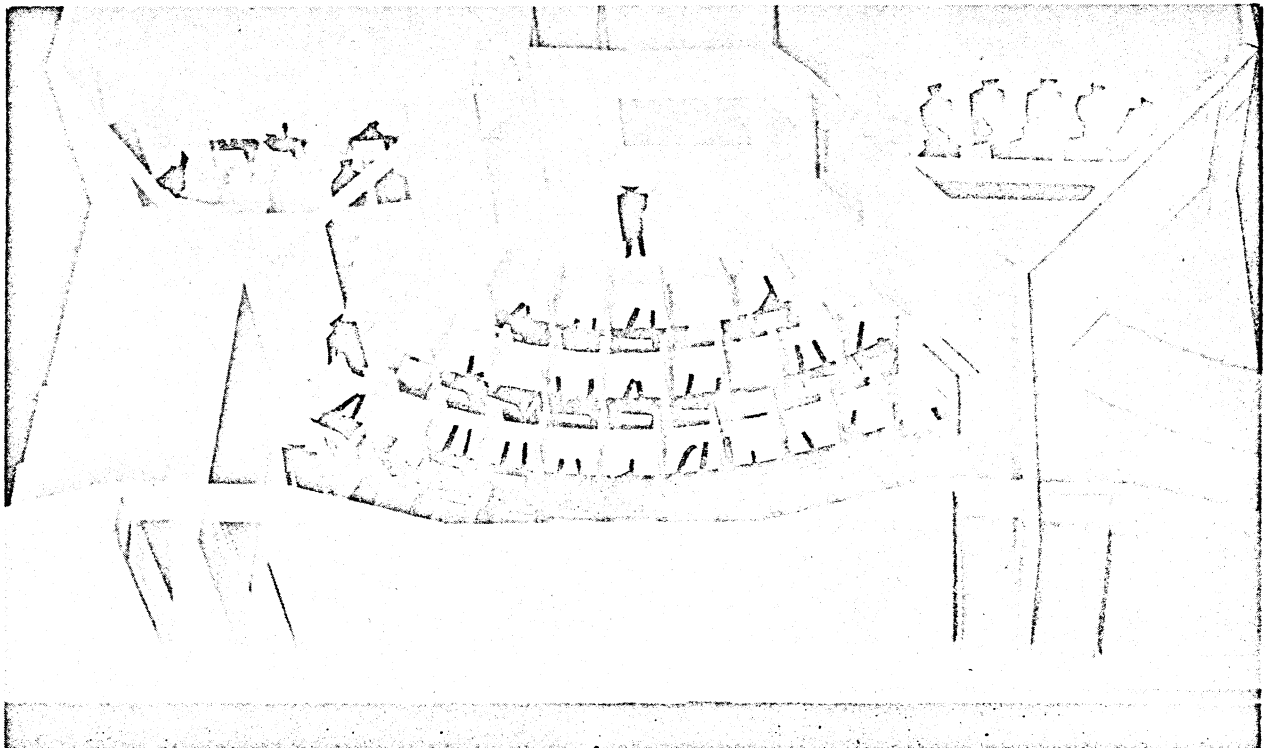


- scale: 1/8" = 1'-0"
- (work counter with sink)
  - independent study units
  - loose tables and chairs
  - coats and storage
  - independent study units
  - overhead projector
  - media module
  - TV receiver
- PLAN A



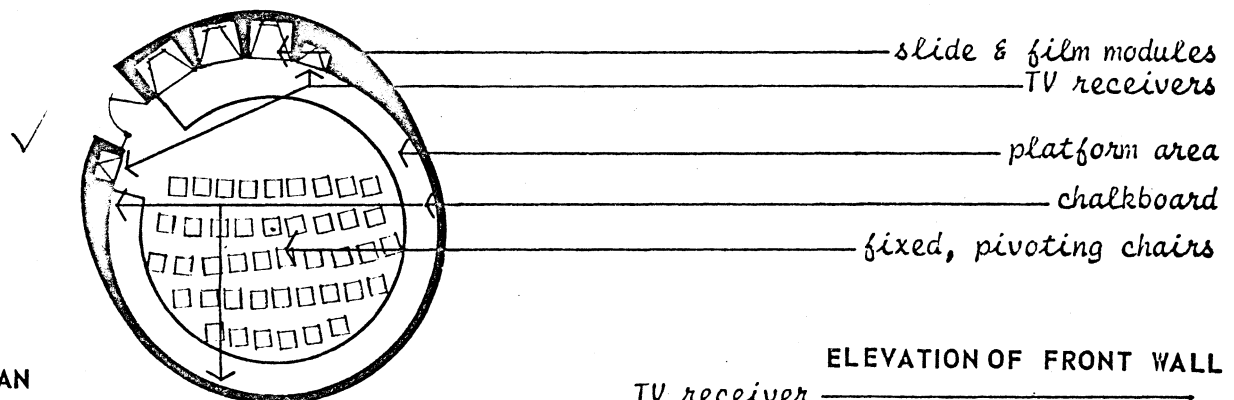
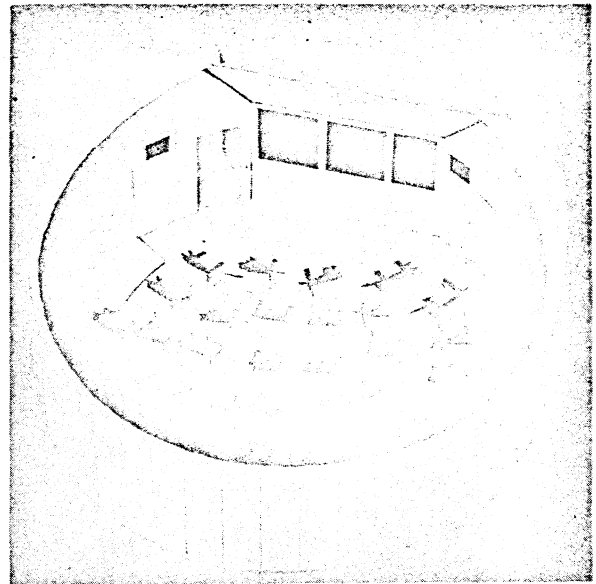
[The plan and section, (and the photograph of the model,) indicate the circulation pattern and the arrangement of furniture and equipment within the suite. The detail of the seating arrangement indicates that the lowering of the divider panel between student stations permits the group to function together, and may even encourage some interaction if it becomes appropriate.]

[Audio received in this room may be distributed from a number of sources—a central library, a central tape bank, remote locations away from the school, or tape decks within the suite. All of these possibilities should be considered and provided for in the selection and installation of the audio equipment and control system.]



[LARGE-GROUP] (STUDY LG-1) (48)

[This room is designed for 50 or more students with opportunities for displaying information which completely encircles the seating area. The 360-degree display surface consists of three media modules, TV monitors, overhead projection screens, and a large expanse of chalkboard and tackboard area. This concept of information display would be particularly appropriate in expository or developmental processes which are part of instructional techniques in science and mathematics; as the presentation or development of information takes place around the perimeter of the room, the students rotate in fixed, but pivoting, chair units.]

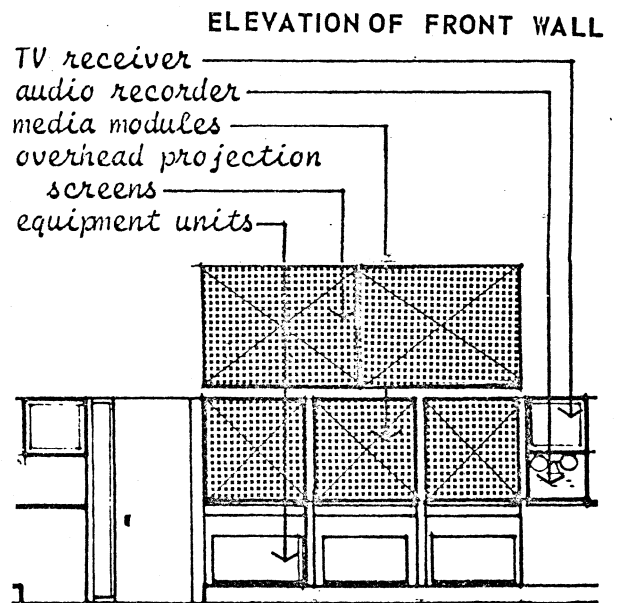


PLAN

scale: 1/16" = 1'-0"

[This kind of large-group room could exist by itself, or more likely, it would be surrounded by complementary discussion, seminar, and independent study areas. The most significant drawback is that the rotating seats will require a larger square-foot area per student than normal unidirectional seating.]

[The elevation of the front of the room shows the large variety of media potentially available for use in the room. The platform around the perimeter can be used by the instructor, and is important in providing adequate sight lines from the students seated on the flat floor.]



[LARGE-GROUP] (STUDY LG-2) (48)

[For a directional large-group room in which extensive uses of media are demanded, this (study) introduces some planning concepts. The plan and section indicate the variety of media modules and other display surfaces which are available within the room. All students in the space fall within an appropriate viewing area for all of these information display surfaces.]

[The seating is indicated as loose chairs located behind continuous counter tops. The horseshoe form of the seating begins to introduce interaction among the students as well as between students and instructor. In addition, the horseshoe arrangement permits a demonstration center at the front of the room. This form, too, requires relatively large square-foot areas per student.]

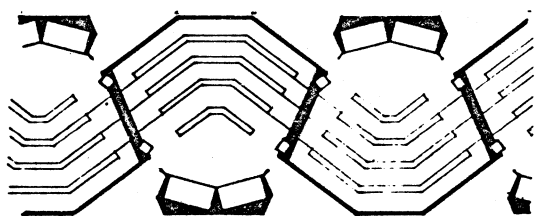
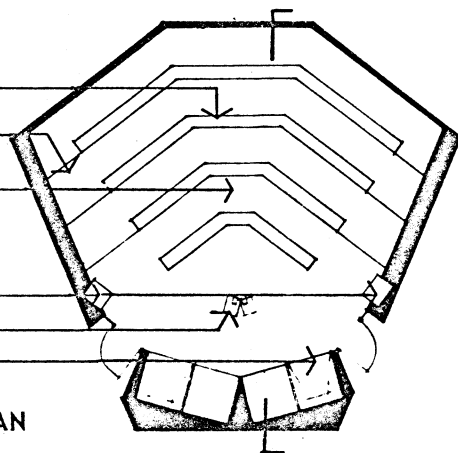
continuous tables  
with loose chairs

3 risers down

dark carpeted floor

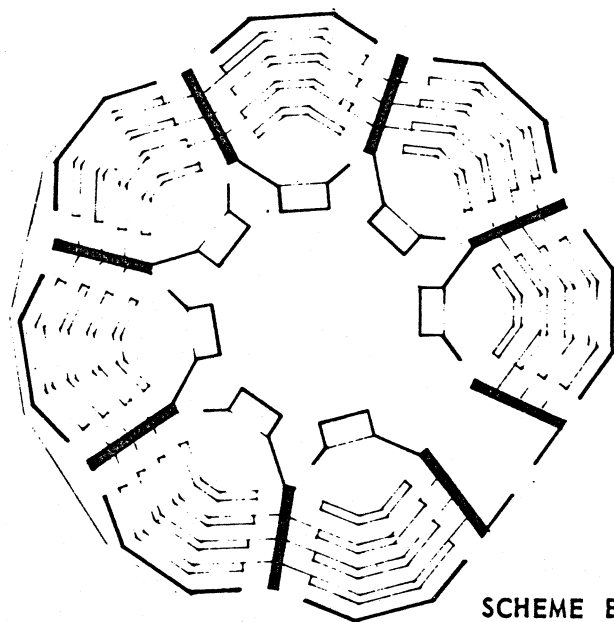
TV receivers  
overhead projectors  
media modules

scale: 1/16" = 1'-0" PLAN

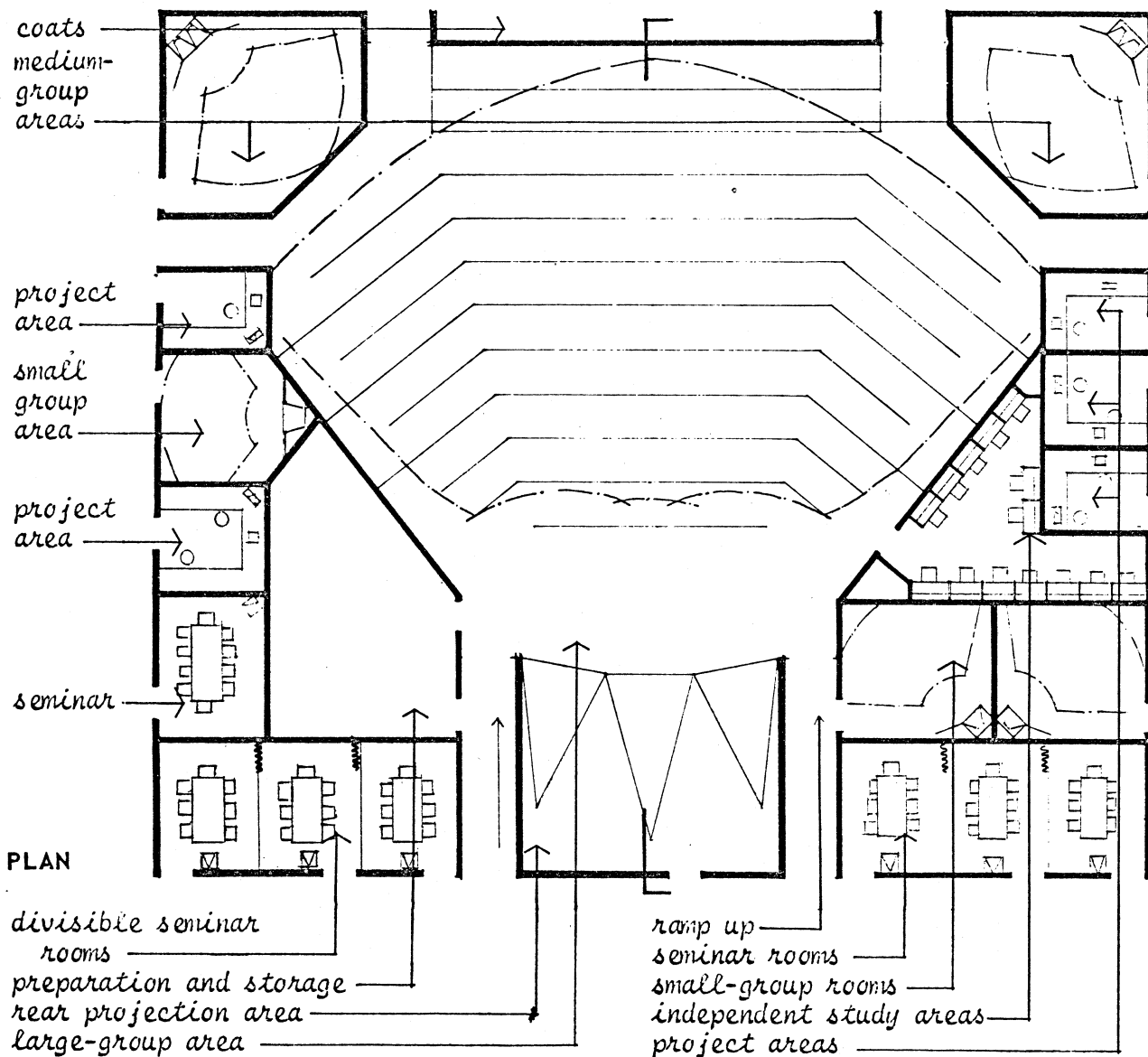


SCHEME A

[The small sketch plans indicate how several rooms of this type might be arranged together. Scheme A shows they might be "strung-out" in a linear pattern and Scheme B indicates that they can be positioned in a circular shape around a central preparation area. In the latter scheme, this preparation area would be accessible from the front of each room, and would be particularly appropriate if used for science courses requiring this adjunct kind of space.]



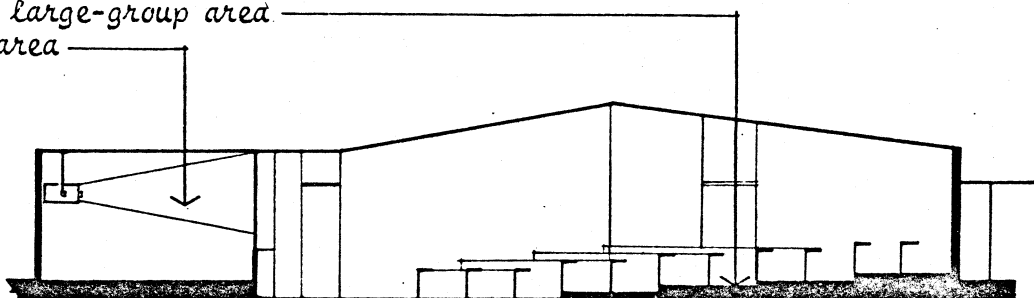
SCHEME B



scale: 1/16" = 1'-0"

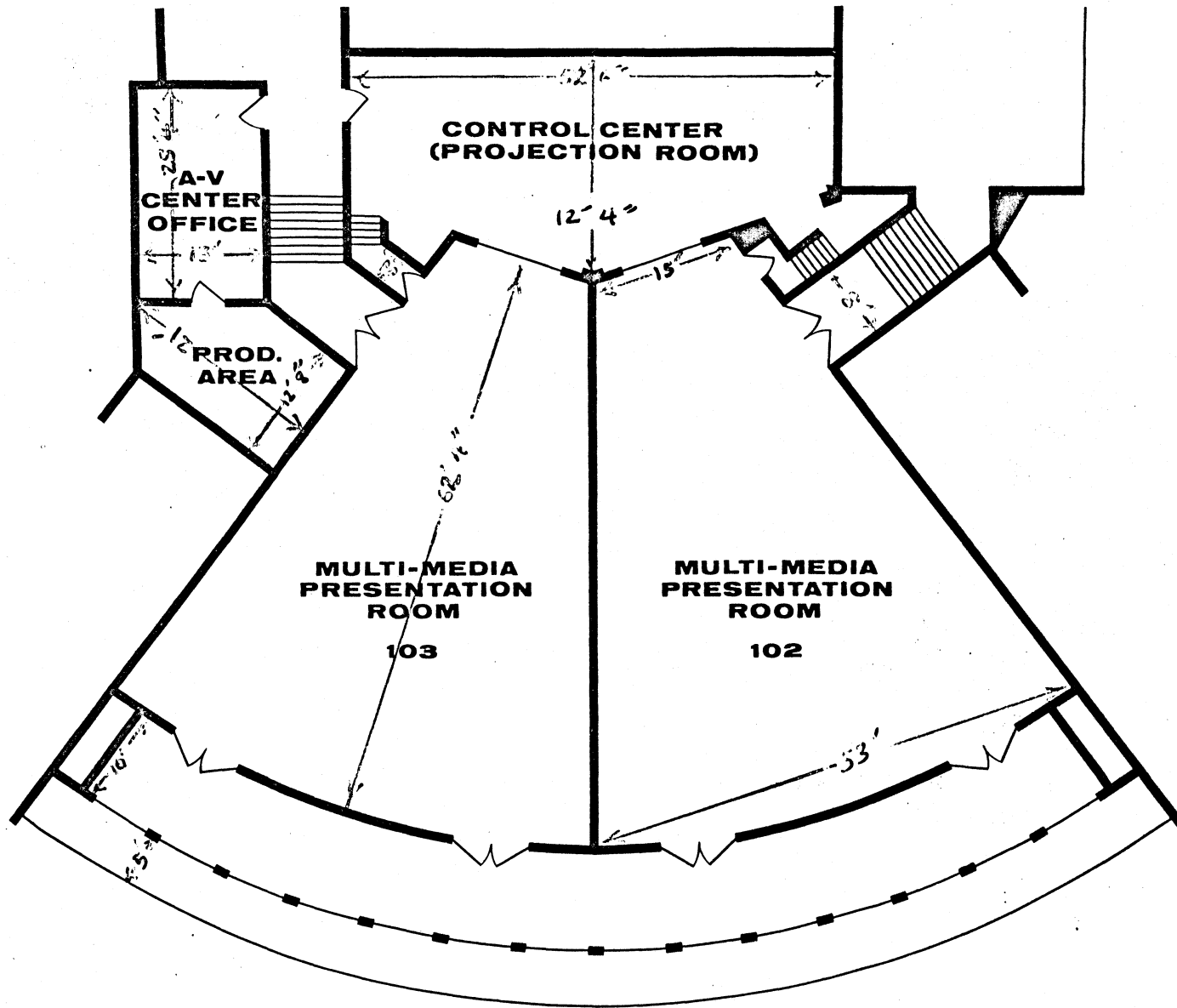
stepped floor in large-group area  
rear projection area

**SECTION**





# MULTI-MEDIA PRESENTATION AREA



**HOLMSTEDT HALL**

**INDIANA STATE UNIVERSITY**

## Exploring the Possibilities (41)

### PRESENTATION

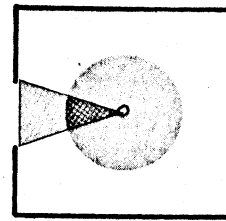
*One focus or several?* Everything can happen in one frame, or different things can happen in different frames, and several centers of interest can exist simultaneously. Multiple focal points add to possibilities for drama, movement, comparative examination, attention-holding variety. They reduce necessity for mechanical contrivances to use the same space for different devices. But, they raise problems in seating arrangements and shape of audience area.

*What Media?* The lecturer may be circumscribed within a very limited area, or he may be free to move to many points to tell and show. If he moves, how may he be heard?

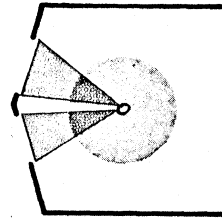
A team of persons: instructor and students; panels; symposia personnel; instructor and demonstrators; buzz sessions —on the stage or in the round or both?

Live demonstrations, magnified or natural, from a stage or in the midst?

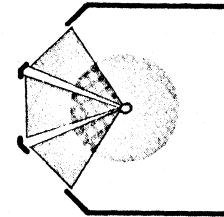
Projected sound: Tape recordings, live discussion groups, simultaneous translations, interviews and other case materials —perfection obtainable with complexity,



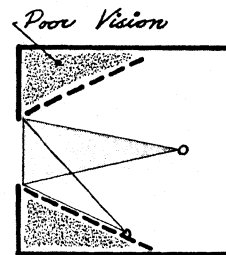
ONE FOCUS



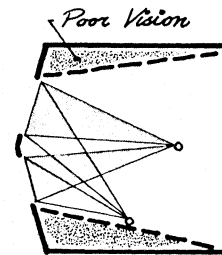
DUAL FOCUS



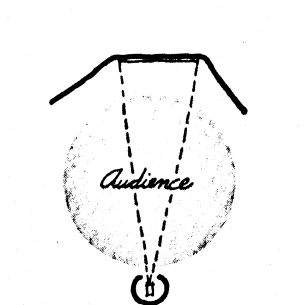
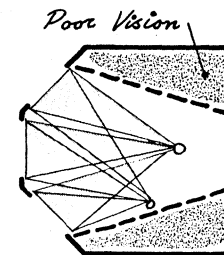
MANY FOCI



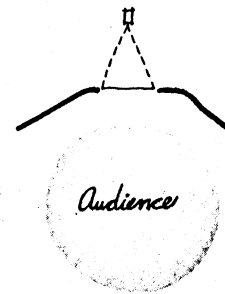
SHAPES



OF AUDITORIUM



FRONT SCREEN  
PROJECTION



REAR SCREEN  
PROJECTION

or sacrifices to low cost and simplicity?

Projected audio-visuals: maps, charts, posters, slides, and transparencies, slide films, opaque materials, animated models, film clips, sound movies, television programs. Often, several of these simultaneously to different viewing points. Can multiplicity be managed within limited space, each medium be readily usable?

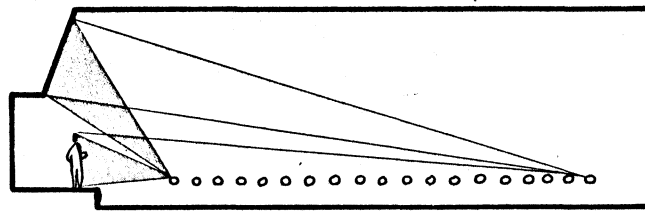
### RECEPTION AND PARTICIPATION

*The student area.* Students must be able to see and hear. Their environment may stress an "audience" mind-set, with a student area of conventional movie-house shape. It may encourage identification and participation by a student area of fan shape, or observation by a semi-circular arena. The floor may be sloped or flat, or a combination of both. Distance between the back-row student and the focus of attention may be great or modest. Formation of small study-discussion groups can be facilitated within cost limitations only by providing some flat floor area and movable seating,

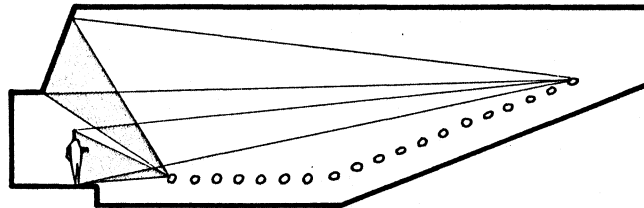
*Climate.* Physical climate must remain conducive to alertness and comfort in spite of hourly variances in population load. However, the cost of "perfect" climate must be weighed against the disadvantages of tolerable climatic variations. (41)

Emotional climate created by the physical environment should be expansive, optimistic, serious. Mind-sets toward entertainment or stodginess should be avoided.

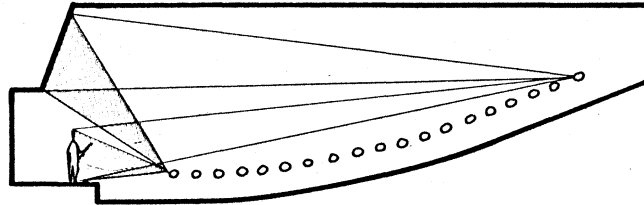
*Student Communication.* Instructors can secure oral responses and contributions from students by stationary microphone inputs throughout student area; by portable microphones handled by assistants; by a stage-mounted directional microphone; by portable transmitters. Polls or quizzes may be conducted by push-button systems connected to totalizers or visual recorders. Costs of such installations must be weighed against their utility and the existence of satisfactory substitutes.



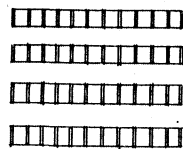
FLOOR FLAT



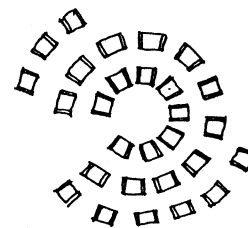
FLOOR HALF AND HALF



FLOOR ELEVATED



FIXED SEATS



MOVABLE SEATS

*Seating.* Accessibility is a key criterion, but it must be balanced against room capacity. Tablet-arms for seats are essential. Use of multiple viewing areas may call for swivel seats, but they add to cost. Advantages of movable seating for subgrouping and for smaller classes must be weighed against such disadvantages as disarray, noise, and custodial requirements. Seating must be comfortable, uncramped, and if possible provide storage space for student belongings.

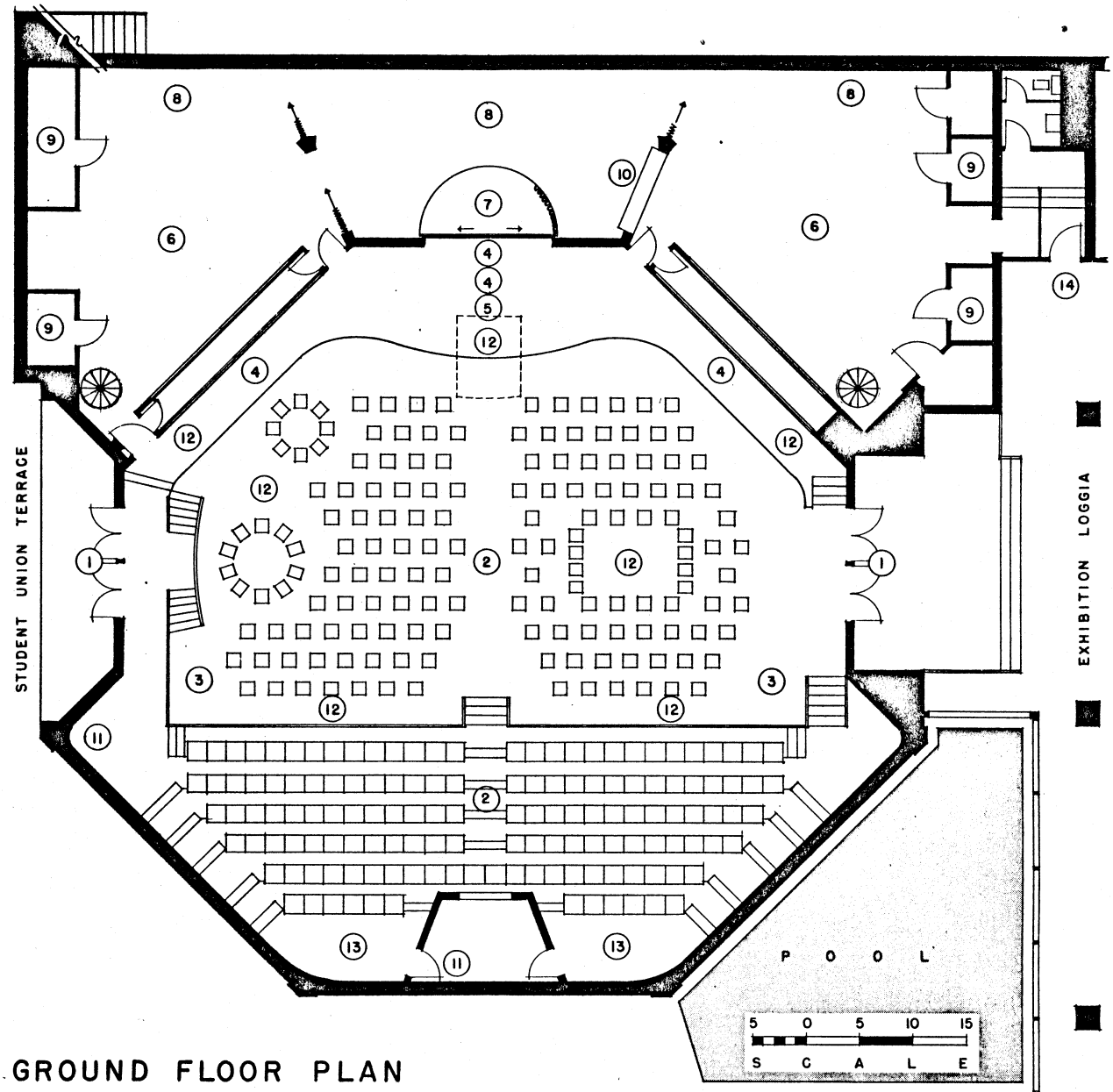
*Lighting.* Illumination for note-taking and spot reading is necessary at all times. Standard classroom lighting levels must be obtainable. Glare and other lighting distractions at attention-focus points must be avoided.

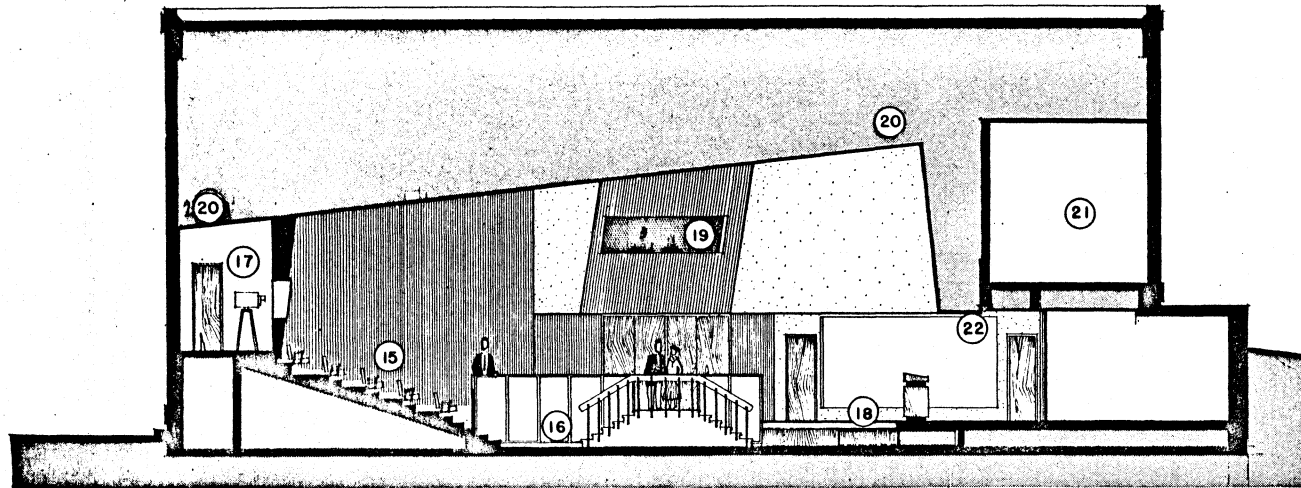
*Sound.* Distribution of wanted sound should be even and exact throughout the listening area, but this is technologically difficult and costly. Control and diminution of unwanted sound—coughing, chairs scraping, machine operation—is equally important, but the room cannot be dead.

## The Facility

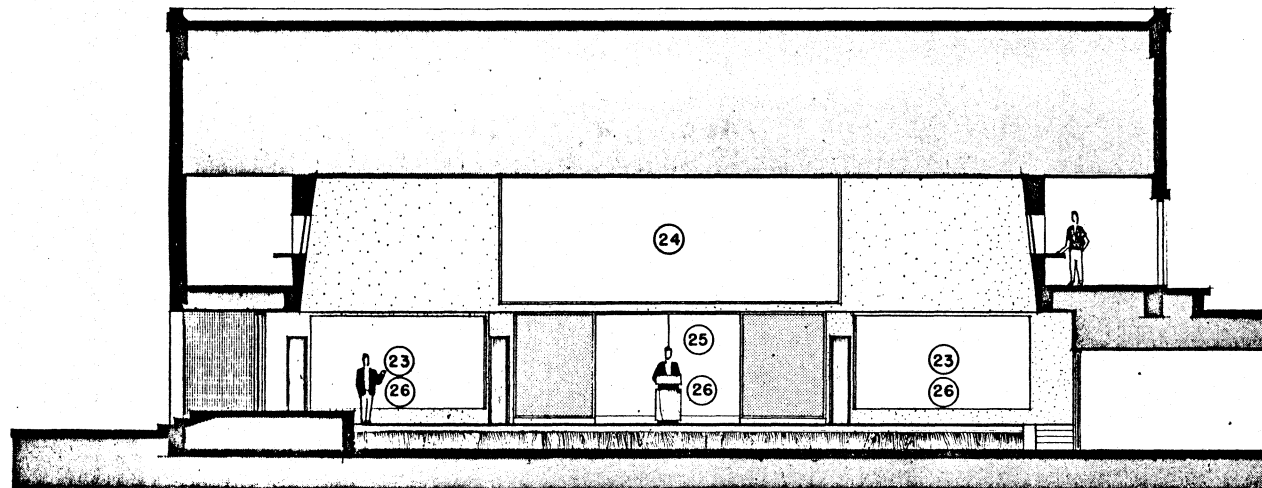
(41)

1. Two large entrances at center axis.
2. Student seating area of 2800 square feet; 294 viewing stations.
3. Flat floor of 2040 square feet.
4. Presentation platform, 75 linear feet across 3 sides.
5. Demonstration stage, 10' by 12'; closed-circuit TV for magnification by rear-screen projection.
6. Multiplexed and single projection areas, rear-screen.
7. Off-stage set up area.
8. Preparation areas.
9. Storage areas.
10. Master control console.
11. Auxiliary control consoles.
12. Lectern and sound in-put locations.
13. Platform for image orthicon TV cameras.
14. Outside access to backstage.





LONGITUDINAL SECTION



TRANSVERSE SECTION

(41)

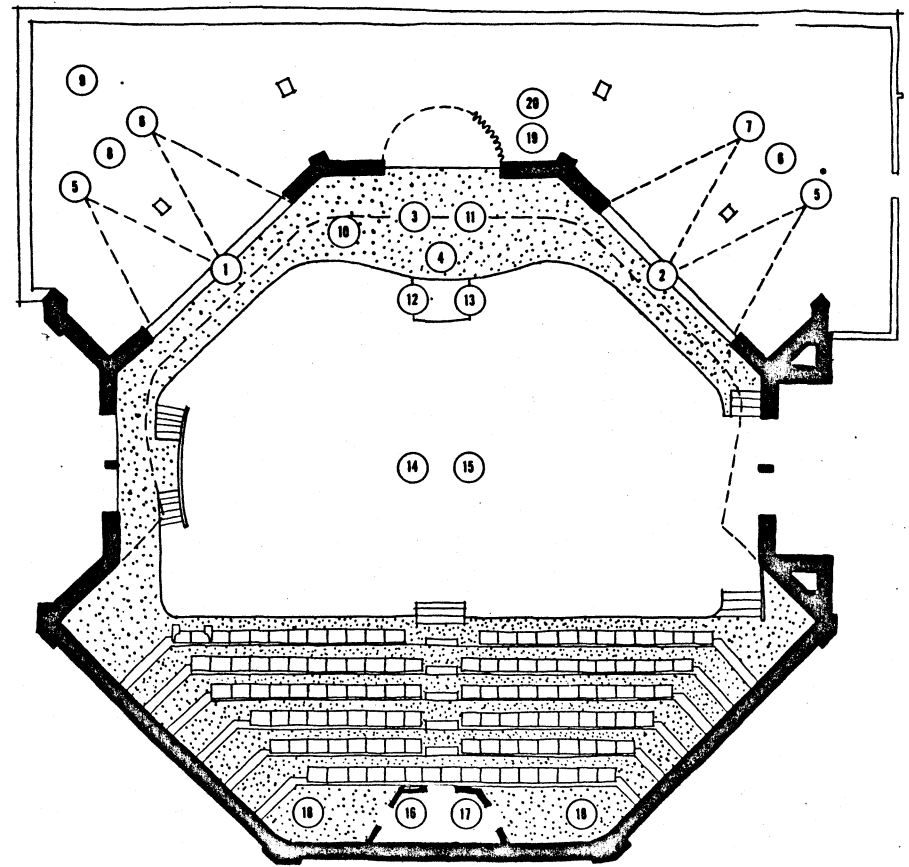
The Facility

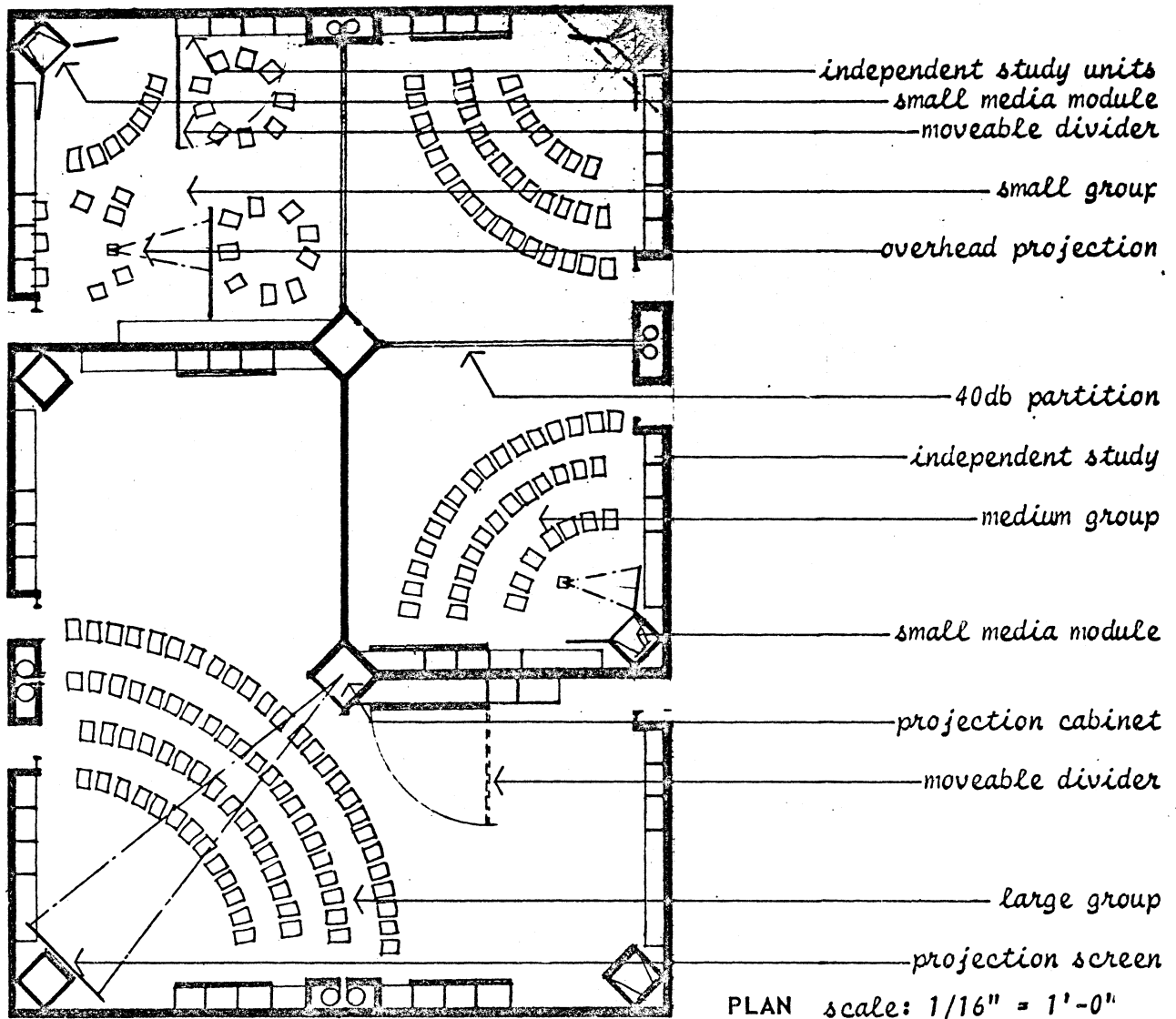
- 15. 140 opera-type elevated seats.
- 16. Movable tablet armchair seating.
- 17. Projection booth for front-screen use.
- 18. Slide-out podium for overhead projectors.
- 19. Simultaneous translation booth (observation booth opposite).
- 20. Ceiling height 12' to 25'.
- 21. Mechanical Room.
- 22. Pull-down screen for floor and podium projection.
- 23. Two divisible screens for rear-projection (8 simultaneous images possible).
- 24. Wide-angle screen for front-projection.
- 25. Magnetic chalkboards, sliding.
- 26. Multiple centers for presentation foci.

## Projection Aids

(41)

1. Rear Projection Screen, 7½' vertical, 20' horizontal, takes two simultaneous images 6' × 9', or four 3½' × 6'.
2. Second Rear Projection Screen.
3. Motorized Retractable Front Projection Screen, 8' × 8', tilted or vertical.
4. Over proscenium of presentation area, fixed 12½' × 28' front projection screen, for movies and slides from projection booth.
5. Slide Projector, 3¼" × 4", 3 kilowatt, remote control, 60-capacity forward sequential slide changer, fixed in rack.
6. Slide Projector, 2" × 2", 1.2 kilowatt, remote control, 48-capacity forward and reverse sequential slide changer, fixed in rack.
7. Sound Movie Projector, 16 mm., 1.2 kilowatt, remote controls, 2000' film capacity, fixed in rack.
8. Television Projector, rear screen. Gives image on screen approximately 6' × 9'. Fed from vidicon cameras in auditorium; also from campus closed-circuit network.
9. Vidicon Television Camera, 600-line, to pick up images from display panels and racks in preparation area.
10. Roll-on Vidicon Camera, 600-line, fixed prefocus on lecturer possible, remote control. Lecturer has monitor in vision, can adapt presentation to fit camera without operator.
11. Television Demonstration Desk. Self-contained science demonstration facilities; monitor for instructor. Vertical-mounted 600-line camera with microscope attachment, transparency panel. Rolls on and off stage.
12. Overhead Projector for transparencies. Portable. May be mounted on floor or on roll-out platform. Projects to Screen 3.
13. Opaque Projector, portable. Both 12 and 13 are stored in auditorium, are instantly available.
14. Slide Projectors, 2" × 2" and 3¼" × 4" on table on floor for projection to Screen 3. Not tied to control panel; require operator or remote-control by lecturer.
15. Sound Movie Projector, 16 mm., on table on floor, for traditional use.
16. Slide Projector, 3¼" × 4", Arc, manual slide changer; also accepts 2" × 2" slides. Projects to Screen 4.
17. Sound Movie Projector, 16 mm. Special lenses and other modifications for professional projection.
18. Mobile image-orthicon television cameras may be mounted here to cover presentation area and feed to campus closed-circuit network, videotape recorder, broadcast. Ancillary lighting and sound pick-up provided for.
19. Tape recorder inputs; also plug-ins for multiple recorders to tape lectures.
20. Master Control and Coordination Center. Control console also mounted in lecterns and remote console can be operated from audience area.





[FLEXIBLE-GROUP] STUDY FG-4) (48)

[In many (schools and) colleges the problem of economically utilizing large-group facilities, regardless of educational justification, is a very real one. For this reason, a number of attempts have been made to build a divisible large-group teaching space; the combination of smaller spaces with high utilization and the large-group room create a total-unit which is more economically feasible. In general, however, there have not been many attempts to design divisible facilities which include media as an integral part of the instructional system. This (study) is devel-

oped to provide a large-group divisible space in which media can be used significantly.]

[The flat floor in the front of the room will seat approximately thirty students in loose chairs which can be rearranged for small-group, conference, or recitation presentations. The rear sections of the room are located on stepped floors, and seating may be on risers with continuous tables, loose chairs and continuous tables, or floor-mounted tablet-arm chairs. The

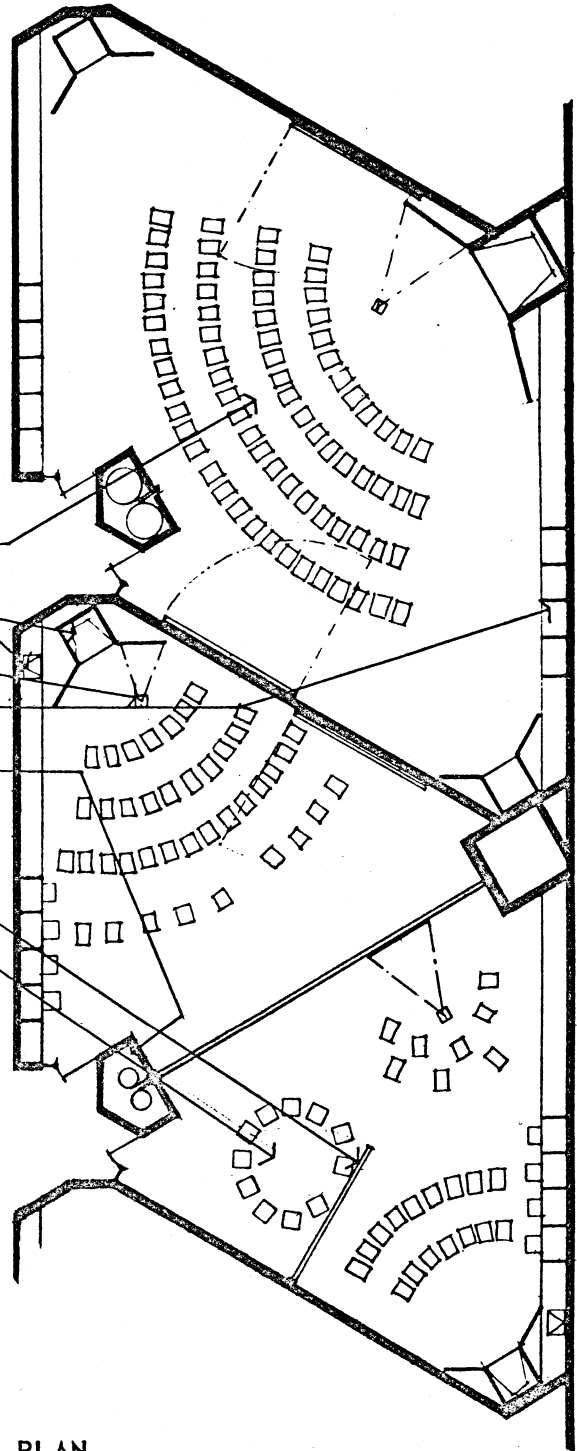
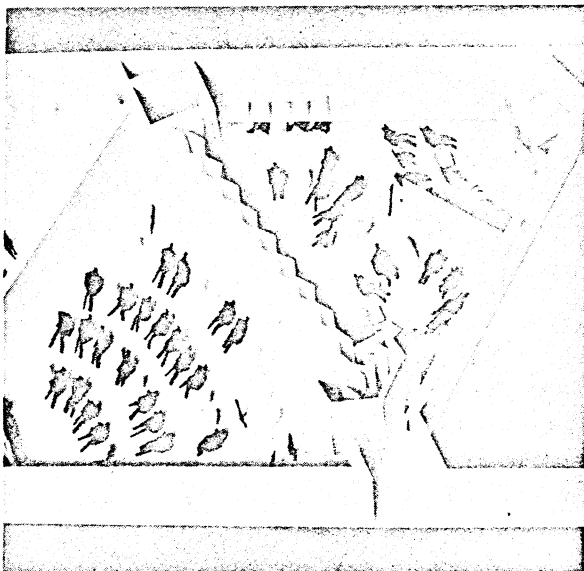
[FLEXIBLE-GROUP] (STUDY FG-2)

[This plan and model photograph illustrate another approach to arranging the elements of a flexible scheme. Here the spaces, based on a 60° equilateral triangle, are arranged in a linear scheme. The large-group space seating 60 or more students has the same provision for media as in the previous study; when the folding partition is closed to the face of the large media module, two medium-group spaces are created. These smaller spaces use smaller media modules located in the corners, and access to them is provided through doors located on either side of the enclosure for the folding partitions. As in the previous study, swing-out dividers can further subdivide the rooms for small-group activity.]

large-group  
TV receiver  
media module  
overhead projection

independent study units  
medium-group  
partition enclosure

chalkboard dividers  
small groups



PLAN  
scale: 1/16" = 1'-0"



### Service Spaces

Probably at this point, one has forgotten that there are these areas still to consider which are part of the art history-appreciation complex:

Maintenance Space

Office Space

Public Space

Student Space - Faculty Space

Basically, these are the service areas, which provide a very important service to the instructional area. These will be discussed in some detail here, and will thus serve as the "referral section" for the other areas of the center, art education, studio, and the like. Mention of these areas will only be "in passing."

This section is also treated as a "referral section," because of the over-lapping and duplication of service areas that would result, if the latter were provided for each of the major areas of the center. Obviously, one well distributed maintenance, office, public, student, and study area can serve the entire center.

This section, then, calls attention to certain details concerning the latter by means of discussion and diagram.

## Maintenance Space

Upon analysis of plans it will be found that maintenance or service does not consist of janitors and their broom closets, but instead of the following:

Air conditioning Equipment

Building-Maintenance-Storage

Custodial closets

Dock-Loading-Unloading

Equipment Receiving

Elevator

General Storage

Office

Receiving

Steam Distribution

Transformer Room

Workshop

In a very real sense, the above twelve areas keep the rest of the building functioning. Some are obvious, such as providing adequate space and equipment for air-conditioning, steam distribution, and transformer.

Similarly, building-maintenance-storage, custodial closets, office, and workshop spaces should be given careful consideration. General

storage and custodial spaces should be generously distributed throughout the entire building or each major area of the center should be provided with such spaces. Such facilities should not be left out completely or "thrown in" as an afterthought.

Another group of spaces that also needs careful consideration is the "receiving area" consisting of the dock, service elevator, receiving, and equipment receiving. For example, an area of this sort is needed to expedite the receiving of art exhibits, equipment, and supplies.

A few isolated factors that are often overlooked in connection with the above are: location of the area; that is, it should be readily accessible to service drive and small parking area; the service elevator should not be too far away and should be provided for a building that is three or more stories high.

In general, the list of twelve areas and some of the factors discussed in connection with some of the latter, make one a little more aware of this area; therefore, it will not be over-looked by planning committees.

## Office Space

It is not unusual to move into a new building or area to find that it is entirely lacking in office space and related areas, or that storage rooms and conference rooms are usurped to provide the additional needed offices.

Also it is not unusual to find offices that are too small, dingy, drab, windowless, and too far away from the work area; the offices are ill-equipped or will not even "take" an adequate size desk to work on; there is not enough space for filing cabinets or bookcases; the offices are not adequate for one instructor, let alone two, or for carrying on student conferences.

The above is probably a negative way to introduce a discussion about offices, but it dramatically points out the fact that offices and the related spaces need to be given every consideration, as indicated in the following paragraphs.

### Departmental Offices

In thinking about offices for the art history-appreciation area for meeting the needs of the department head and his instructional staff, including graduate assistants, the following suggestions are made:

For Chairman of	Provision ought to be made for a
Visual Arts Department:	relatively spacious outer and inner

office that is nicely decorated and furnished and which lends privacy to the inner office.

#### Faculty Offices:

As pointed out elsewhere there should be at least five offices.

To accommodate increase in staff, office space at the outset should be planned for dual occupancy.

This plan provides for a staff of ten; meanwhile, space can be used singly or doubly, and thereby freeing two office spaces for other use.

#### Graduate Offices:

At least three dual offices should be provided for graduate assistants, teaching assistants, and other helpers.

#### Related Spaces:

These spaces are not office spaces but are included here because they serve the office and administrative function for work, storage, and conference; comments have been made on space for conference in the last section.

### Public Spaces

Unlike other campus buildings, the visual fine arts center, by virtue of its exhibits and variety of other art activities, is constantly invaded by the public. Thus, adequate public facilities distributed throughout the center should be provided accordingly. Generally, such spaces consist of the following areas:

Reception

Lobby

Vestibule

Men - Women

Coats

Exhibits

Since one is acquainted with some form of the "grand entrance," it is now taken apart to show how parts of it apply to other areas of the center, such as the art history-appreciation, art education, studio, and art library.

### Reception

The reception area can and does take many forms which are partially determined by the area it is to serve. The reception area may be part of the main lobby, museum, or the respective departmental areas. In the first instance the reception area would serve as a place for departmental "teas," public gatherings; in the second case, "reception" would be part of the outer-office for the respective departments and the center as a whole. In passing one may add that a number of departments can share the same reception area.

The reception area plays a vital function in the center as a whole; therefore, some thought should be given to this area. Anticipating the

the need for reception areas, one can plan accordingly, without taking up too much extra space.

### Lobby

The idea of the lobby is to provide something other than the "off-the-corridor-approach" to an area. The art history-appreciation area and the others in the center absolutely deserve a "grand entrance." Ingenuity of architectural design, or course, can provide such an entrance. In passing, this lobby should not be confused with the main lobby; however, it is very possible that any of the areas could "fan out" from the latter.

### Exhibits

The word exhibits is not to be confused with the art museum, it is simply some type of display device or small space to display the particular wares of the area of art history, art education, and other studies. Obviously, such displays will not only make the general area more attractive and inviting, but they serve an educational function as well. Some exhibition space for the various areas of the center is recommended.

### Vestibule

This area applies primarily to the main entrance to the center; it is the "buffer zone" between the out-of-doors and the lobby. In other words,

it is part of the entrance complex. It may be treated as a separate entity or as an area that "flows" or merges with the outside and inside; it may also serve as a transitional area.

#### Men - Women

Each area of the center should be provided with washrooms for each of the sexes. The rooms should be adequate in size for the area, easily found, and attractive. In short, these important areas must not be neglected.

#### Coats

A recessed area with a coat-rack could serve the purpose very well. A place for coats is simple to design without taking up much space; it is difficult to understand why places for coats are seldom provided.

#### Student - Faculty Spaces

While the student - faculty spaces are intended to exclude the public, they are included with public spaces by virtue of similar function. Student- faculty space provides a place as a lounge area where each can get together without being in the public eye.

In other words, it is a lounge area for students and faculty, respectively. One lounge for both is unsound educationally or socially;



each need their own place where they can relax, talk, exchange ideas, drink coffee, read, and the like.

Such lounge areas do not need to be exceptionally large. Accommodating 15-25 people would probably be quite adequate. It need not be an enclosed area; a "recessed" area, away from the stream of traffic could serve the purpose equally as well. Also such areas need not be all in one place. The lounge area for students and faculty can be split up into smaller segments in "nooks and crannies" throughout the center.

In any case, whatever type is decided upon, it should be comfortable, appealing, and inviting. Groupings of chairs, sofas, lamps, and tables should be conducive to relaxation or discussion, informal rather than formal. This is one area where the institutional look can be banished.

#### General Summary of Public Spaces

The above completes the survey of public spaces. The brief discussion was intended to call attention to the various areas and to remind planners not to overlook this area in their deliberations.

It should be pointed out again that the various public spaces that were discussed do not only apply to the art-history-appreciation area but also to art education, studio, and library and to the center as a whole. Most of this section will not be duplicated for each of the remaining areas except to list public spaces and refer back to this section.

## CHAPTER IV

### THE ART EDUCATION AREA

In the last section, the planning and the steps involved in the process, were considered in some detail. In this section, it is believed that explanation of the process, for the most part, can be omitted and, thereby, going directly to the planning of the area at hand, the art education area.

#### Planning the Art Education Area

The art education program has as its primary task the training of future art teachers for the elementary and secondary schools. For this reason, aside from general courses in design, painting, drawing, crafts, ceramics, and the like, methods courses for various levels of the public school--lower elementary, upper elementary; junior high; and senior high. These levels are indicated, or are part of most college art education programs as the chart reveals.

The over-all college art education program is greatly diversified to meet the art needs of the public school as teachers are trained for the

respective levels. One of the keys to the art education program, at any level, is one that is diversified and can be implemented. Obviously, lacking the latter the art education program is severely handicapped-- this would be true of other areas of the visual arts program, if adequate facilities and equipment were not planned and provided for accordingly. (20, 21)

### The Art Education Media

In general, the art education area is not as complicated and complex as that of art history and art appreciation. The reason for this is because of the essential differences between the two areas. Art history and art appreciation require lecture-auditorium-audio-visual type of spaces and art education needs work-type spaces.

The former is basically a sitting and passive kind of activity, while the latter involves a variety of activities ranging from lecture-demonstration to making things and working with various materials. These differences and other factors are noted in the Art Education Media Chart and Equipment Chart that follow.

### The Art Education Program Charts

The chart at the end of this introductory section is typical of the kind of art education program offered by colleges and universities throughout the country.

It will be seen that there are a great variety of courses, both at the undergraduate and graduate levels, which in turn, are suggestive of the kinds of spaces needed to carry out the art education program.

Further, this chart is also suggestive, upon analysis, of the kinds of activities and methods of teaching that are carried on as well as the great variety of materials that are used--that is the media. Therefore, together, the program and the media are the starting point for planning the facilities for the art education area.

## THE ART EDUCATION MEDIA CHART

Activity	Materials, Equipment, Supplies
<p>Sitting-working at "art tables"</p> <p>Moving about</p> <p>Sitting-watching-listening to lectures, a.v. presentations, demonstrations.</p> <p>Engaged in various types of creative art activities:</p> <p>Painting-drawing</p> <p>Pasting</p> <p>Cutting</p> <p>Potato printing</p> <p>Clay modeling</p> <p>Paper-mache</p> <p>Jewelry-making</p> <p>etc., etc.</p>	<p>Paints</p> <p>Water-colors</p> <p>Tempera</p> <p>Paper</p> <p>Scrap materials</p> <p>Seeds</p> <p>Wood</p> <p>Boxes</p> <p>Crayons</p> <p>Yarn</p> <p>Raffia</p> <p>Clay</p> <p>Plastique</p> <p>Paste</p> <p>Glass</p> <p>Newsprint</p> <p>Oak Tag</p> <p>Chalk</p> <p>Pencil Sharpener</p> <p>Modeling Tools</p> <p>Glazes</p> <p>Fabrics</p> <p>Kilns</p> <p>Looms</p> <p>Silk-screen Kits</p> <p>Easel Brushes</p> <p>Scissors</p> <p>Penholders</p> <p>Rubber Cement</p> <p>Linoleum Cutter Sets</p> <p>Linoleum</p> <p>Brayers</p> <p>Paper Cutter</p> <p>Stapler</p> <p>Tables</p> <p>Stools/Benches</p> <p>Wood-working Bench</p> <p>Small-Hand Tools</p> <p>Power Tools</p> <p>Mosaic Tessari</p> <p>Etc., etc.</p>
—	
Courses	Teaching Methods
Academic	Lecture; Audio-visual presentations; discussions; demonstrations; etc.
Methods-studio	Involves the above Activities; Materials, Equipment, and Supplies.

## ART EDUCATION PROGRAM CHART

Under-graduate	Graduate
<p>* Introduction to Art</p> <p>Art for Teachers in the Elementary Grades.</p> <p>Theory and Practice of Art in the Elementary School</p> <p>Theory and Practice of Art in the Junior High School</p> <p>The Teaching of Art</p> <p>Art Education Laboratory</p> <p>Art Education for Secondary Schools</p> <p>The Visual Arts in the Elementary and Junior High School</p>	<p>* Research in Art Education</p> <p>Problems in Art Education</p> <hr/> <p>** Graduate Projects in Art Education Research</p> <p>Art Education and Personality</p> <p>Content Seminar in Art Education</p> <p>Thesis Seminar in Art Education</p> <p>Advanced Crafts for Teachers</p> <p>Art Appreciation in the Educational Program</p> <p>Art in the Elementary School</p> <p>Art in the Secondary School</p> <p>Art Experiences with Children</p> <p>Art Education</p> <p>Teaching and Supervision of Art in the Elementary School</p> <p>Art in Childhood Education</p> <p>Art for Secondary Schools</p> <p>Art for Classroom Teachers</p>
<p>** Introduction to Art and Art Education</p> <p>Teaching of Art Pre-School and Elementary</p> <p>Teaching of art: Junior and Senior High School</p> <p>Art Activities for Elementary Schools</p> <p>Teaching Art in the Junior High School</p>	

\* These courses offered by Eastern Illinois University.

\*\* Composite of following randomly selected institutions: New York University, Illinois State University, Penn State University, Teachers College of Columbia University, Iowa State,

Under-graduate	Graduate
<p>Art Materials for the Elementary Schools</p> <p>Crafts for Elementary School</p> <p>Teaching Art in the Elementary School</p> <p>Teaching Art in the High School</p> <p>Junior Participation in Art</p> <p>The Art Resource Person</p> <p>Art for the Exceptional Child</p> <p>Crafts for the Secondary School</p>	<p>Art in Special Education</p> <p>Problems in Art Education</p> <p>Methods in Teaching Art</p> <p>Creative Development of a Child Through Art</p> <p>The Individual and the Creative Process</p> <p>Art in the Public School</p> <p>Development of Art Education</p> <p>Supervised Art in the Public School</p>

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\*\* Michigan State University, University of Buffalo, Bowling Green State University, Miami University, Oklahoma State University, and University of Denver.

## ART EDUCATION EQUIPMENT CHART

Benches and Tables

Art Table 36 x 24 x 29  
 Craft Bench 12'-6" x 51" x 32½" and 8'-4" x 51" x 32½"  
 Island Craft Bench 48" x 44" x 32"  
 Island-Four-Student-Bench 8'-0" x 48" x 29½"  
 Leather-Plastics Bench 6'4" x 30" x 36"  
 Portable Work Bench 48" x 36" x 30½"  
 Sketch Bench 17" x 12" x 17"  
 Student Bench 17" x 12" x 17"  
 Tables 60" x 42" x 29"

Counters

Utility Work Counters 36-48-60-72 x 24-27-30 x 30 1/2-37 1/8  
 Wall Counters 36"-48" x 29½"-36 1/8

Sinks

Sink Centers: Island: 4'-3" x 4'6" x 36 1/8"  
 Sink Centers: Peninsula: 4'-3" x 4'-6" x 36 1/8"  
 Sinks : Wall: 72 x 30 x 36 1/8"

Ceramics

Ceramic Clay Cart 16" x 16" x 23½" (swivel castors)  
 Ceramic Island Center 8'-2" x 48" x 36 1/8"

Teaching

Crafts Demonstration Bench 60"-78" x 30" x 37"  
 Teaching Center 48"-60"-72" x 30"-42" x 29"



## ART EDUCATION EQUIPMENT CHART

Page Two

Storage

Paper Storage Instructors Table 72" x 30"-36" x 36 1/8"  
 Sliding Chalkboard and Storage Assembly 74" x 27" x 83"

Carts

Material Cabinet Cart 38" x 24" x 36 1/8"  
 Material Cart 42" x 24" x 32"  
 Portable Modeling and Projector Stand 21" x 24" x 36 1/8"

Cabinets

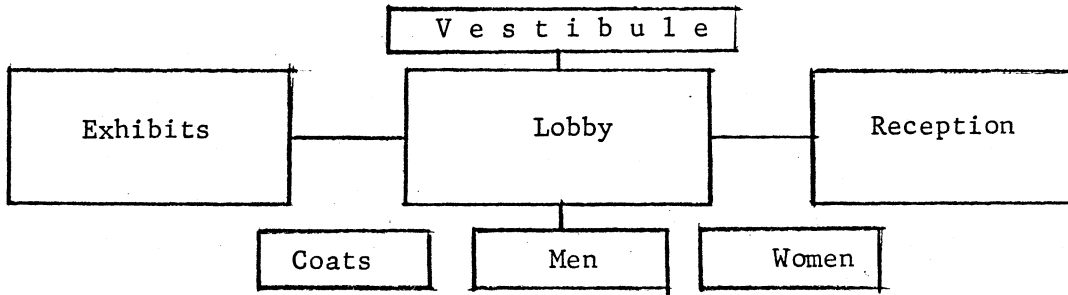
Base Cabinets (come in a variety of styles and sizes) av. size: 47" x 21" x 34 7/8"  
 Book and Magazine (rack) Cabinet 35 1/8"-47" x 12" x 24"-36 3/8"  
 Crafts, Works and Storage Case Cabinets 62" x 22" x 82 1/4"  
 Display and Storage Case Cabinets av. size 62" x 22" x 82 1/4"  
 Drawing Board Cabinets 62" x 27" x 82 1/4"  
 Tool Storage Cabinet 62" x 22" x 82 1/4"  
 Flexible Compartment Storage 47" x 21" x 34"  
 Glazing Bars (Cabinets) 24" x 24" x 82 1/4"  
 High Cabinets for Turning Corners 35" x 21" x 34 7/8"  
 Paper and Flat Stock Storage Cabinet 47" x 25 3/4"-33" x 34 7/8"  
 Potters Wheel Base Cabinet 24 3/8"-35" x 21" x 23 3/4"  
 Refuse Cabinet 18 3/8" x 27 3/4"-34 7/8"  
 Roll Kraft Paper Dispensing Cabinet 47"-59" x 34 7/8"  
 Shelving Cabinet Assembly 35" x 16" x 82 1/4"  
 Sink Cabinets 35"-47" x 21" x 27 3/4"-34 7/8"  
 Smock Storage Case Cabinets av. size 62" x 22" x 82 1/4"  
 Storage Case Cabinets av. size 62" x 22" x 82 1/2"  
 Tote Tray Storage Facilities 62" x 22" x 82 1/4"  
 Upper Case Cabinets av. size 62" x 22" x 82 1/2"

### Spatial Translations

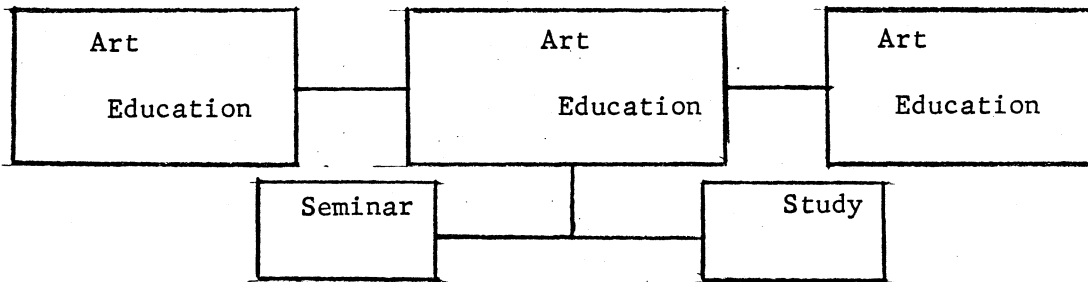
The various charts and diagrams that have been presented are indicative of the kinds of spaces needed for the art education area or complex. These spaces are clarified in the spatial translations diagram that follows.

SPATIAL TRANSLATIONS DIAGRAM

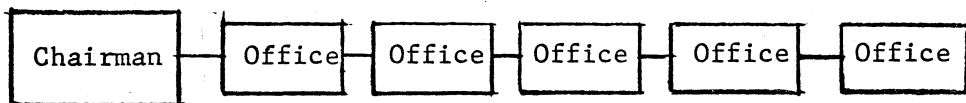
Public Space



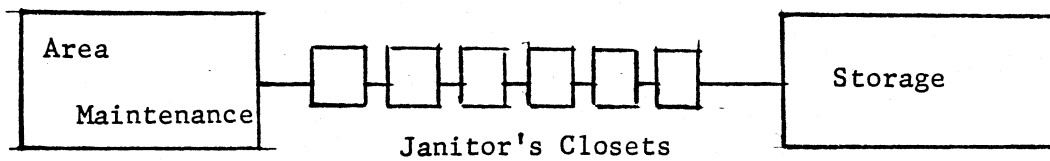
Instructional Space



Office



Maintenance and Storage



### Interpreting the Spatial Translation Charts

As pointed out above, art education is varied in its course offerings, methods of instruction, instructional materials, and class activities. In terms of facilities, it means that the latter must be designed primarily for "work"--a work room--but also adaptable to other types of classroom activities.

Thus the "workroom" must readily lend itself to lecture situations; darkened for motion picture, slide, and filmstrip presentation; rearranged for demonstrations, visitations, and observations. In respect to the terms "observations" and "visitations," they refer to other classes, such as art appreciation classes and interested groups that come to see art education classes in operation; thus, space and floor-plan should be designed accordingly.

Area or space-wise this means that an art education room should be divisible as desired into three major areas: work, teaching, and observation. At times the room is arranged only for working or teaching.

The great variety of creative art activities, materials, equipment, and supplies indicated in the charts, is suggestive of many special features that need to be built into the room such as sinks, counters, gas lines, two-ten electric lines, storage cabinets, and providing space for art tables, work benches, and machines.

### Implied Areas

There are other areas that make up the art education complex, even though they are not indicated in the chart. The art education rooms, of course, constitute the instructional spaces; to these should be added public space, student-faculty space, seminar-conference space, office space, and maintenance space.

In the last section all of the following spaces were discussed in some detail. Here, they are listed as a reminder that such spaces should be provided for the art education complex too. Frequently, with good planning, design, and scheduling, such facilities as public, seminar-conference, student-faculty, and maintenance space can be shared. These are common to all of the major areas. However, for the record, they will be indicated as part of the "spatial translations."

### Reminders

Also as a reminder, the general architectural requirements, such as acoustics, color, decor, lighting, temperature-ventilation, and the "extraneous factors" should not be overlooked.

To give one a general idea of the various ways in which the art education complex is treated, reference to the introductory section on the fine arts center is recommended.

Similarly to the previous section, this one will be developed in terms of the spatial translations proceeding from instructional spaces to office, public and maintenance spaces, accordingly. Obviously, the instructional space, consisting of the art education rooms will be described in some detail.

### Instructional Space

It is believed that the three art education rooms indicated in the Spatial Translations Diagram will meet the needs of most institutions ranging in size between 5,000 - 10,000 students. Also, the number of rooms is not necessarily determined by size but by program; thus, those institutions that have a large and strong program will need the three rooms--perhaps, more--where others that do not stress art education as much will need only one. Perhaps art education needs are served in other areas. For example, the space set aside for design in the Macalester College, as well as Janet Wallace Fine Arts Center, "doubles" for art education. On the other hand, the Yale, Dartmouth, and Harvard visual arts programs stress architecture and the fine arts. Knox College and Colgate stresses the humanities aspect of art and there is little need for art education facilities. All the remaining institutions commented upon in the survey, to a greater or lesser degree, stress art education, and have provided facilities accordingly.

### Development of Art Educational Facilities

While the three rooms should be related to each other in plan, it does not necessarily follow that the furnishings and equipment and their arrangement should be the same. Also, if total building design permits, the rooms can be varied in size and shape.

### Facilities for Work

The next concern should be the development of a room, including its furnishings, that readily lends itself to work or the various activities and materials used indicated in the Art Education Media Chart, for instance, floors, wall surfaces, table tops, counter surfaces, chairs, and cabinets should be durable and strong; able to take a beating; withstand hard use and abuse; resist ink and paint stains, and scratches. Cement or hardwood floors, cement block walls (type of walls depends upon building design), hardwood maple furniture, plastic counter tops, steel cabinets are indicative of what is implied. While all details cannot be settled here, the main point is to give this aspect of the art education rooms careful consideration. In short, the rooms are not a "show place" but a facility for work and activity.

### Size and Shape of Rooms

The size and shape is determined partially by the number of students. For classes of this type the number of students that an instructor can adequately "handle" is twenty (20); thus, plans for 20 stations or work

spaces for that many students must be made in terms of 40 square feet per student.

One must keep in mind these three major areas: teaching; work; and observation. Varying methods of instruction--that is, audio-visual demonstration and lectures--and creative art activities determine room size and shape. Likewise, arrangement of furnishings and equipment determine "interior space" and in what manner this space can be changed.

The space diagrams that follow are indicative of what is implied in the previous discussion.

#### About the Plans

Also it should be mentioned that even though the plans that follow are typical for many high schools, they are indicative of the manner in which the art education rooms can be arranged and equipped. In essence the plans are so designed to help the art instructor do a better job of teaching and to provide a setting for the students to carry on their various creative art activities. In other words, the floor plans integrate the teaching tasks and activities into a systematic design.

While specific plans will vary among institutions, depending on available space, enrollment, and the range of the art education program, those presented indicate the type of plan and equipment needed to enhance



teaching and learning. The plans reflect the recommendations of the National Art Education Association. The Sheldon Equipment Company plans are based on the latter, accordingly.

The following plans are representative of the kind of arrangements and facilities suitable for art education at the high school and college levels. The plans should, in no sense of the word, be regarded as specific recommendations.

#### Seminar-Conference Room

The seminar-conference room described in the last section undoubtedly will be the one shared by the entire visual arts department. It is mentioned here simply to remind one that the seminar room is part of the art education complex.

In any case, in addition to the comments made about the seminar-conference room, provisions should be made for art education type of activities, such as demonstrations, bulletin boards, and those that involve use of various types of art materials. There should be enough room for students to move about and to look at small displays of art work. Space should also be available for a couple of grade-school children to paint at an easel, and for a television camera for closed-circuit television.

### Office Space

Here again, the treatment of office space is the same as presented in the last section. In respect to art education, if the department is large, provisions for an outer office, chairman, and staff should be made as indicated in the space diagram. Grouping the offices together gives homogeneity to the department. Obviously, a smaller art education department will share office space with other members of the visual arts department.

### Public Space

Undoubtedly, this will be the same space as shared by other areas of the visual arts department, perhaps at ground level or the upper levels of the center. In any case, the art education complex ought to be related to public space and, if this cannot be done because of building design, provisions for such space must be made.

If special provisions are made, they do not have to be as elaborate--simply a modification and scaling down of the basic concept of public space will suffice. Perhaps a slight enlargement of the outer office could double for public space. There must be an area where visitors and students can sit down waiting for an appointment--sort of a reception area not to be confused with student-faculty lounge--and wall space for bulletin board, display case, and example of child art or work from the art education classes.

"Reception" kind of furniture is appropriate for this area. Upholstery, fabric, color, pattern, and weave will provide the necessary color accent. The displays and bulletin board will add the artistic touch and will create an area that is inviting, attractive, and comfortable-- thereby minimizing the institutional aspects of the building.

#### Student-Faculty Space

For obvious reason it would not be desirable to provide student-faculty lounge space for the art education area. The common-student-faculty lounge serving the entire visual art department is the one that should be given every consideration--that is, what helps give academic and social cohesion to the department for both students and faculty.

#### Maintenance Space

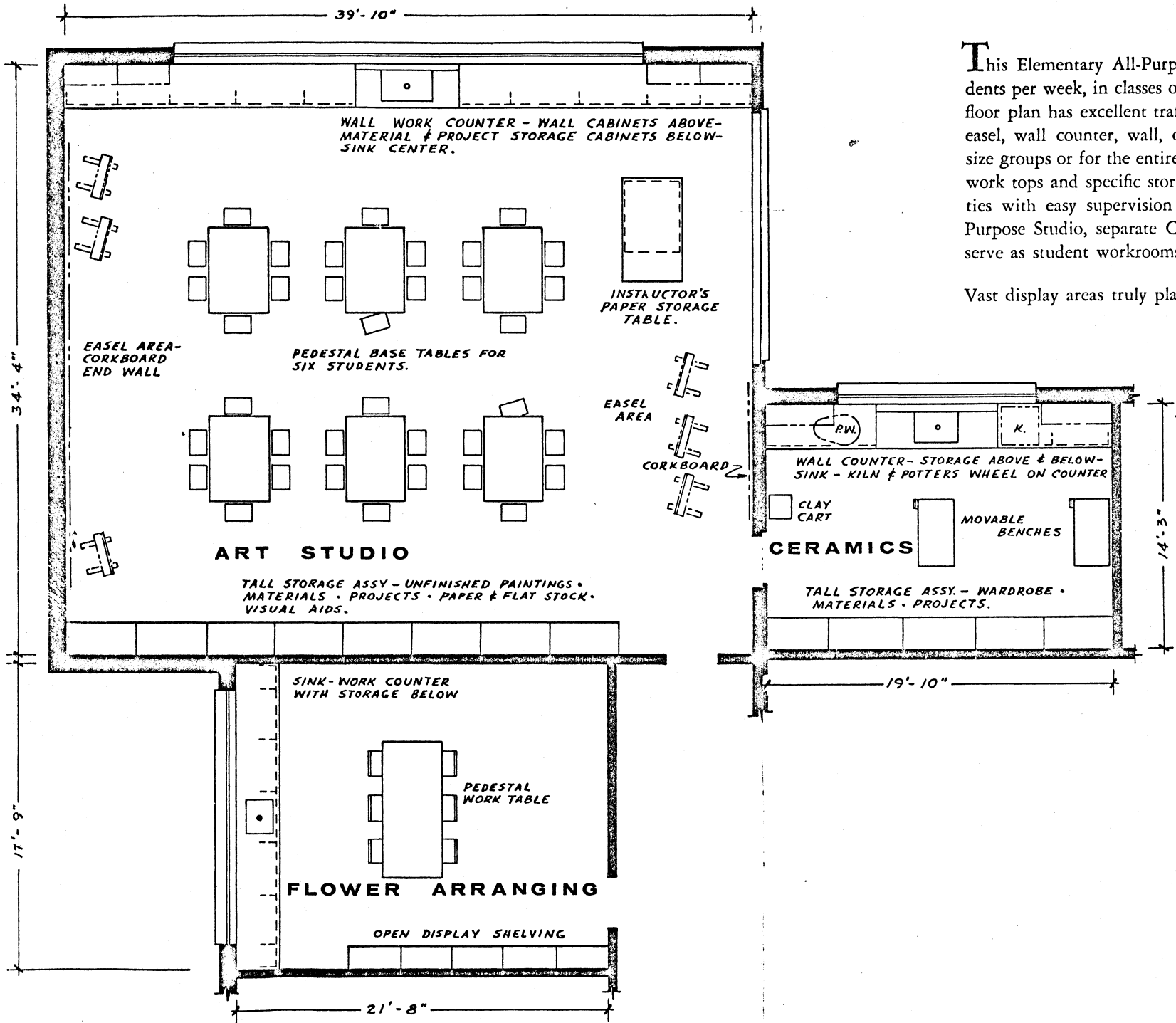
The general type of maintenance space as described in the first section is shared with the art education complex. However, because of the variety of creative art activities and materials some custodial space should be provided for the area.

Similarly, adequate and varied storage space should be provided, not only within the respective art education rooms, but for the area as a whole. Then, various types of storage and lockers, both within and without the art education rooms, should be provided for the students.

Plans

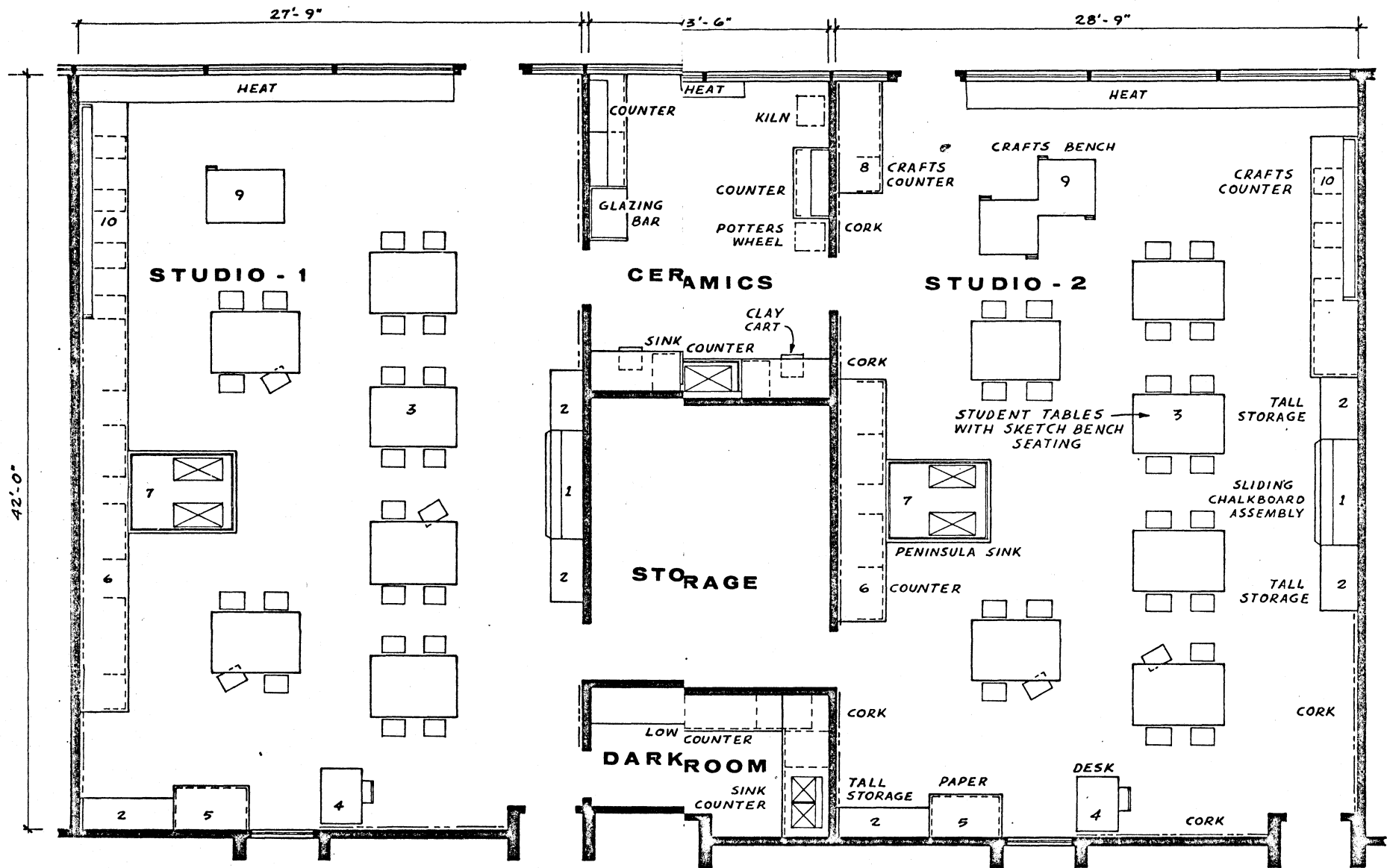
Some of the ideas that have been presented in respect to the art education area are translated into the following plans:<sup>1</sup>

<sup>1</sup>Courtesy of Sheldon Equipment Company, Muskegon, Michigan, 1963.



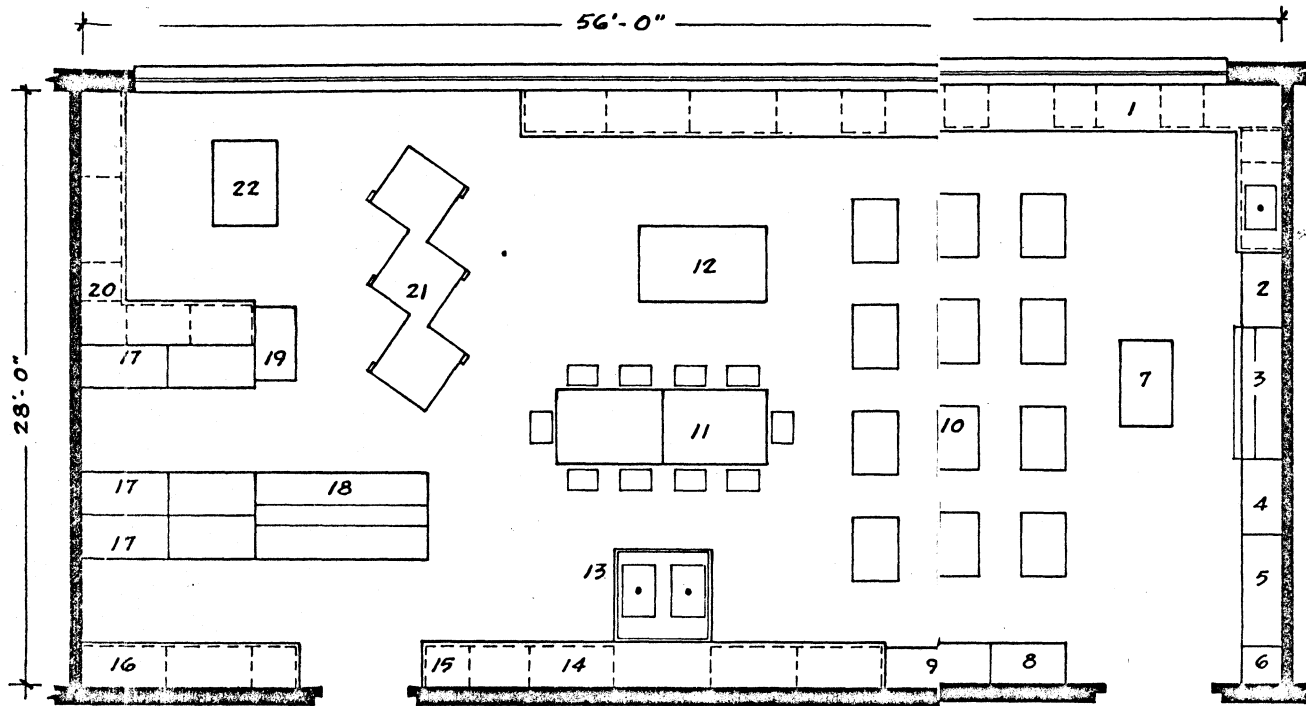
This Elementary All-Purpose Art Studio serves 36 students per week, in classes of up to 36 students. The floor plan has excellent traffic and flexibility features. Easel, wall counter, wall, or floor areas, can be used to accommodate size groups or for the entire class. Multiplicity of work tops and specific storage facilities provides flexibility with easy supervision and cleanup. In addition to the All-Purpose Studio, separate Ceramics and Flower Arranging Studios serve as student workrooms for a host of other activities.

Vast display areas truly place the student in a workroom atmosphere.

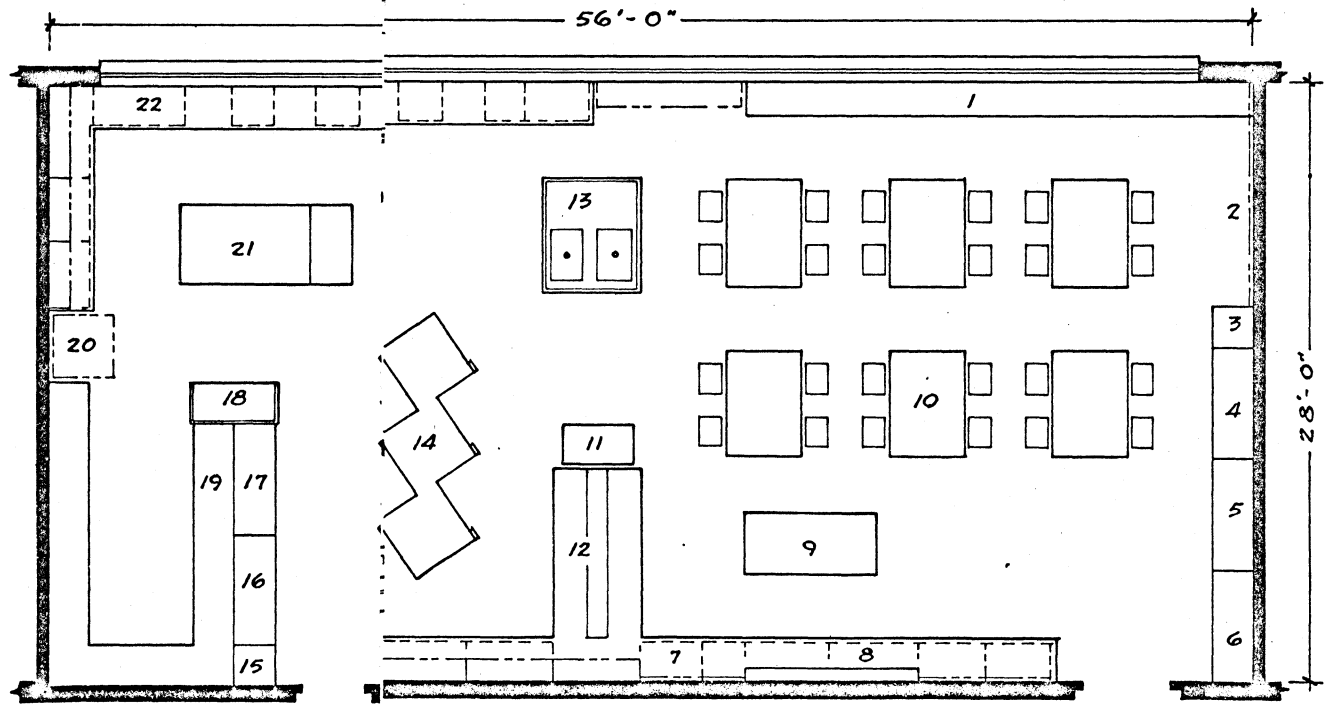


This Junior High School Art Department illustrates how a ceramic workroom, a large storeroom, and a darkroom can be centrally located between two all-purpose art studios. They may be used as an area by either studio individually, or shared equally by both. Other emphasis areas could be similarly located in other plans as the teaching program dictates.

Note how the ceramics workroom is located at the crafts end of the all-purpose studio. The reserve storage room is centered in the teaching center and general work area for convenient storage of supplies or student projects. Ample space provides the opportunity for maximum flexibility in student groupings for all activities.



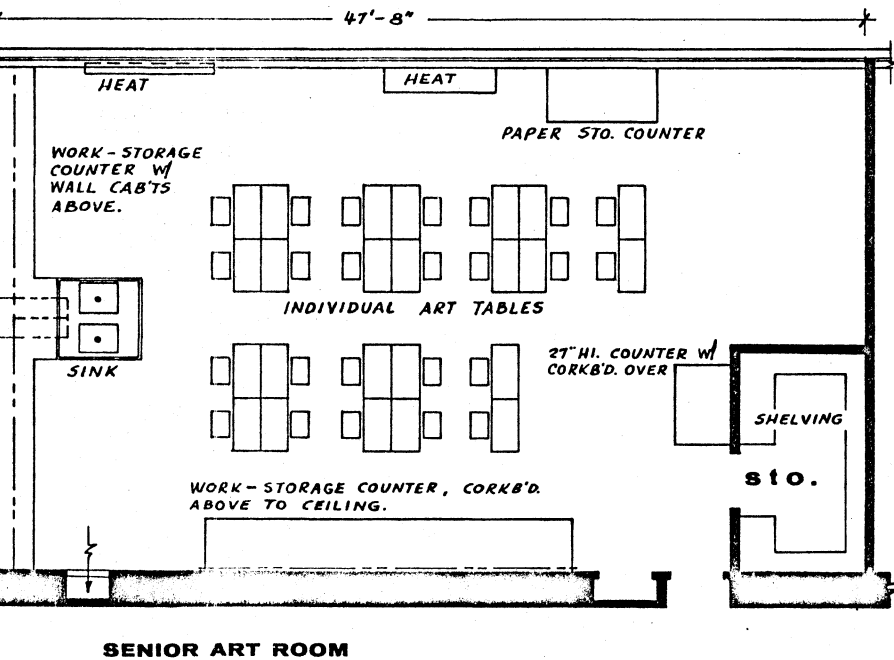
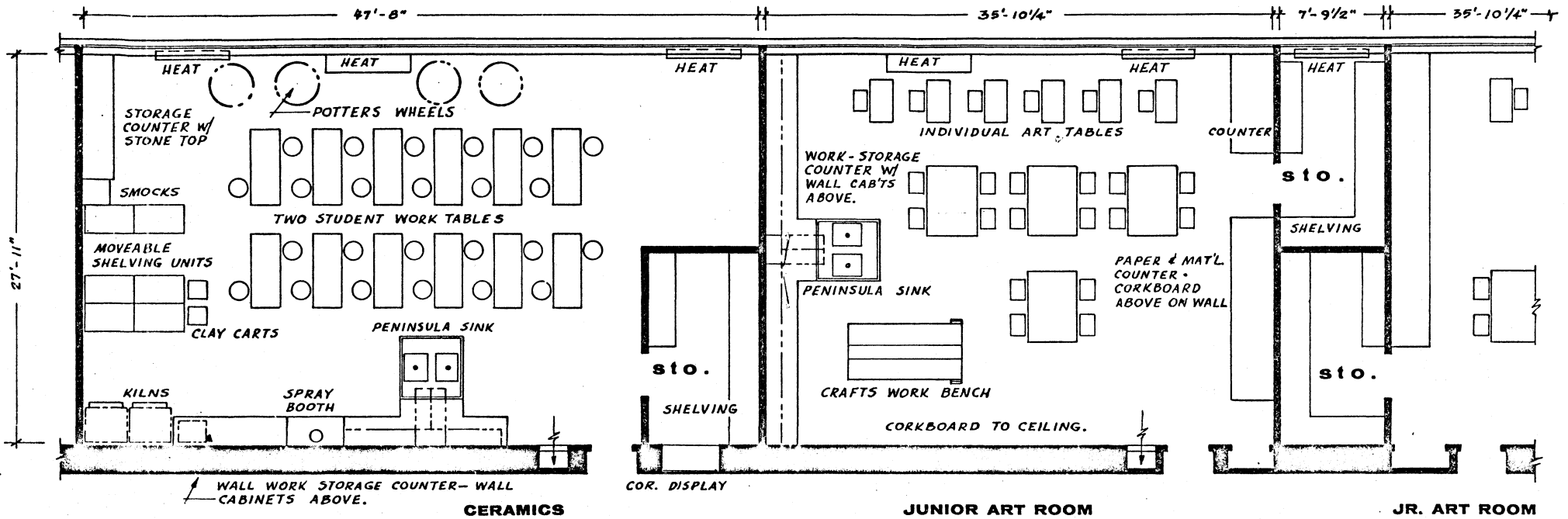
- 1 - WORK & DISPLAY COUNTER - 'ELF BELOW
- 2 - CORKBOARD - FLOOR TO CEILING
- 3 - MATERIALS STORAGE CASE
- 4 - DRAWING BOARD STORAGE CASE
- 5 - TOTE TRAY CASE
- 6 - DISPLAY CASE
- 7 - WORK & STORAGE COUNTER - WALL CABINETS ABOVE
- 8 - SLIDING CHALKBOARD ON COUNTER
- 9 - DEMONSTRATION TABLE - PAPER STORAGE BELOW
- 10 - FOUR STUDENT WORK TABLES
- 11 - SERVICE CART
- 12 - CRAFTS BENCH
- 13 - ST. ST. ISLAND SINK CENTER
- 14 - STUDENT CRAFTS BENCH
- 15 - CLEANING CASE
- 16 - PROJECT MATERIALS CASE
- 17 - TOOL CASE
- 18 - SPATTER BOOTH
- 19 - OPEN PROJECT & MATERIALS CASES
- 20 - KILN
- 21 - CERAMICS BENCH WITH POTTERS WHEEL COUNTER
- 22 - WORK & STORAGE COUNTER - DRYING SHELVES ABOVE - STORAGE & KNEESPACES BELOW.



- 1 - WORK & SINK COUNTER - STORAGE & KNEESPACES BELOW
- 2 - DISPLAY & STORAGE CASE
- 3 - SLIDING CHALKBOARD & STO. ASSY.
- 4 - ILLUST. MATERIALS CASE
- 5 - TOTE TRAY CASE
- 6 - TEACHERS CASE
- 7 - DESK
- 8 - DRAWING BOARD STORAGE CASE
- 9 - DISPLAY CASE
- 10 - INDIVIDUAL ART TABLES
- 11 - FOUR STUDENT TABLES
- 12 - PLANNING TABLE
- 13 - ST. ST. SINK CENTER
- 14 - STORAGE COUNTER
- 15 - POTTERS WHEEL COUNTER
- 16 - CERAMICS COUNTER - SPACE FOR KILN - DAMP CAB'T. BELOW
- 17 - OPEN DRYING & PROJECT SHELVING
- 18 - CRAFTS BENCH
- 19 - TOOL STORAGE CASE
- 20 - WORK & STORAGE COUNTER
- 21 - STUDENT CRAFTS BENCH
- 22 - PORTABLE CRAFTS BENCH

S-6

S-7



This Art Department exemplifies the facilities required in the more specialized senior high school art program. In this instance emphasis has been given to Ceramics and a separate studio has been provided. In other plans, separate facilities for Textiles, Commercial Art, or other art activity areas might be planned.

The Junior High Art Studio provides for individual or group activity in both Fine Arts and Crafts.

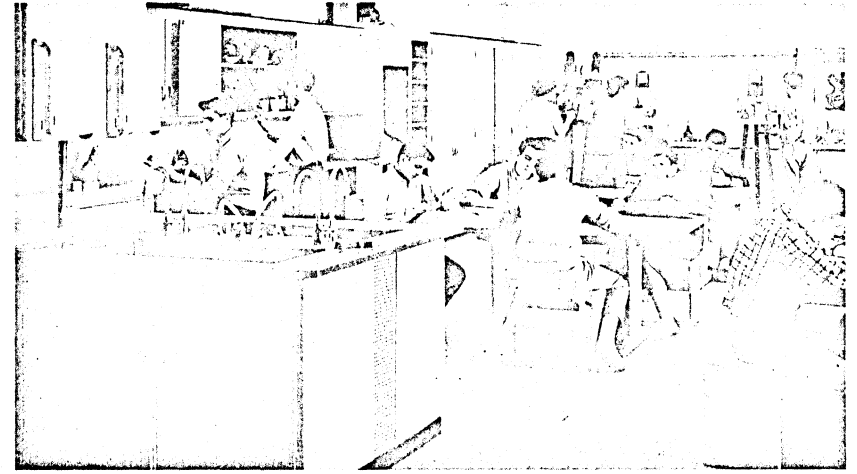
The Senior High Art Studio points toward individual student activity, but is flexible in that single student tables can be arranged for group activities. Crafts activities have been de-emphasized with the separate Ceramics Studio provided.



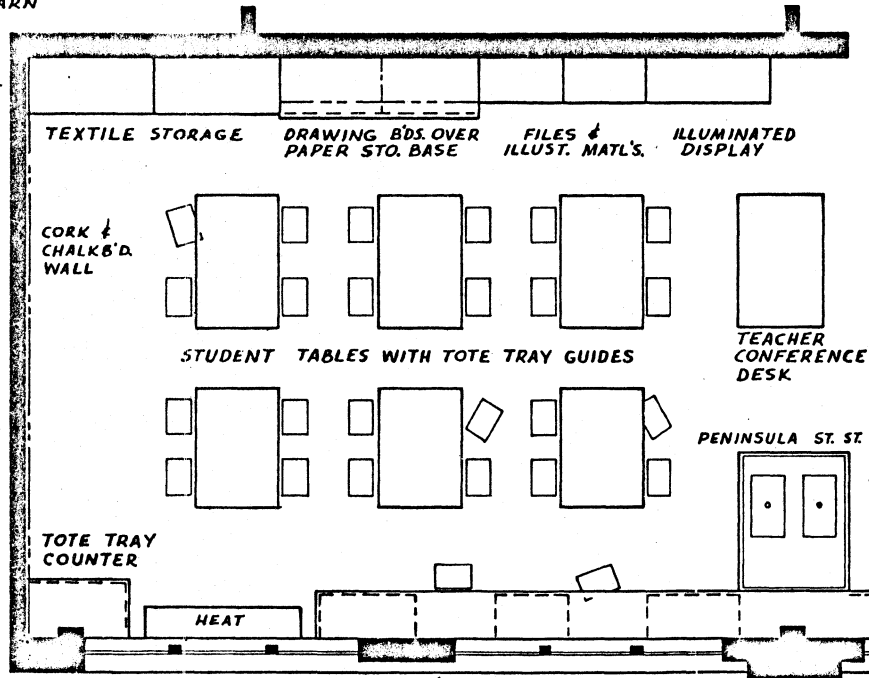
This single All-Purpose Art Studio Workshop is two-room in nature. It is planned to accommodate the entire class individually in either the Fine Arts Area or the All Crafts Area. Each of these areas is complete and may be used independently. The entire Art Studio is also used as a single facility.

Note how the sink center is ideally located to serve as a divider between the Fine Arts and All Crafts Areas, yet is perfectly located for use by students working in either area. The Teacher's Office and Central Supply Area also serve this purpose.

Every art activity from design and planning to industrial processes and applications can be accommodated in this plan. Note how emphasis in art activities such as textiles, metals, and others are reflected in the selection of equipment.



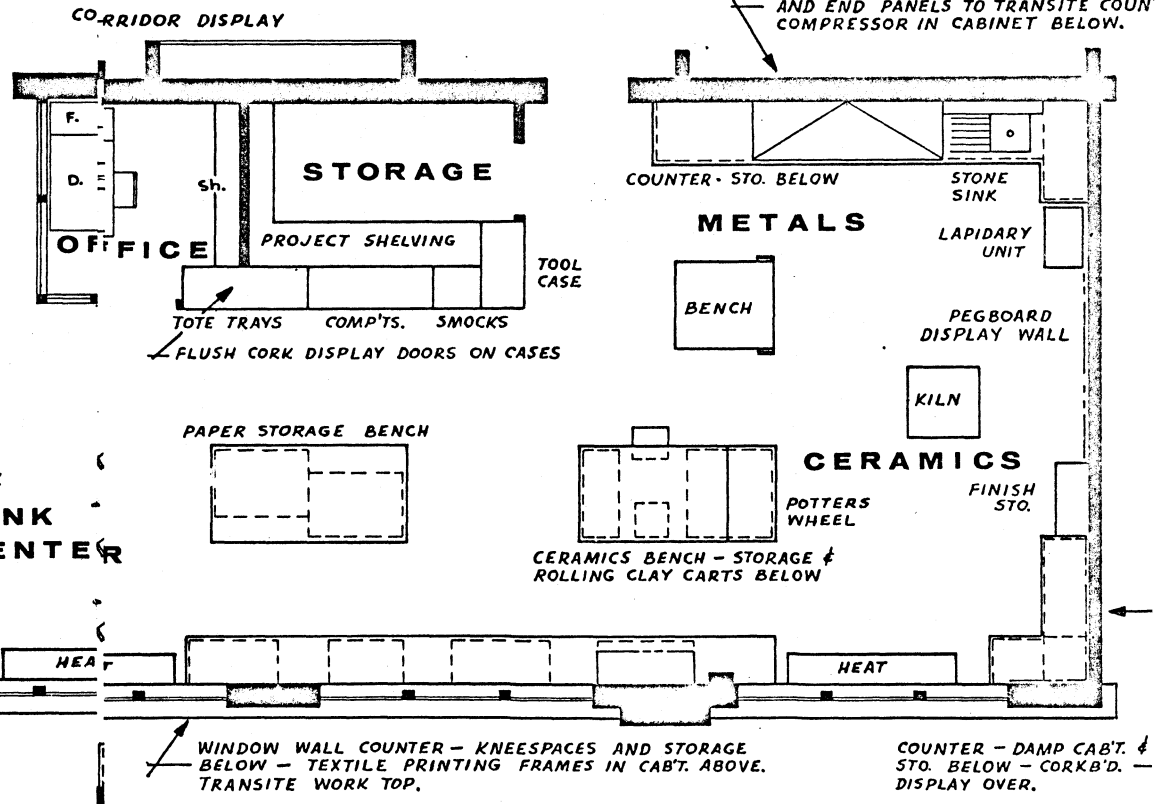
1/2" HALF DEPTH SHELVES ON INSIDE OF DOORS YARN



ROOM SIZE • 81'-2" x 24'-0"  
SCALE • 1/8" = 1'-0"

WALL COUNTER - KNEESPACES AND STORAGE BELOW.

S-10



WINDOW WALL COUNTER - KNEESPACES AND STORAGE BELOW - TEXTILE PRINTING FRAMES IN CAB'T. ABOVE. TRANSITE WORK TOP.

COUNTER - DAMP CAB'T. & STO. BELOW - CORKB'D. - DISPLAY OVER.

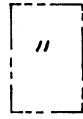
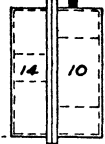
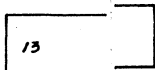
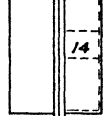
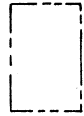
S-11

43'-9"

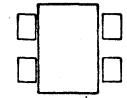
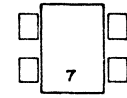
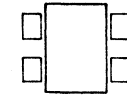
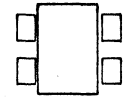
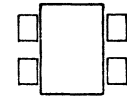
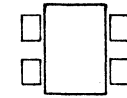
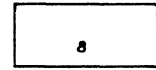
29'-6"

43'-9"

## CORE STUDIO



## CORE STUDIO



## CORE STUDIO

- 1- FLEXIBLE COMPARTMENT CASE
- 2- SLIDING CHALKB'D. & STO. ASSY.
- 3- FILES & ILLUST. MAT'L'S. CASE
- 4- TOTE TRAY CASE
- 5- PORTFOLIO & DWG. BOARD CASE
- 6- WORK COUNTER - KRAFT PAPER ROLL & STORAGE BELOW
- 7- FOUR STUDENT PEDESTAL TABLE W/ TOTE TRAY GUIDES
- 8- PROJECTS PEDESTAL WORK TABLE
- 9- ST. ST. SINK CENTER & WORK-STORAGE COUNTER - WALL CAB'TS. ABOVE.
- 10- LEATHER & PLASTICS WORK COUNTER STOCK & TOOL STORAGE BELOW
- 11- LEATHER & PLASTICS BENCH - future
- 12- FLAT STOCK STORAGE COUNTER

## CERAMICS

- 13- PEDESTAL WORK TABLE
- 14- WORK COUNTER - STORAGE BELOW
- 15- WORK COUNTER - DAMP CABINETS - PORT. CLAY CARTS - KNEESPACES - STORAGE BELOW - DRYING SHELVES ABOVE
- 16- ST. ST. SINK CENTER
- 17- WORK COUNTER - STORAGE BELOW - DRYING SHELVES ABOVE
- 18- WORK COUNTER - STORAGE BELOW

## METALWORKING

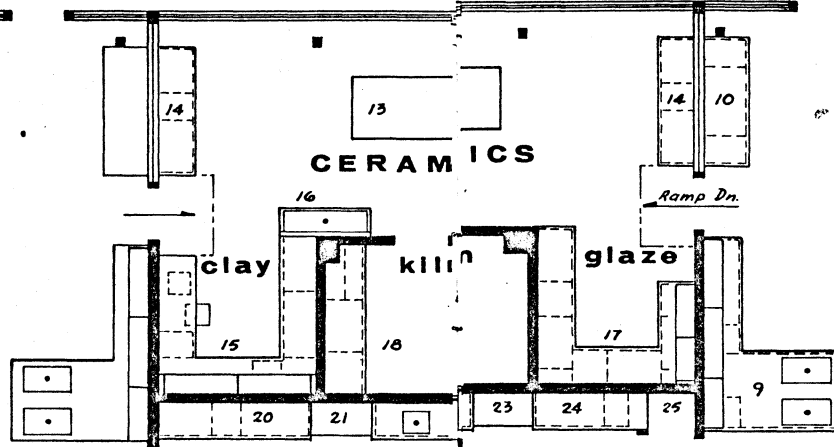
- 19- WORK COUNTER - KNEESPACES AND STORAGE BELOW - ATTACHED SWINGING STOOLS
- 20- WORK COUNTER - STORAGE BELOW
- 21- TOOL STORAGE CASE
- 22- SINK COUNTER
- 23- TOTE TRAY CASE
- 24- WORK BENCH - STORAGE BELOW - COMB WOOD - METAL VISE
- 25- SPACE FOR SAW

## STUDENT &amp; GENERAL STORAGE

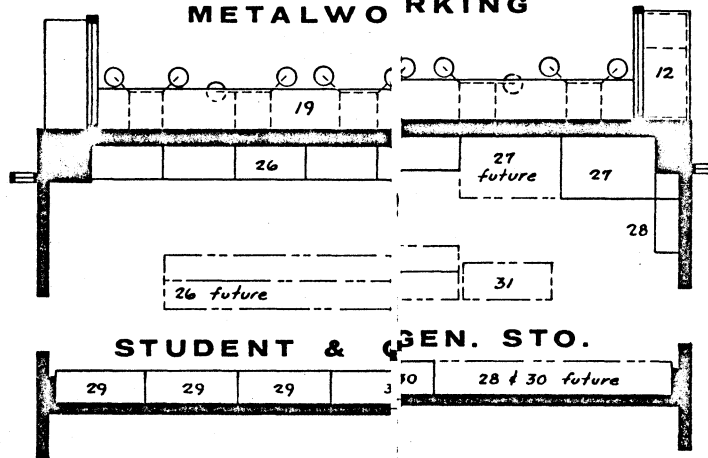
- 26- OPEN ADJ. SHELF CASES
- 27- PAPER - FLAT STOCK STORAGE CASE - TO 36" x 60" SIZE
- 28- PAINT & FINISH STORAGE CASE
- 29- TOTE TRAY CASE - 84 TRAYS EACH
- 30- SMOCK STORAGE CASE
- 31- TABLE - future

## OFFICE &amp; SPECIAL STORAGE

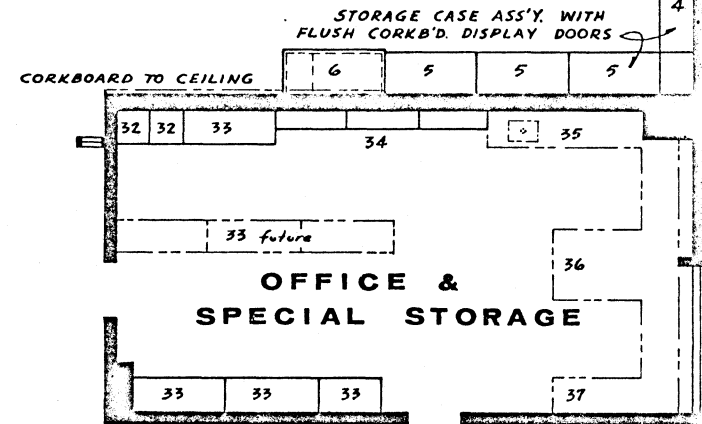
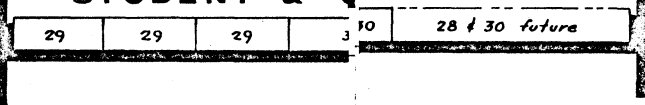
- 32- WARDROBE CASE
- 33- ADJ. SHELF STORAGE CASE W/ LOCK
- 34- OPEN SHELVEING
- 35- SINK COUNTER - future
- 36- DESK ASSEMBLY - future
- 37- WORK COUNTER - future



## METALWORKING



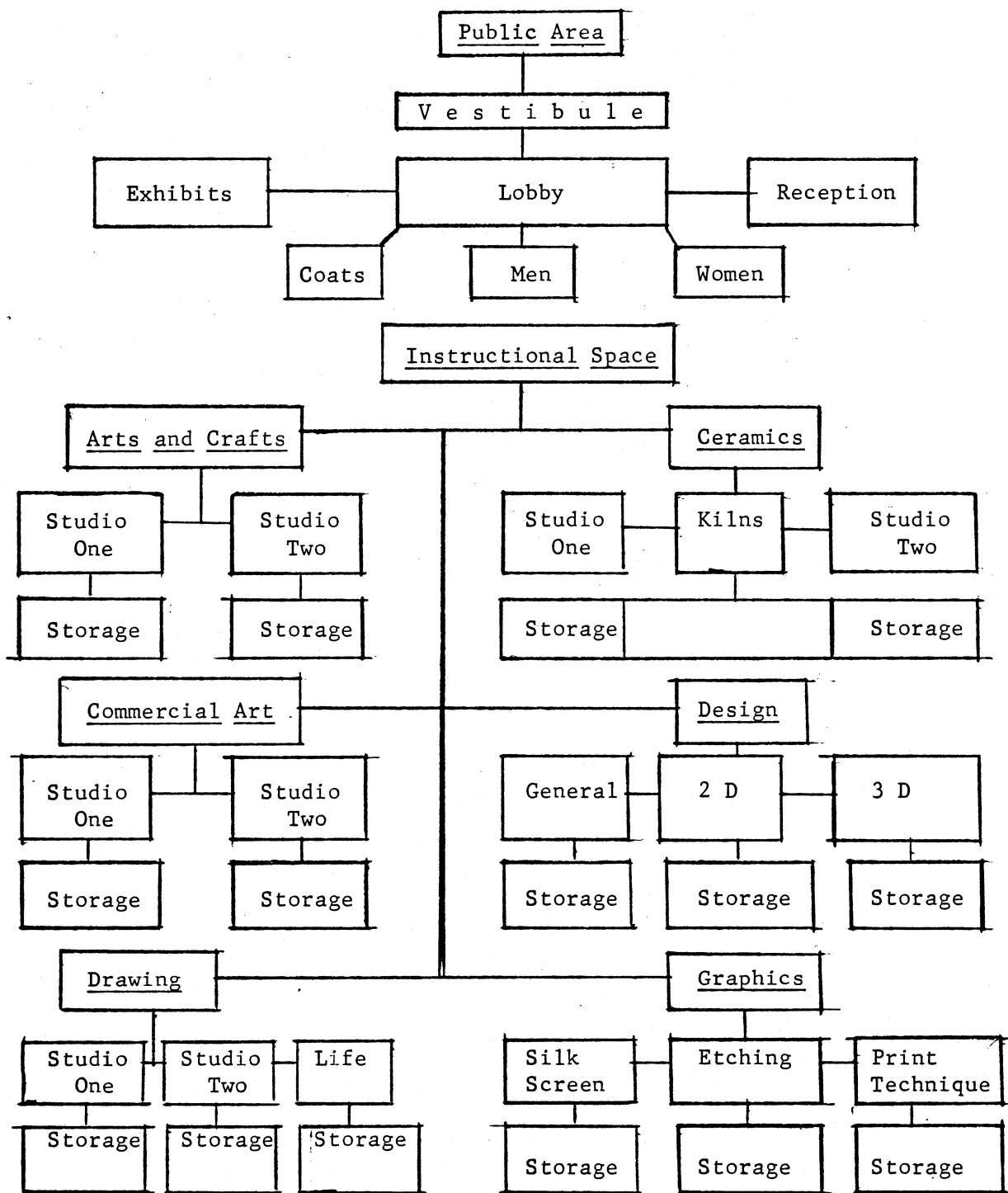
## STUDENT &amp; GEN. STO.



## GALLERY

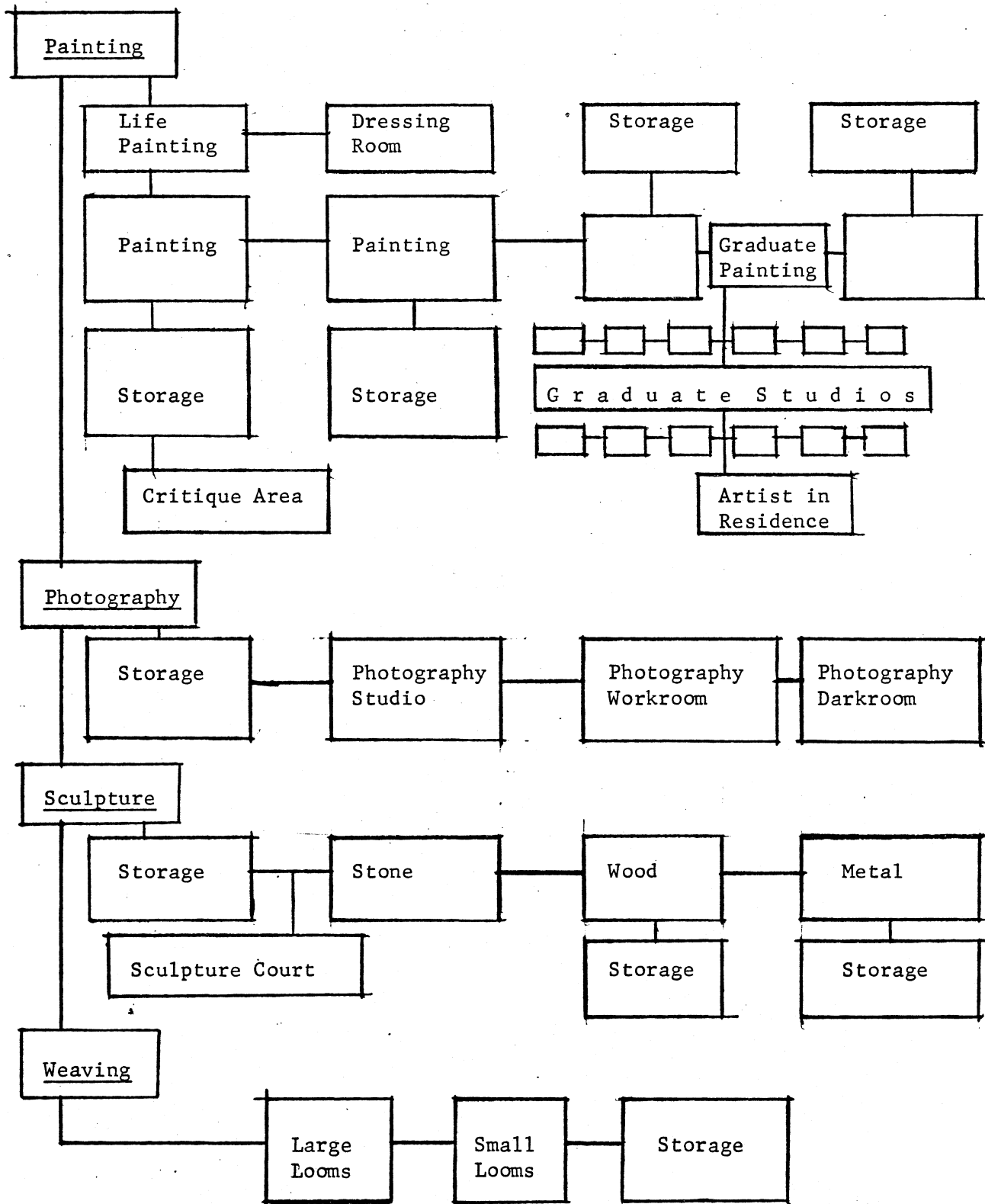
As part of a campus type high school, this art facility is a separate building of 9200 sq. feet. Instructional areas open from the spacious gallery and space is organized for specialized activities. This was done for instructional purposes and also because materials become less contaminated and maintenance is much easier where work areas are specialized. Glass walls are located between all studios so that teacher supervision can be maintained from almost any part of the instructional area. The sculpture court is located outdoors next to the gallery and the glass walls of the latter make it an art room for all students.

SPATIAL TRANSLATIONS: STUDIO AREA



SPATIAL TRANSLATIONS: STUDIO AREA

Page Two



## CHAPTER V

### THE STUDIO AREA

The studio area is by far the largest and most varied complex comprising the visual arts center. Each one of the rooms of this area are highly specialized and reflects the varied program offered in this area. While many courses are offered, in general they pertain to the following studio areas:

Arts and Crafts--weaving

Ceramics

Commercial Art

Design

Drawing

Graphics

Jewelry

Painting

Photography

Sculpture

These are the usual major areas found in most colleges and universities. At some institutions where there are exceptionally large and strong programs in this area, each of the above is greatly diversified; for example, architectural design is frequently an area unto itself. This also pertains to commercial art and photography, arts and crafts, ceramics, design, drawing, graphics, painting, and sculpture.

The problem is further complicated by the fact that the studio program serves both undergraduate and graduate students; this means that in some instances, special facilities need to be provided for graduate students. If there is an artist-in-residence, he should be provided with a studio and, perhaps, an office.

It is readily apparent that it is difficult to prescribe space allocations for this area. However, a guide-line for planning committees to follow is to develop the area in terms of their own studio program.

The following spatial translations of a typical program will help one get started or, at least, visualize the required spaces. In this manner one can look at the various solutions to the problem, as indicated in the floor plans of a number of the fine arts centers.

### Colgate

Colgate, which stresses the humanities aspects of painting and sculpture, provided a combination studio for both of them.

### Dartmouth

Dartmouth, on the other hand, provides two sculpture courts-- one on the first floor and the other on the second floor--and at the ground level is a combination sculpture and ceramic studio. Adjacent to the latter is a large woodworking shop and next to it a crafts room. Directly, on either side of the ceramic sculpture room, are the metal shop and graphic arts, respectively. On the main floor, combined into one large area is the architectural studio, design studio, and general studio, including two small separate and enclosed studios at one end.

### Knox College

At Knox College the creative arts are housed in one wing. This wing has a printing studio at one end and the painting studio at the other with the "General Studio" in between.

### Macalester College

In the survey of fine arts centers, it was pointed out that the Janet Wallace Fine Arts Center could well serve as the prototype because

of its special features in respect to general plan and room design.

First, in respect to plan, all the studios are housed in a relatively large rectangular shaped building. Around the perimeter are: faculty - sculpture studio; design; graphics; photography; drawing; faculty painting studio; painting studio; and advanced studio. Down the middle is the sculpture studio, which leads directly out-of-doors to a sculpture court, and at the other end the art lecture room. On the second floor are more studios for the crafts.

Unique in room design are the sculpture and painting studio.

The sculpture studio is a 56 by 40 foot skylighted studio that stretches up 24 feet high with a balcony that not only enhances the aesthetic quality of the room, but permits the manipulation of spotlights so that work can be viewed at different angles.

Large objects can be brought into (or out) the building without traveling through corridors with low ceilings. A motorized crane attached to a monorail under the ceiling can lift huge slabs of stone from the trucks to be set down anywhere in the studio.

At one end of the sculpture studio opens into a specially protected "hot-work" area which contains a casting room, bronze foundry, ceramic kilns, and arc-welding equipment. Included is a burn-out oven that will



take a piece nearly seven feet tall. The monorail crane, which can turn in every direction, can be used here to pick up the crucibles containing the molten metal that is to be poured into the molds. Meanwhile, students not actively engaged in the work can watch from the balcony.

At another end, the sculpture studio opens into a 50 by 20 foot out-door sculpture classroom dotted with birch trees, marked off by a 3 foot wall. The top of the wall made of a concrete slab provides work surface.

There are outlets for power tools and compressors and the entire area is directly related to the main studio, storage room, and faculty office.

The painting studio has windows that stretch two stories upward to provide good north light. It is a general "classwork" studio for 22 students which has carts with built-in-palette and lockable cabinet space on casters for each class member. The carts roll under the counter on one side of the room to free the center. This area also has its own out-of-doors painting and drawing court. For advanced students, there are two smaller studios for faculty and artist-in-residence, respectively, where students can see the professionals at work.

The graphic arts area, which is at one end of the building, contains about 1,900 square feet for etching, lithography, print-making, and photography (darkroom) studios.

### Wellesley College

Unfortunately, the floor plans presented do not refer to the studio areas; however, since there is a visual arts "wing," it can be assumed that the basic studios which are called "laboratories" are housed here. Also, since it is designed by Rudolph, it has many features found in his Art and Architecture Building for Yale University.

### Yale University

Even though many planners may feel that a facility such as Yale's is out of reach, a great deal can be learned from it. A study of the plans will reveal that it focuses on two central areas: a "jury pit" (almost an arena) on the first floor and a lofty drafting room on the third floor with the other functions (studios and the like) grouped around these central spaces according to a pinwheel pattern at different levels in order to achieve a type of unity between art and architecture.

Thus, while the "disciplines" have their own areas, they are brought together wherever possible. For example, painting which is at the sixth and seventh levels shares the jury pit with architecture. In the second basement are sculpture and other studios, such as, metal shop, woodworking shop, color and drawing, and the plaster room.

The basement level contains the graphic design studios and the fourth, fifth, and sixth levels are given over to architecture with the

intervening levels containing the library on the first level; exhibition, classrooms, and student lounge on the second level; and offices on the third level.

Thus, it can be seen that studios are distributed throughout the building. It is the unique design of the building, especially the interior spaces, that brings about an effective integration of the various studio areas with each other and with architecture. It is this design concept that should be kept in mind as one possible way for unifying the various studio areas.

#### Planning the Studio Area

It is hoped that the foregoing survey has been suggestive of the many ways in which this area can be treated--that essentially there is no particular way--that, in the final analysis, the studio area is developed in terms of institutional needs and program.

Now that the various ways have been observed in which the studio areas had been developed, some planning members will say, "This is all good; but how is each area planned?" In other words, what kind of space, equipment and furnishings should be provided for jewelry, graphics, or ceramics. The survey gave some indications, such as, the sculpture and painting studios at Macalester. Those indications, plus others, will be the basis for the discussion that follows in respect to the development of the respective studio areas.

The areas included in this presentation are those comprising a typical studio program indicated at the outset of this section and they can vary from one institution to another.

## Ceramics

Open space is one of the most essential requirements--without this, the students bump into each other; some valuable clay pieces are knocked to the floor; bottles of glaze are often found splashed on the floor as the result of a jolt. These accidents cannot be avoided within cramped areas.

The lighting should not be direct; it should be defused, perhaps, by the use of a semi-transparent screen which could also act as a type of sound barrier.

There is also a definite need for an excellent type of ventilation, especially when glazes and clays are being mixed or sprayed. To some students, the powders and gasses in the air could be quite detrimental to their health.

Very necessary also is a lecture area. How is a student to concentrate on the material presented when people are attempting to work or walk around. In order to avoid this, sliding walls prove valuable. When the area is not in use, these walls can be moved back out of the way. The keynote, in all the rooms, should be an emphasis on spatial concepts with open space and mobility.

## Graphics

As in the ceramics area, open space is one of the most essential requirements. It is important that planning committees keep in mind what is going "on" in the various studio areas and allow for it through careful consideration of types of equipment to be used and the effect it may have on the floors, counter, traffic pattern, and processes.

Other important essentials to consider are to be found in the list below:

- Drying areas (where prints will dry)
- Storage areas for student work
- Countertops preferably a type of stone
- Large couple island sinks
- Furniture for convenience
- Concrete floor
- Storage for various inks and acids
- Bulletin board

All committee members, administrators, or interested individuals should make themselves familiar with the various areas in the studio and the uniqueness of these areas. For instance, some of the processes included in this area are silkscreening, lithography, and block printing, to name a few.

## Jewelry

This classroom should be located on the main floor because of the nature of the processes used for this media. It is essential to locate this area on the main floor because of the use of torches, the need for ventilation and, of course, to control noise. There should be separate areas for the following: casting; enameling; regular jewelry; and lapidary work. Each of these areas must be separate and not completely integrated with each other.

Display areas are very essential to the student; many hours are put into one piece of jewelry and to have the piece displayed is meaningful to the student, even though it will not have the same consequences for the instructor.

There should be an area only for the purpose of jewelry materials; this is essential because to attempt to purchase these materials elsewhere is ridiculous. In most cases the prices are higher or the materials purchased may not be of the best quality; also trotting around for the materials is inconvenient, to say the least.

A separate office is necessary in this area, as it is in any of the other areas in the center. The instructor should be available a certain amount of the time for student conferences and at the same time have an area of his own in which to hang his hat.

## Sculpture

The most important need of the sculpture studio is to have separate areas for the various activities that are carried on. These areas are important so that the welders will not endanger the innocent bystanders who are also trying to accomplish something masterful. There is also a need to have people who are carving wood apart from those attempting to work with clay or plaster. Students working on modeling should also be in a separate area.

Other important features to consider in this area are:

Lecture area

Flexibility within the area

Outside terrace or sculpture garden

Traffic pattern

Storage for student materials

Display area

It is hoped that a committee can see, as in the other areas of this section, some of the problems unique to this area. Of course, it would be possible to elaborate much more; however, for our purposes here the ideas presented should give a basis for thought.



## Painting and Drawing

The area of painting and drawing will be of major concern to most committees because it is probably found in more art centers than are the other areas mentioned herein. It is for this reason that more detail will be used to show some of the features unique to the painting and drawing area.

In this area there should be sufficient easels for all students so that they do not have to go around lugging their paintings behind them, looking for a place to store them, when not in the process of working. On the other hand, if and when they finish a painting, there should be sufficient storage space for all work produced by the students.

Skylights, which are used extensively throughout Europe, would be more than valuable in the use of painting and drawing rooms.

Another idea mentioned previously is the use of the open terraces. Terraces in the painting area would enable the students to communicate with the out-of-doors.

In order to effectively analyze painting, it is more than necessary to have an area set aside for critique. Not only should chairs be included in this area, but also available space should be provided to hang paintings for discussion.

Necessary to the functioning of this area is an efficient system of disposal; disposal of paints, turpentine, rags, excess canvas, and other wastes. One cannot continue to haphazardly dump these things into any open wastebasket.

Within the drawing room there should be movable partitions enabling one group to work with still-life material and one group to work with life drawing. A dressing room should be provided for the models and storage areas for still-life subjects.

Movable spots are essential when working with the still-life and life drawing.

Other important features to consider in this area are:

Portable drawing boards

Display areas

Bulletin boards

Semi-direct lighting

Lecture area

Personal storage (materials and finished work)

Still-life storage

Separate office for instructor

The previous discussion concerned itself with the major and most obvious areas that comprise the studio complex. The specialized

areas, such as photography, weaving, arts and crafts, ought to be considered in a similar manner but from the standpoint of equipment needed, and factors unique to them.

## CHAPTER VI

### THE FINE ARTS LIBRARY

In quickly looking over the plans of the fine arts center in the survey, it will be noted that some of them provide an art library and others a place for study. It can be assumed that a "place for study" refers to some type of art library or art study room where students can study slides, prints, and the like, while the art library refers to a specialized library. Both types, therefore, reflect the needs of the visual arts program or that of the particular institution.

For example, in looking through the plans of the fine arts center, it will be found that some do not include an art library--implying that it is part of the "main" library--such as, Colgate and Dartmouth; others include a library, such as, Wellesley and Yale; and still others include a type of "study space"--visual resources room--as at Macalester and Knox.

It can be seen that the inclusion or exclusion of an art library varies from place to place. Undoubtedly, though not indicated in the

plans, those centers which do not have an art library do provide some sort of study space for visual arts, music, and drama students. Such spaces probably would be located in the respective areas, perhaps, as part of the art history-appreciation complex.

### The Library and the Art Library

#### The Library in General

For an understanding as to what an art library should be, a quick "look-see" at any good, contemporary, college-university library will be helpful. Such "enlightened" college and university libraries can be found all over the country.

Typical university libraries are: Louisville, Washington University, St. Louis, Valparaiso, Harvard, Purdue, Texas, Cornell; and college libraries: Colorado, Baldwin-Wallace, North Dakota State, Bennington, to mention a few. These are among the best contemporary examples in the country and should be given careful consideration.

For the record, the discussion (in part) and appended diagrams are derived from the excellent publication by the Educational Facilities Laboratories, "The School Library." (46)

In general, after a study of various plans, perhaps a visitation to some of them, consultation with librarians, and reading about the

libraries, it will be found that they have some of the following features in common in respect to plan and concept:

Concepts:

Meant for individual use and independent study;

Reflect new educational concepts;

Offer rather than ration information;

Appeal to the reluctant student as well as interested one;

Open stack;

Integration of technological media, audio-visual instructional materials, and older carriers of knowledge.

Facilities and Plan:

Location in the "stream of traffic";

Open-planning, open stack, flexible, and expandable;

Inviting, comfortable, and noninstitutional;

Equipped with newest technological communication devices;

Electronic study areas, carrells, and "visual stations."

Implications:

The features cited for concepts and facilities indicate the most progressive ideas prevailing today (1966): concepts that anticipate the future.

The reader, who is not familiar with all the concept, can refer to the bibliography; however, many will be explained in conjunction with the planning of the art library.

The art library is developed in terms of the broad ideas and concepts just listed.

### Summary

In summary, the contemporary library is not only a repository of knowledge, but it is and does many things; it is the new physical setting and facility to enhance all aspects of teaching and learning or an environment which will encourage learning rather than resistance to it; it is the logical starting point for independent study and inquiry; it is a library that is in tune with the times; and it is a library that is designed for work -- therefore, dynamic and not static.

Finally, a comment or two about the term "library." Since the library is undergoing radical transformation, perhaps it should be called something else, thereby reflecting the expanded concept of its services, such as "instructional" or "learning center," "media center" and the like; however, it will be simply called "art library" in the traditional sense of the words.

The traditional connotation is understood by everyone: the library is a repository of knowledge and the student or person who comes to the library does so for the traditional reason, to obtain information. The new carriers of information do not alter these two traditional facts

in any sense of the word. Thus, listening or viewing, the student is merely expanding his usual activity in the library.



## Planning the Art Library

Up to a certain point, there is not much difference in planning an art library or a general library. Where the similarity ceases is in the development and of making special provisions for the visual arts and the other related arts of drama and music; however, before going any further with the planning, a few preliminaries need to be considered.

### Preliminary Considerations

Before the planning of an art library can begin, a few (or several) questions need to be answered: Where is the art library to be housed? It can be housed in the fine arts center, in the center for the performing arts, in the visual arts center, in the humanities building, or in the main library. Thus, it can be seen that the art library can be located in a number of places. If the art library is not located in the art center, obviously this affects the design and likewise, if included in the complex.

### Starting Point for Planning

The logical starting point for planning a visual art library is to look at the respective art programs for the visual arts. These have been presented in chart form elsewhere but are collectively summarized here for purposes of comparisons. Next, the related activities should be considered.

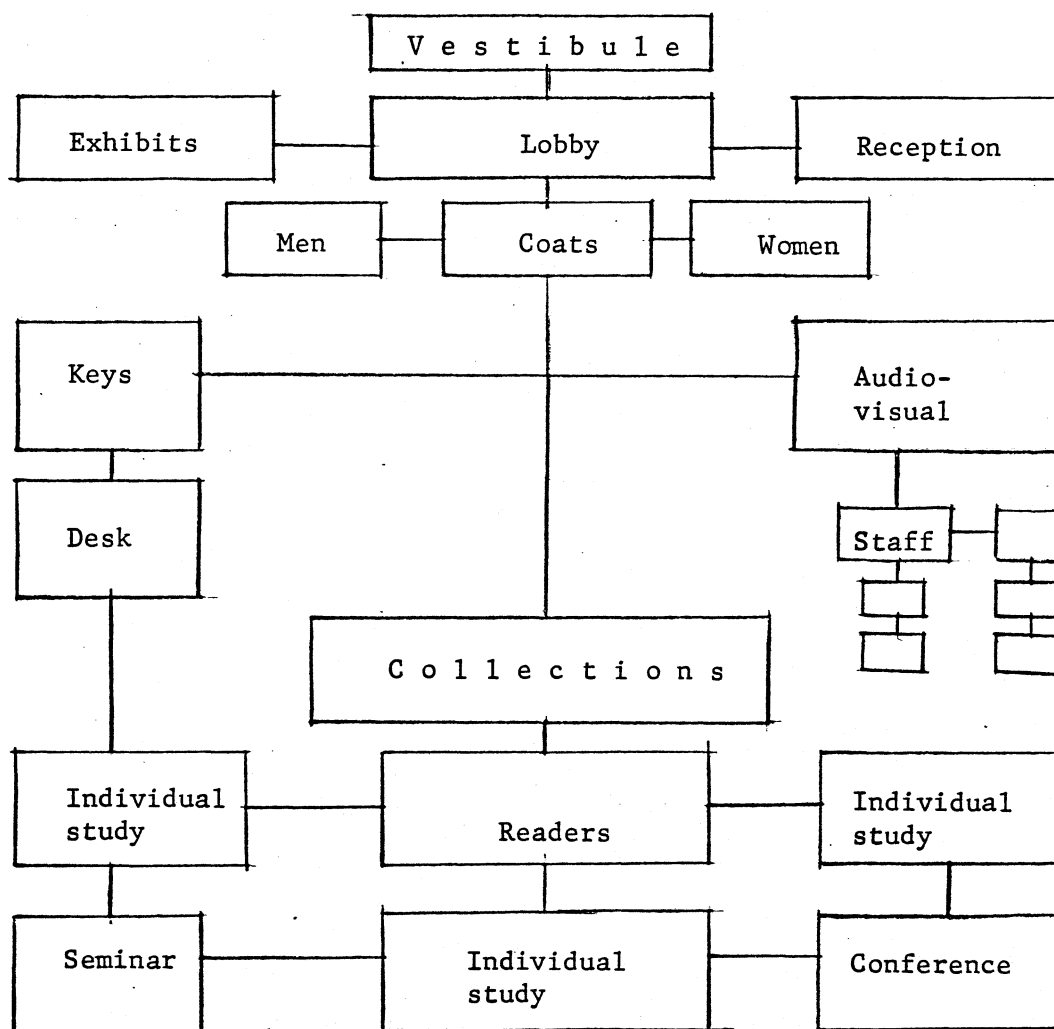
## Activities

The programs obviously indicate various specific activities; the reference is to general library activities. An analysis of these activities and those of the specific program will provide planners with a concept as to the kind of spaces, provisions, and equipment which an art library should have. All these activities are summarized in the chart that follows, which in turn, is followed by the space diagrams.

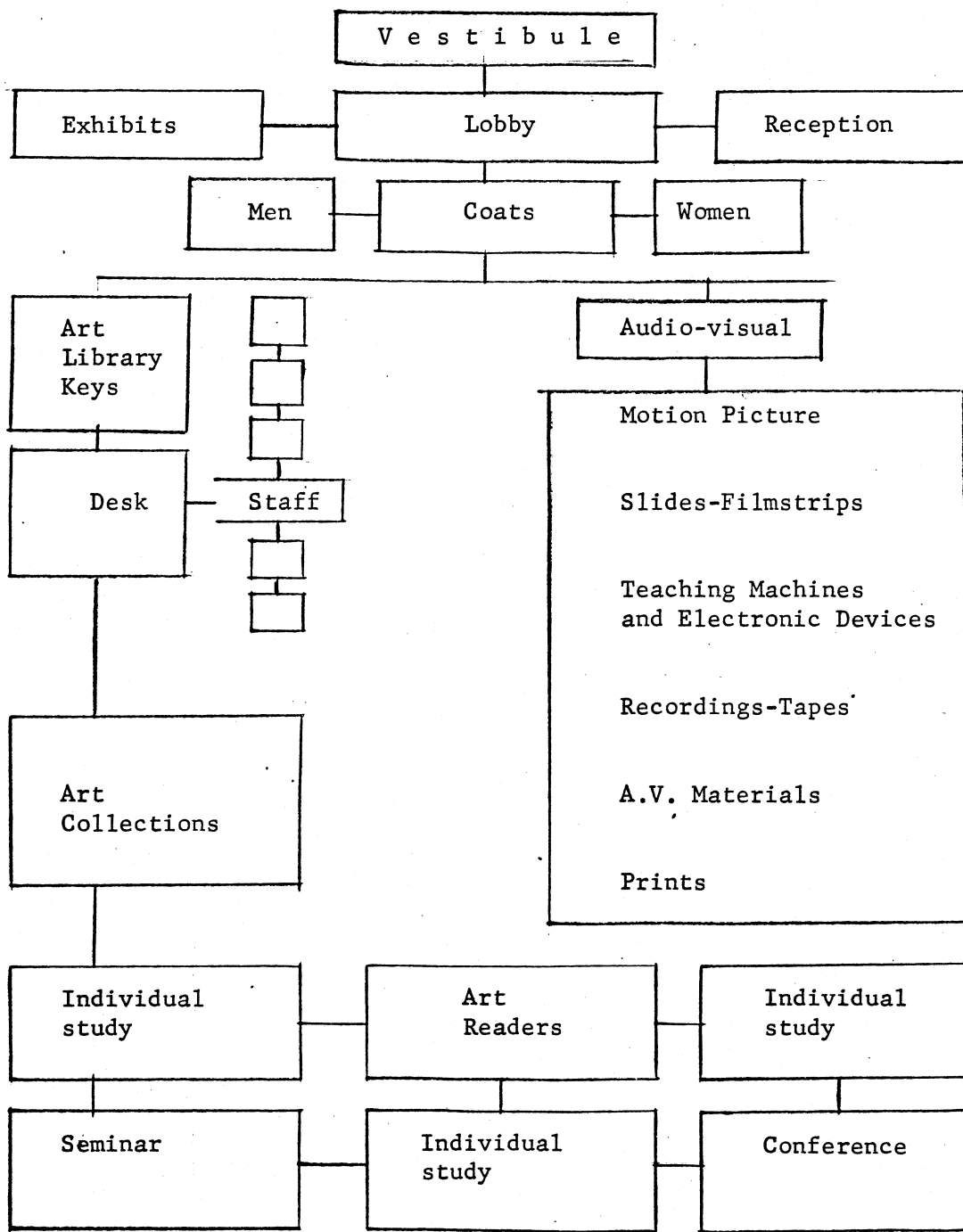
## COMPARATIVE ACTIVITIES CHART

General	Specialized
<p>Find answers to specific questions</p> <p>Get information</p> <p>Study for a specific amount of time</p>	<p>Look at:</p> <p>Motion pictures Filmstrips Slides Study kits Prints Other audio-visual materials</p>
<p>Committee work</p> <p>Find material for research projects</p> <p>Learn how to use card catalogue (retrival system), references, indexes, etc.</p>	<p>Listen to:</p> <p>Recordings Tapes</p> <p>Study with:</p>
<p>Locate quotations, exerpts, etc.</p> <p>Read for the fun of reading</p> <p>Browse</p> <p>Talk with other students</p>	<p>Teaching machines</p> <p>Retrival system</p> <p>Programmed instructional materials</p> <p>Reading machines</p> <p>Various other electronic devices</p>

GENERAL LIBRARY SPATIAL DIAGRAM



VISUAL ARTS LIBRARY SPATIAL DIAGRAM



## General Interpretation

Collectively, the spatial diagrams indicate general space requirements for the fine arts library as a whole and the respective divisions; the latter help visualize the kind of spaces needed for an art library. These, as in the case of the other spatial diagrams that have been presented, frequently serve as the guidelines for architectural drawings and plans, such as those appended, which suggest four possible interpretations.

However, in arriving at those interpretations, certain special requirements indicated or implied by the spatial diagrams need to be taken into consideration.

## Function

In both, the space diagrams and the floor plans, the arrangement is in terms of function.

Areas are zoned according to function.

A general circulation flow moves or routes students from entrance (lobby) to keys to materials to reader space and independent study places.

The above two axioms refer to whether the library is large or small.

In respect to the layouts and to circulation, prime consideration was given to permit students to move about without disturbing the readers. Thus,

after a student enters the art library and has consulted the keys, he should be confronted with the art collections and be obliged to pass through these, before he finds a place to sit down to "read," "look," and "listen." In the diagrams and plans, therefore, accordingly and are arranged in varying patterns.

### Administrative Facilities

#### Keys

At the moment, the keys come in two forms: a card catalog in cabinets, and printed bibliographies kept on shelves. Meanwhile, here and there, the traditional keys are being changed over or replaced by electronic devices. It is not likely that the latter will occur in specialized libraries for some time. In respect to space allocation, it is recommended that the card catalog, including stand-up table, be about 100 square feet and that the reference collection about 300 square feet. These, as indicated in the plans, are located close to the library entrance, so that this will be the first thing the student sees, as he enters the art library.

#### Reference-Consultation Desk

The librarians consultation or reference desk has been placed close to the keys, so that, if students need help in locating or finding certain materials, the librarian will be at hand to help.

### The Circulation Desk

Also placed near the entrance, the keys, and the consultation desk there is the circulation desk. About 10' x 12' or 120 square feet should be available for this area. Some day, however, this operation will be replaced by electronic devices.

### Quarters for the Art Staff Librarian(s)

Each area of the library -- visual arts, music and theater -- whether combined or separated, should be provided with a reference consultation room or office. If space and budget permit, both would be desirable; however, in most instances, one room serves a dual function and for small libraries this arrangement is quite satisfactory.

In any case, the room should be directly behind the consultation desk and readily accessible to students for discussion with the art librarian. Furthermore, the room is so located that when the librarian is sitting at her own desk she can see the charging desk, catalog, and much of the library.

### Media Specialists Office

This actually applies to a number of specialists, such as music, theater, visual arts, and audio-visual. In a large installation, these specialists would be needed in addition to the librarians; thus, office and work space is provided accordingly. A smaller library would have need



only for audio-visual specialist.

The audio-visual specialists' office is comparable in size and furnished similarly to that of the librarian. In addition, it is equipped with a small screen and convenience outlets at table height for plugging in various audio-visual devices.

#### Media Storage Room

Adjacent to the media specialists office is the "storage room" for audio-visual instructional materials and equipment. This is the basic storage area for the fine arts center (or, the respective areas) of portable audio-visual equipment with appropriate materials and a variety of audio-visual instructional materials: the latter are part of the libraries collections. Since this area is more than a place to store equipment and materials, it will be discussed fully in the section of collections.

This area, whether it is regarded as a storage area or part of the collections, should be located adjacent to or near the circulation desk for easy accessibility by the charge librarian, as this is the place from which she will procure equipment and materials that a student desires to check out. Since it is difficult to determine exact size of collection, a minimum of 200 square feet has been recommended for this area.

### Technical Process Room(s)

This area may consist of a room or series of rooms, as implied by the title, and would depend upon how many functions take place here.

The activities include the following:

Cataloging

Maintenance Work

Repair of Library Materials

Production of General Teaching Materials

Production of Graphic (visual-instructional) Materials, such as transparencies.

Production of Printed Materials, such as supplementary readings.

Production of Audio Materials, such as recordings and tapes.

The first three of the activities mentioned above are functions of all libraries; therefore, space for the other activities should be provided accordingly, and space for the production activities, on the other hand, may or may not be included, since such functions are frequently performed as a service by the audio-visual center.

The variety of activities and functions that are combined will determine the amount of space needed for the technical process room. A comment or two should be made in respect to the kind of space and furnishings needed for the first three functions, since the latter --

production of general teaching materials, of graphic materials, printed ones, and of audio materials -- are always part of any library, including art libraries.

Now that it is possible for art libraries to purchase books, recordings, tapes, and the like already catalogued, the technical processing room need not be as large as it was in the past. All that is required is space for a large table with a marble or hard-wood top that can be scraped clean, a sink, a typewriter, and shelving for storing repair equipment rather than books and other library materials; the latter are kept on the book trucks and catalogued from there. Obviously, if other functions are added, this room will have to be enlarged accordingly.

#### Instructor Preparation Conference Room

The instructor-preparation-room is a place where instructors and the library personnel can get together and discuss instructional materials that may be used for teaching purposes, classroom activities, and reference projects. Such materials may include the entire range-- books, periodicals, films, slides, replicas, and the like. This room should be flexible in every sense of the word.

The conference room should be so designed that one instructor can "pre-listen" to recordings and tapes via earphones while another previews filmstrips, slides, or motion pictures. Reviewing motion

pictures obviously requires special room arrangement, acoustical treatment, lighting, and furnishings and equipment.

Also, it is expected that this room will serve other functions as well. For instance, library staff will meet with instructors, committees, students to discuss matters pertaining, perhaps, to requisitioning instructional materials or which materials would be appropriate for class use or which; this is the room where instructors and library staff can plan the "activities" the library is expected to carry out.

We have referred to this space as a conference room, but since it performs special functions, it is also referred to as the technical processes room. For this reason, it should be somewhat larger than the usual conference room. It should not be smaller than 15 x 20 and preferably larger.

### Control Room

The control room is difficult to define in terms of space and functions because the amount of space needed is partially determined by the kind of controls that are to be installed. Such controls may be for the studio, public address system, computer, telemation, closed circuit television, automated instruction, response system, and retrieval system.

The obvious recommendation that can be made is that if the control installation is small, it probably can share the studio space; if it is large, a special control room that can be expanded should be provided. A minimal room would be comparable to the studio; 20' x 25', and enlarged accordingly as more equipment is added.

### Reader Facilities

#### Over-all Space Requirements: Percentage

By over-all space requirements for readers is meant how much space should be provided for how many students. A "rule of thumb," practiced by many college and university libraries and as recommended by the American Library Association, is to provide space for 30 per cent of the total enrollment.

In respect to the visual art library, the percentage is based on total enrollment in the art center. For example, there are 200 majors in each area plus 600 taking the various "service" courses; this makes a grand total of 1200 students. Thirty percent of this figure is 360. Incidentally, the latter figure is in proportion for schools with an enrollment of 5,000. Obviously, for schools of 10,000, reader space for 720 should be provided, and for half the size (2,500), 180.

### Hours Spent in the Library

Another factor to consider, in estimating the amount of reader space that is needed is the number of hours a student will spend in the library. Again another "rule of thumb" can be followed. It has been traditional for college and university students to spend three hours studying for each hour of classroom teaching. Thus, if a student is taking an appreciation course which meets three times per week, it is expected that he will spend nine hours in the art library.

### Space Per Student

Fortunately, there is another "rule of thumb" to follow. As a minimum, there ought to be 25 square feet per student--preferably larger, 30, and in some special cases as high as 40. For a library, however, 25-30 square feet would be adequate.

Using the predetermined figure of 360 multiplied by 25 square feet per student equals the minimum amount of reader space. The adequate space would be 9,000 square feet, or a large square room approximately 94' x 94', or a rectangular room 120' x 75'. The latter is divided into various kinds of reader spaces.

On the basis of recommended percentages, space of 9,000 square foot rectangular is allotted as follows: study carrel, 60 percent or 5,400 sq. ft.; group study rooms that may also serve as rooms for the use of

audio-visual equipment, 15 per cent or 1,350 sq. ft.; flat top tables, 8 per cent or 720 sq. ft., and lounge furniture, 17 per cent or 1,530 sq. ft. If faculty studies are added, a minimum 6' x 8' or 48 sq. ft. each should be added to the original area. Several such studies will enlarge the basic area considerably.

The logic of the percentages will become apparent, as the various areas of the reader space are described and as the latter are translated into spatial diagrams.

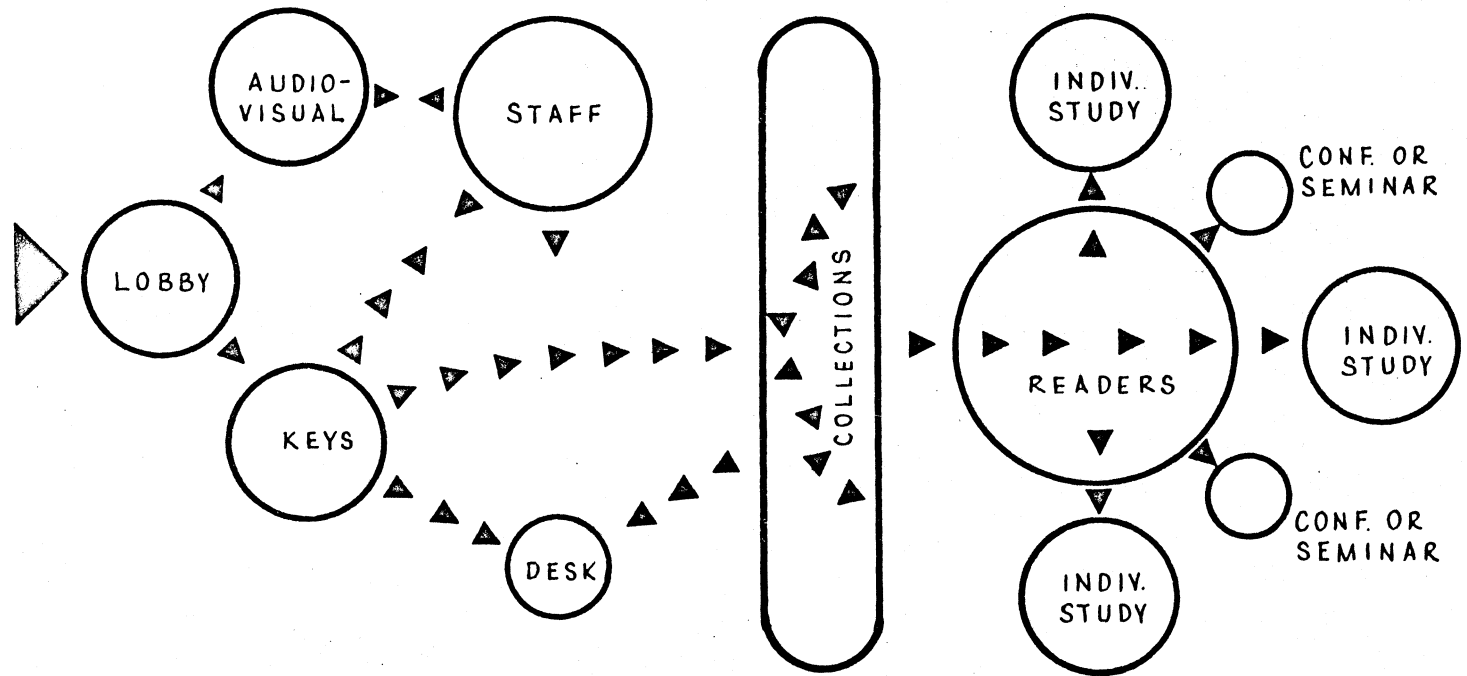
Finally, the reader-space represents only a portion of the library. To this portion must be added the other spaces, such as public, maintenance, offices, collections, and perhaps others. In general, the total of these areas will equal that of the reader-space or exceed it by many square feet, particularly, if many special rooms are added, such as audio-visual, studio, and control areas. Meanwhile, the percentages and square footage cited for the reader space will perhaps indicate the over-all proportions lay-out and shape of the library.

### Layout

Comment was made earlier upon the logic of the layouts and it was diagrammed; therefore, only certain essentials will be repeated here. The basic guide-line to follow in respect to area and furniture and equipment layout is to arrange the latter in such a manner that it

allows students to move about without disturbing other readers. As pointed out, this is accomplished by placing the reader space at the back of the library and the collections at the front. For further reminders, the reader must consult diagrams accordingly.

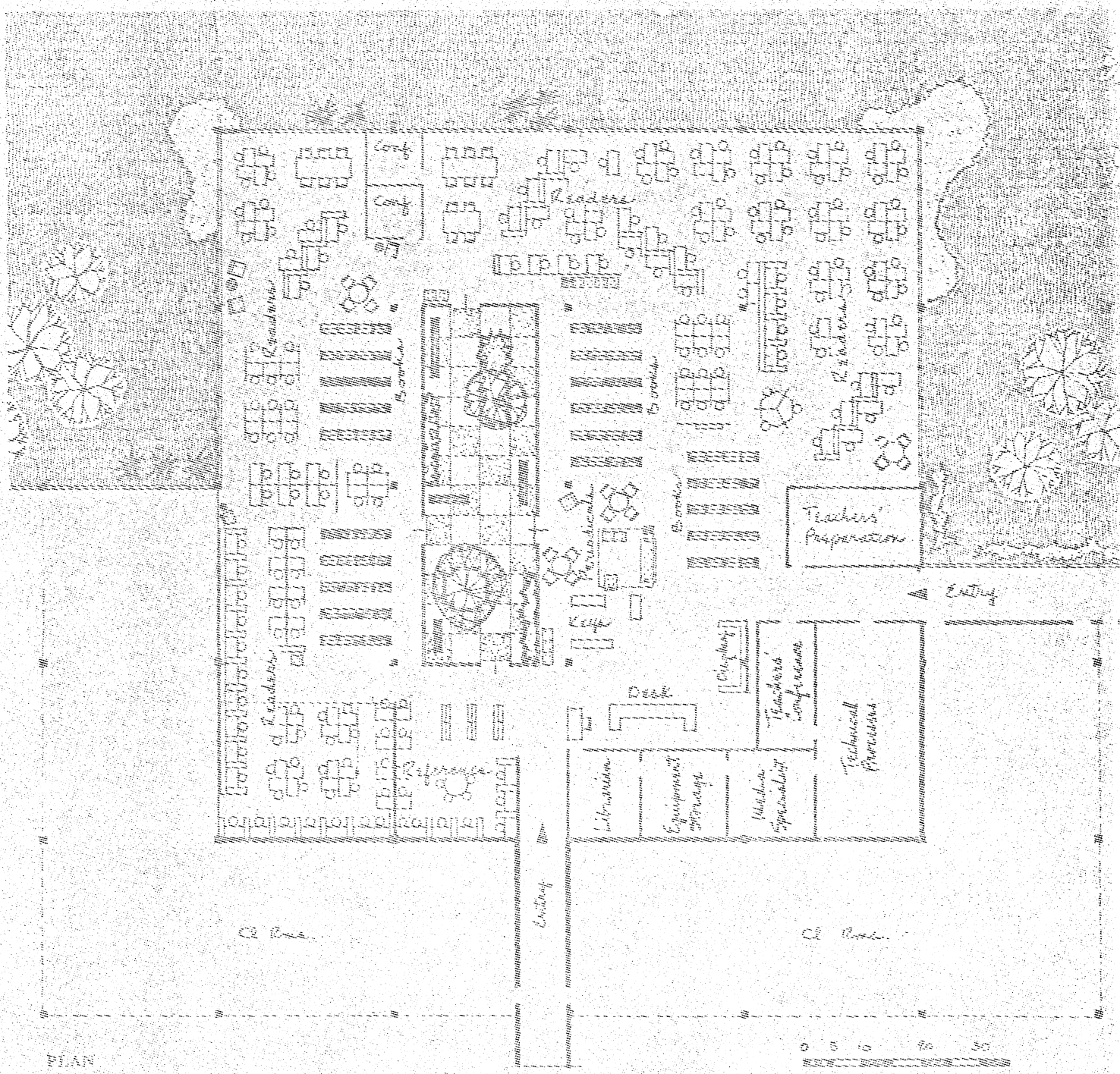


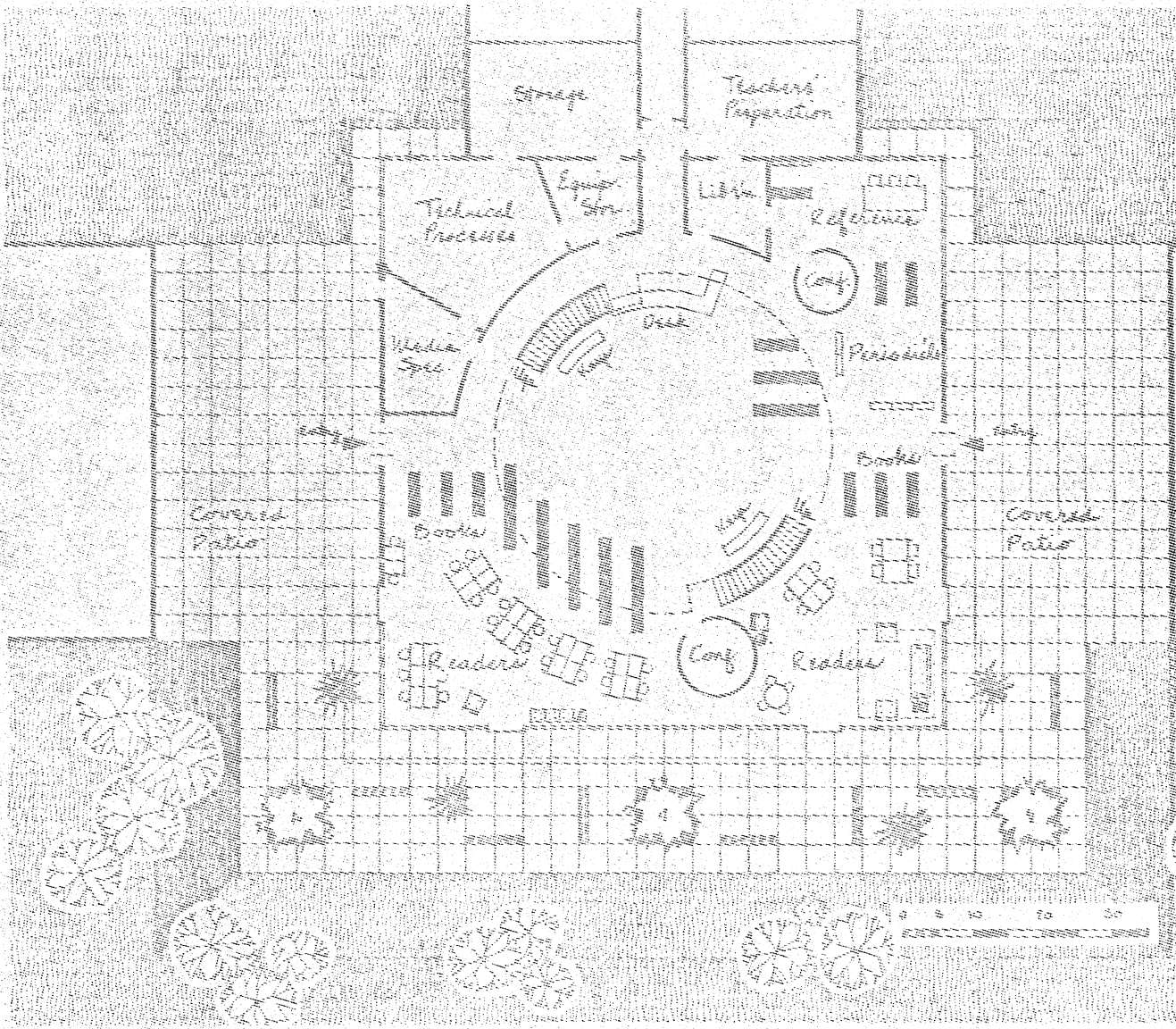


**LAYOUT AND CIRCULATION**

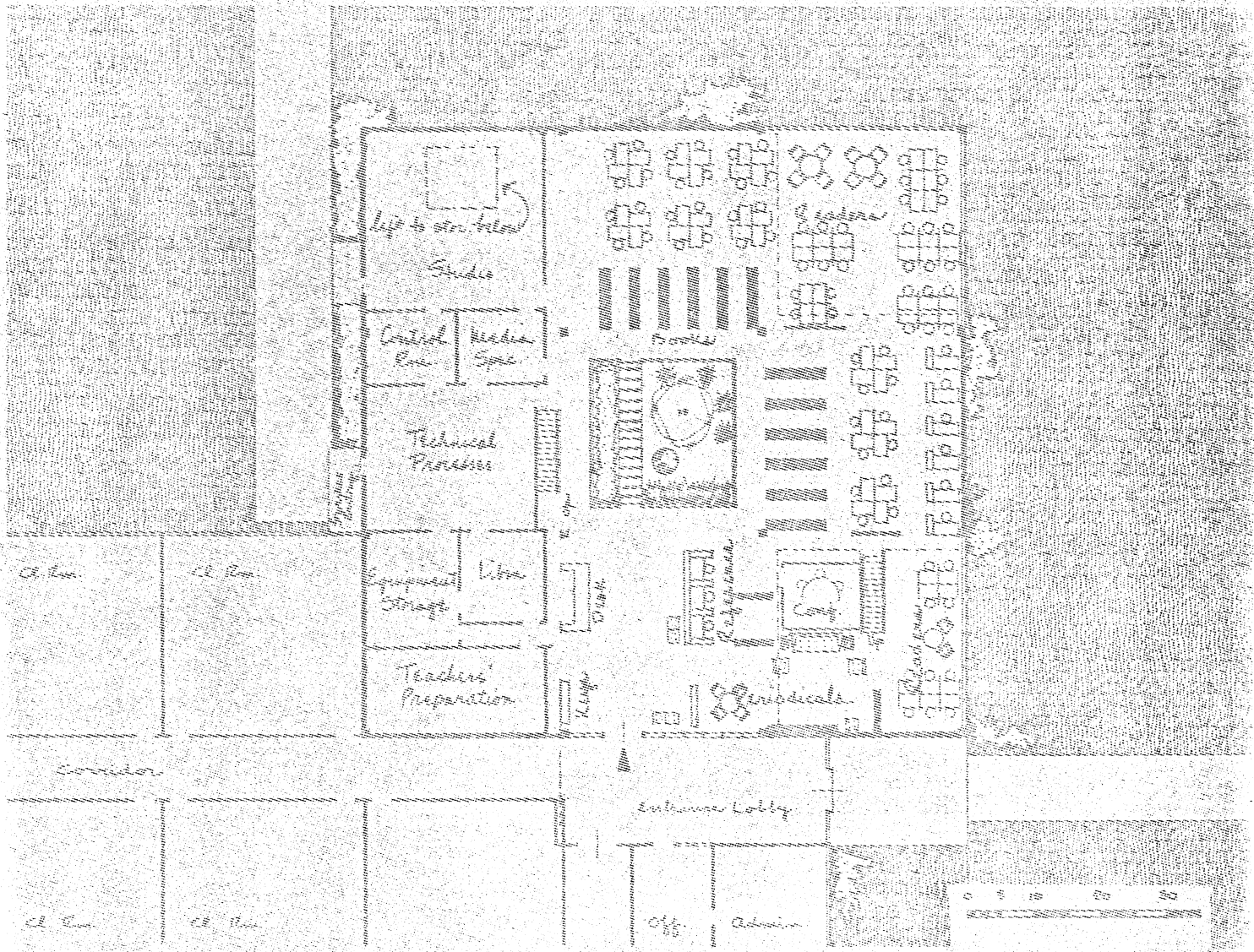
*(above) The layout, a critical factor in how a library works, should zone areas according to function. Circulation flow that routes student traffic from entrance to keys to materials to reader spaces, as shown, will make for proper use of library's facilities.*

*(right) Students don't like large, open reading rooms either.*



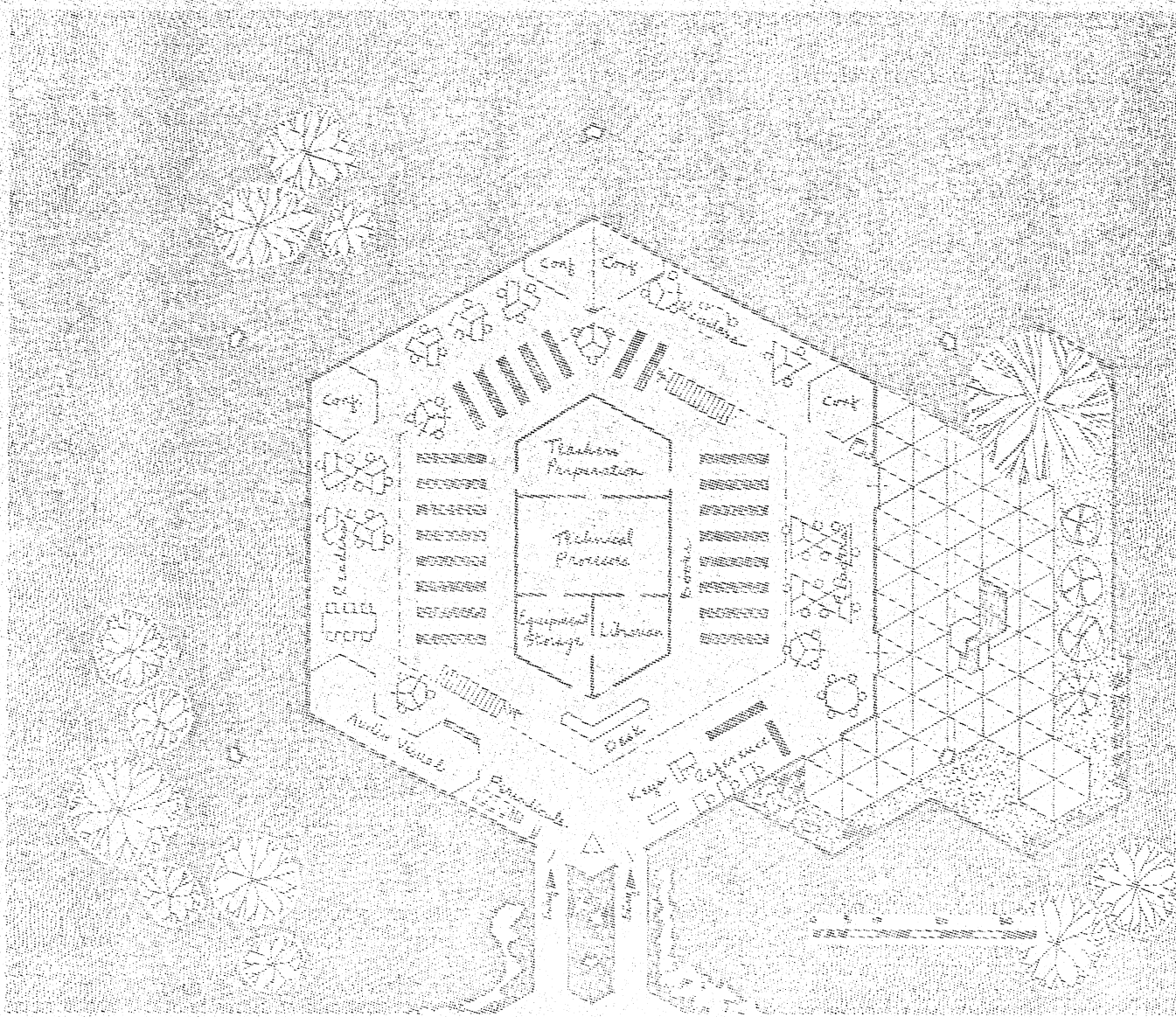


PLAN, LOWER LEVEL MAIN FLOOR



1st FLOOR PLAN

# SCHEME 4



MAIN FLOOR PLAN

*Note: This does not lend itself to easy enlargement, is not appropriate where much expansion is anticipated. See facing page for various hexagonal plan that permits limited growth.*



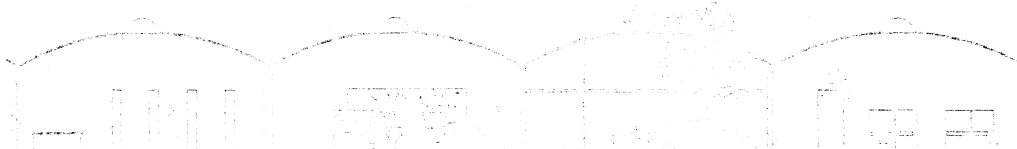


PLAN

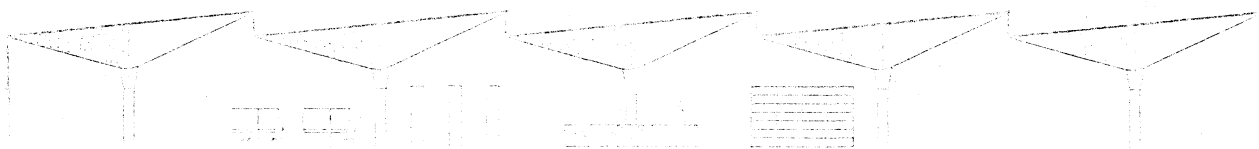
ROOF SUGGESTIONS



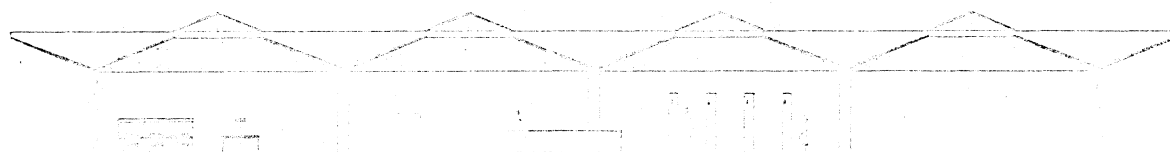
*Sawtooth roof shape extending across entire length.*



*Shallow, dome-shaped roof sections over square bases; small skylight in center of each bay.*

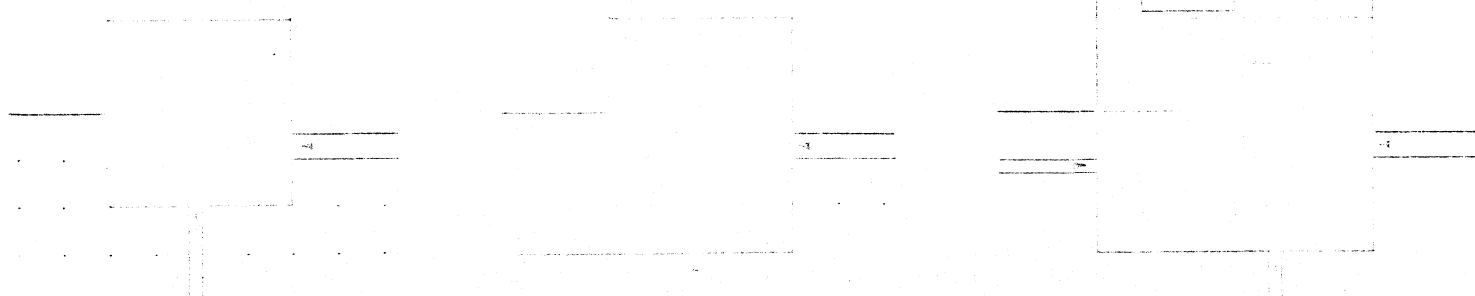


*Hyperbolic paraboloid sections canted to allow for clerestory windows.*

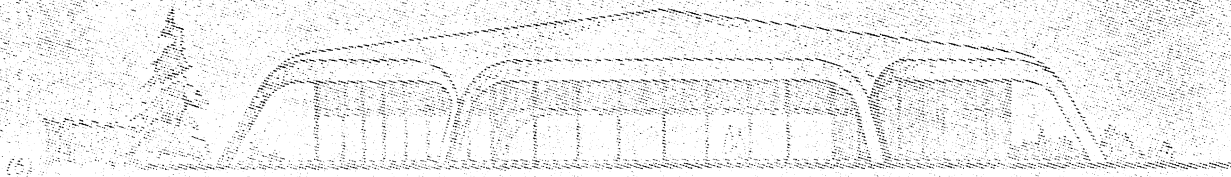
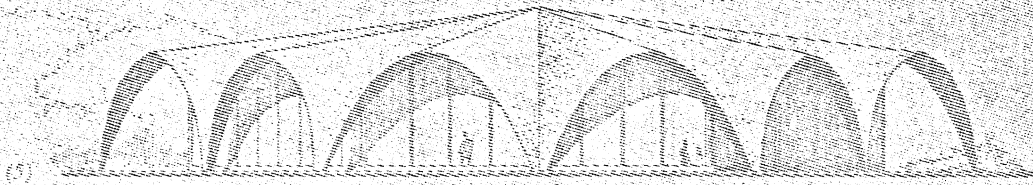
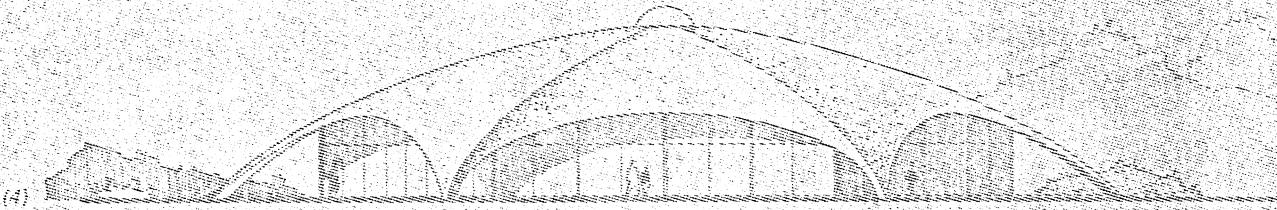
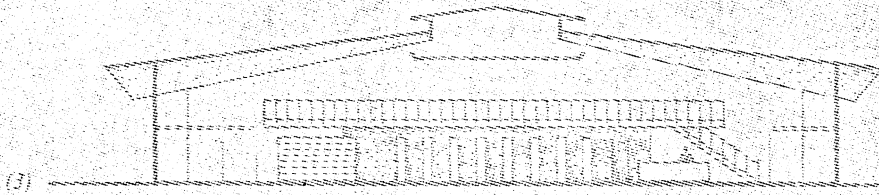
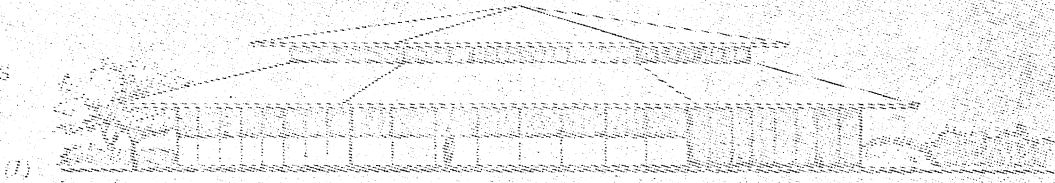


*Pyramid-shaped roof sections with pyramid skylight at each vertex in each loft bay.*

EXPANSION POSSIBILITIES



ROOF SUGGESTIONS





## Carrels

The study carrel is the answer to the students' desire for privacy. They do not like to sit out in the open, nor sit at flat tables and read; they like to be alone or with small groups--at least, this is what a research committee found to be true.

Most of the study space, in fact--at least 60 per cent-- should be given over to study carrels in groups of not more than 15 or 20 scattered throughout the collections. Each carrel should allow 2' x 3' work space per reader and more, if various devices are to be used, such as visual stations, teaching machines, and typewriters.

## Types of Carrels

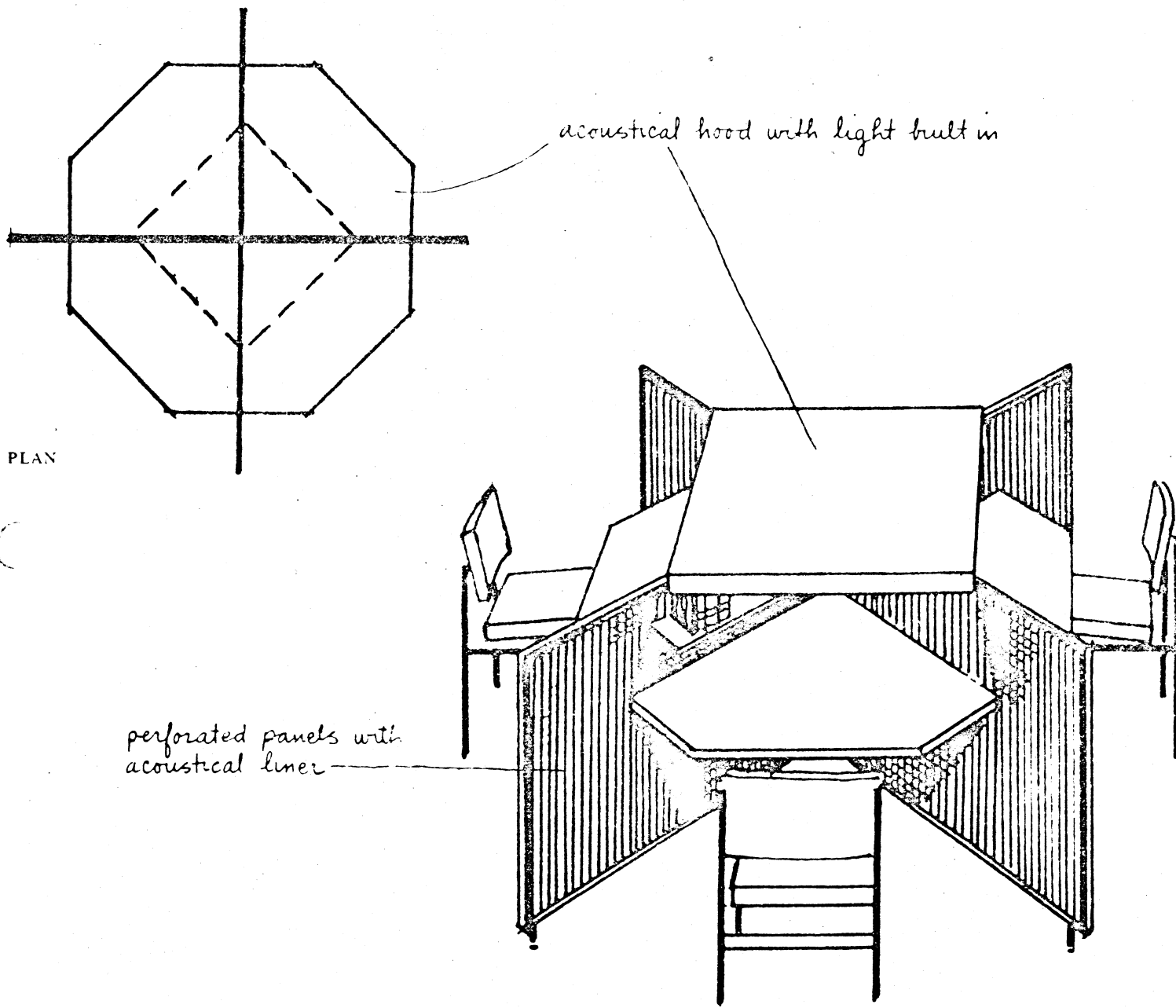
There are several library furniture supply companies that now furnish carrels as part of their standard equipment, but, generally speaking, these are inadequate because they provide visual privacy in only one direction. Those designed and developed for Educational Laboratories library report are much better.

The advantage of these carrels is that they are portable and provide the necessary privacy. Actually, the carrels are made up of dividers which can be placed on table tops. These dividers vary from simple, acoustically treated partitions, to "storage cabinets."

A plug strip, as well as television jacks, is provided for every carrel for the use of various electronic devices. Since the dividers can be moved to meet the space needs of the reader, the size of the carrel can be changed or others can be added as needed.

There are the more sophisticated type of carrels, designed by the Western Regional Center at Stanford University. Unfortunately, these are out of the range of most building or library budgets but are mentioned because of their unique designs and special features.

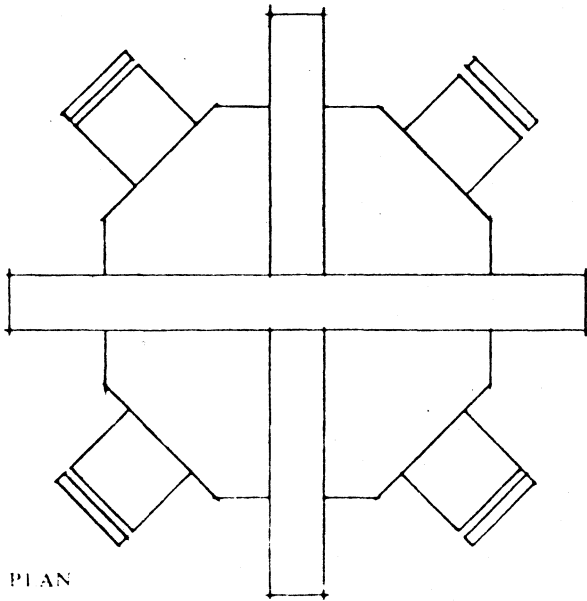
All in all, the first type described is the best with which to start. Electronic devices can be added later, as well as dictates and budgets permit. Accordingly, the portable ones have been illustrated in the pages that follow.



VARIATION OF OCTAGON-BASED CARREL, WITH LID OVER CARREL FOR LIGHT FIXTURE, AND SOUND CONTROL

ARRANGEMENT OF CARRELS FOR 4 STUDENT PLACES

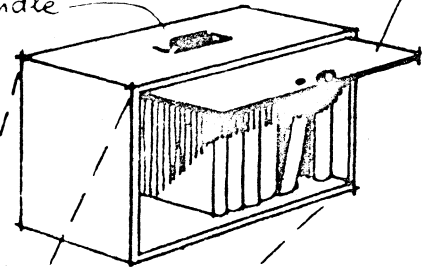
Base is an octagonal table; dividers are bookcases and storage units.



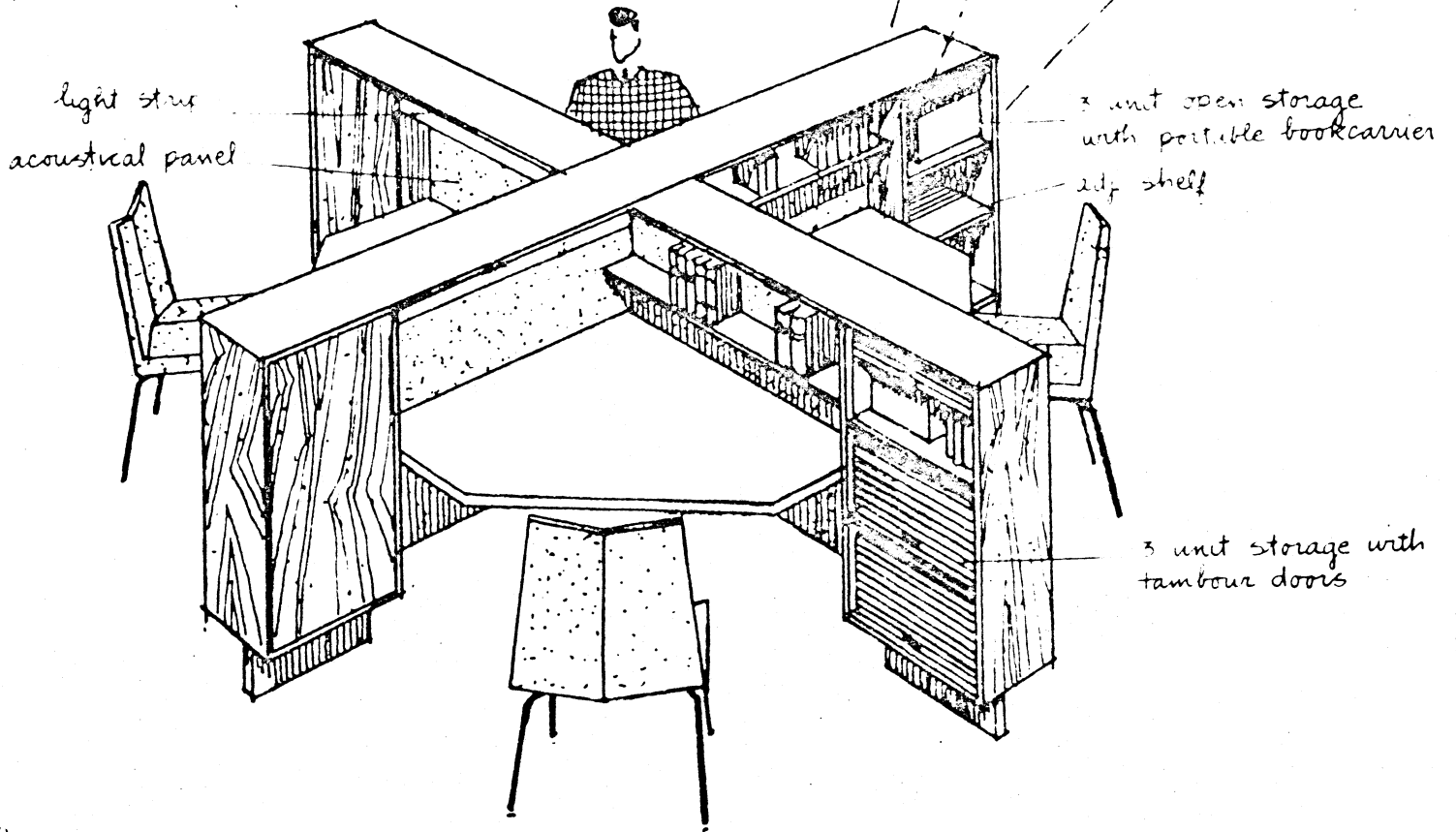
PLAN

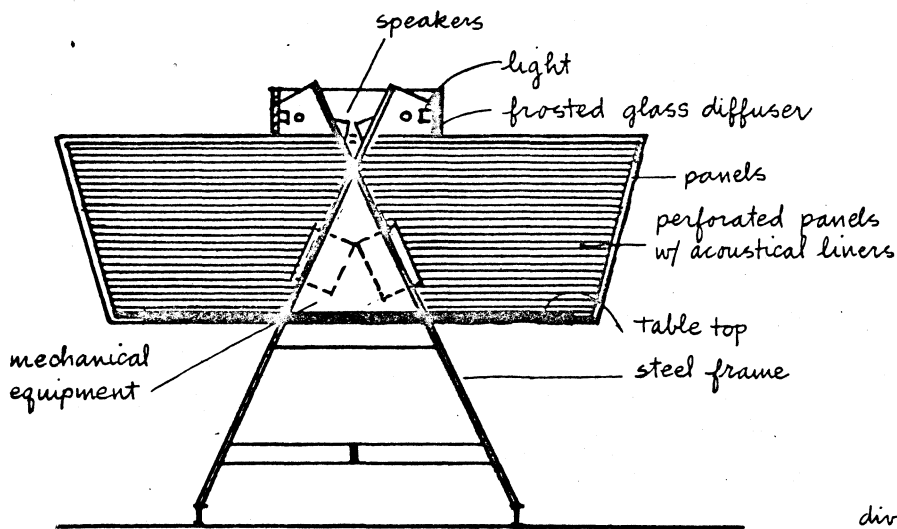
recessed handle

lift & slide lid



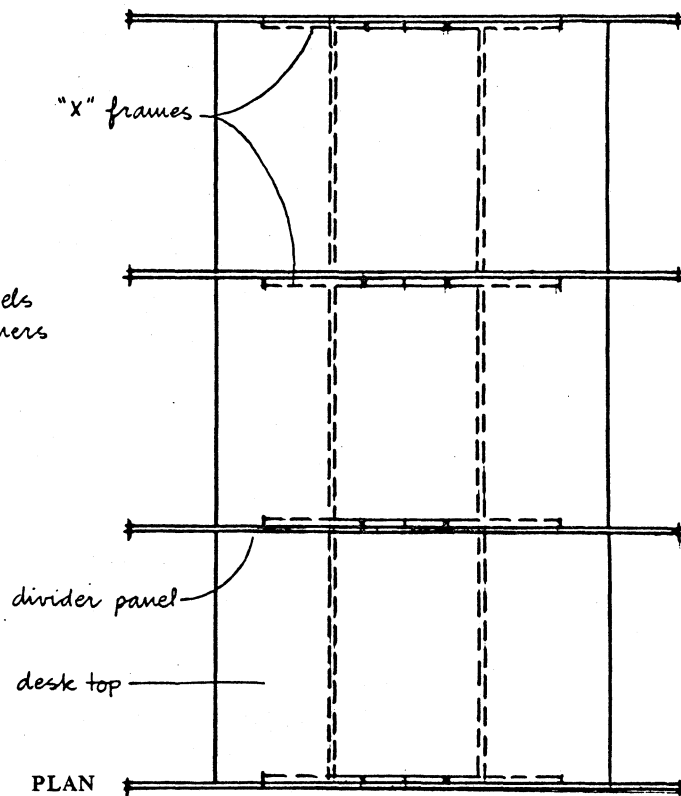
BOOK CARRIER



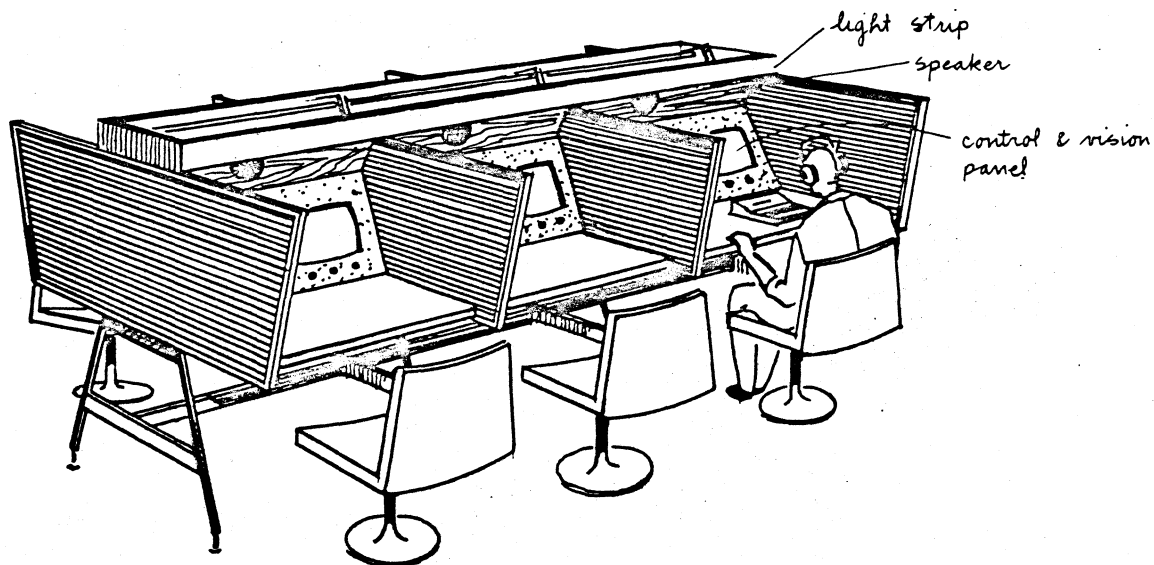


SECTION

Carrels with mechanical equipment built-in, based on a steel or aluminum "X" frame. Frame folds up like a card table, can be used for other purposes as well.

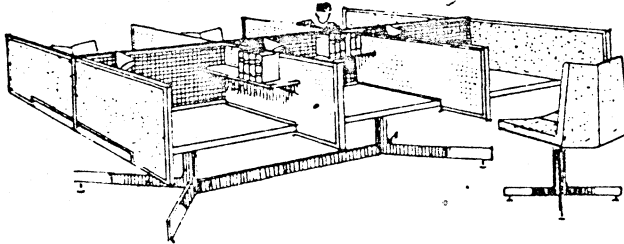


PLAN

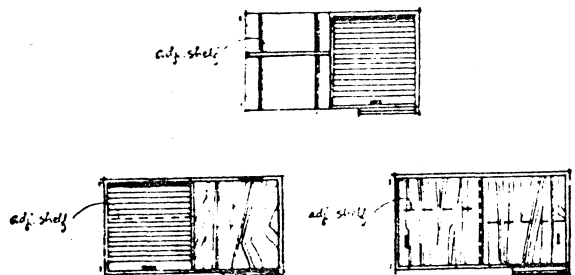


# INDIVIDUAL STUDY CARRELS: 1

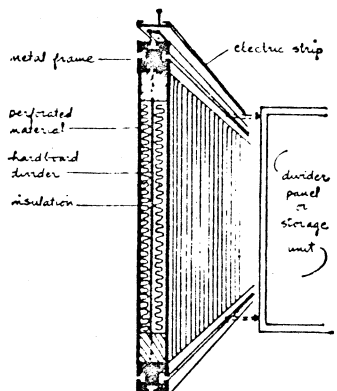
From an Educational Facilities Laboratories report\*



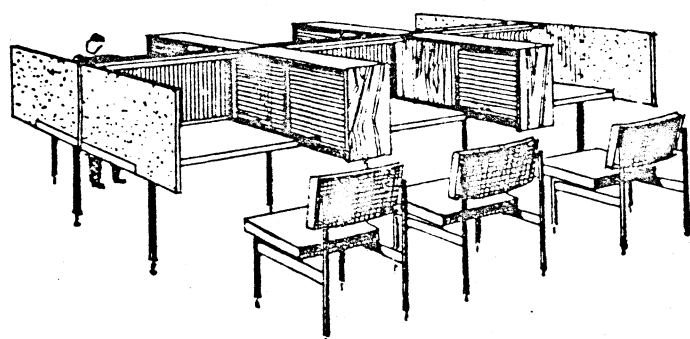
Conventional library table subdivided by panels



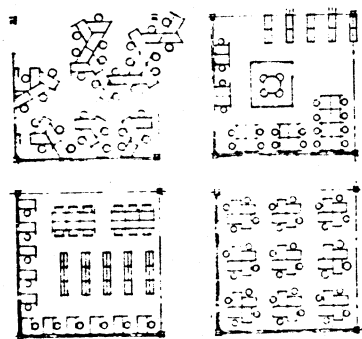
Typical storage units: (top) exposed adjustable shelf, (left) tambour door, (right) sliding doors



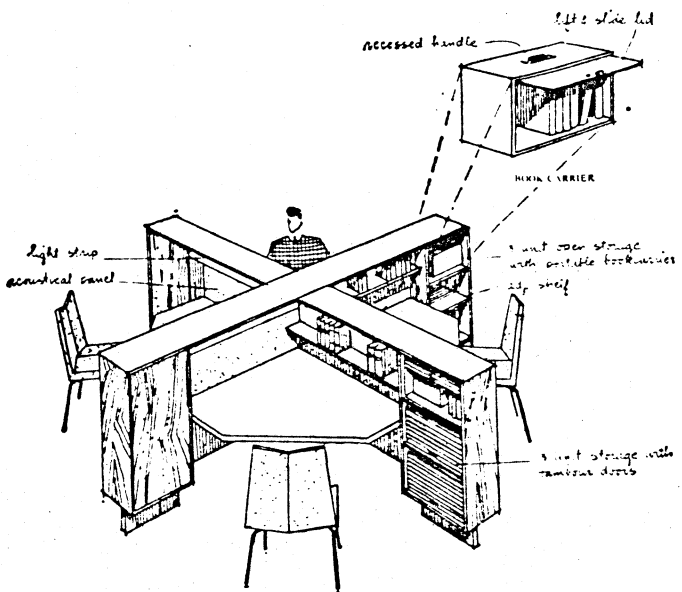
Divider panel and center divider. Side panels or storage units can be slid along tracks of center divider to change carrel size



Library table with storage units as dividers



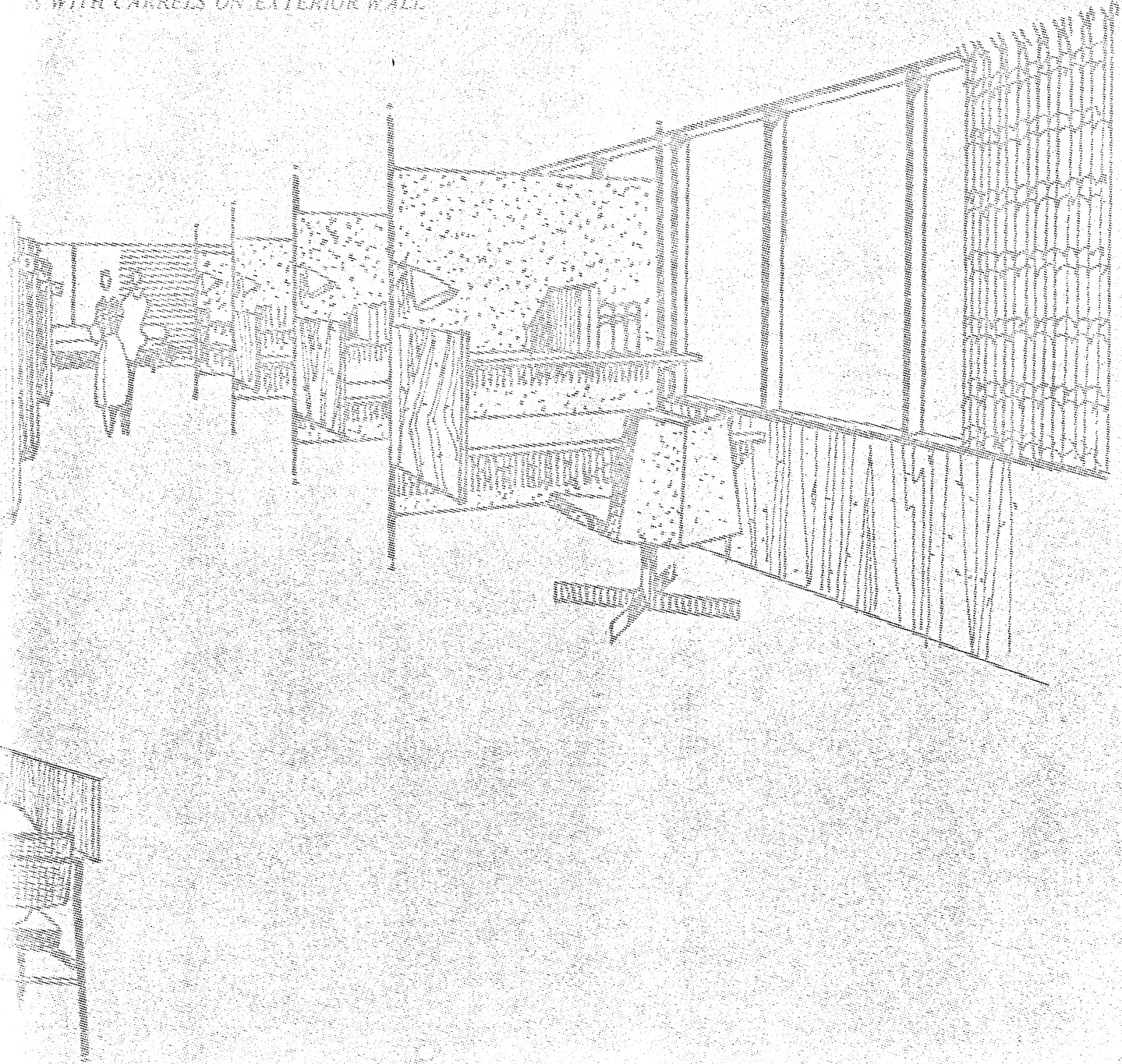
Possible carrel arrangements

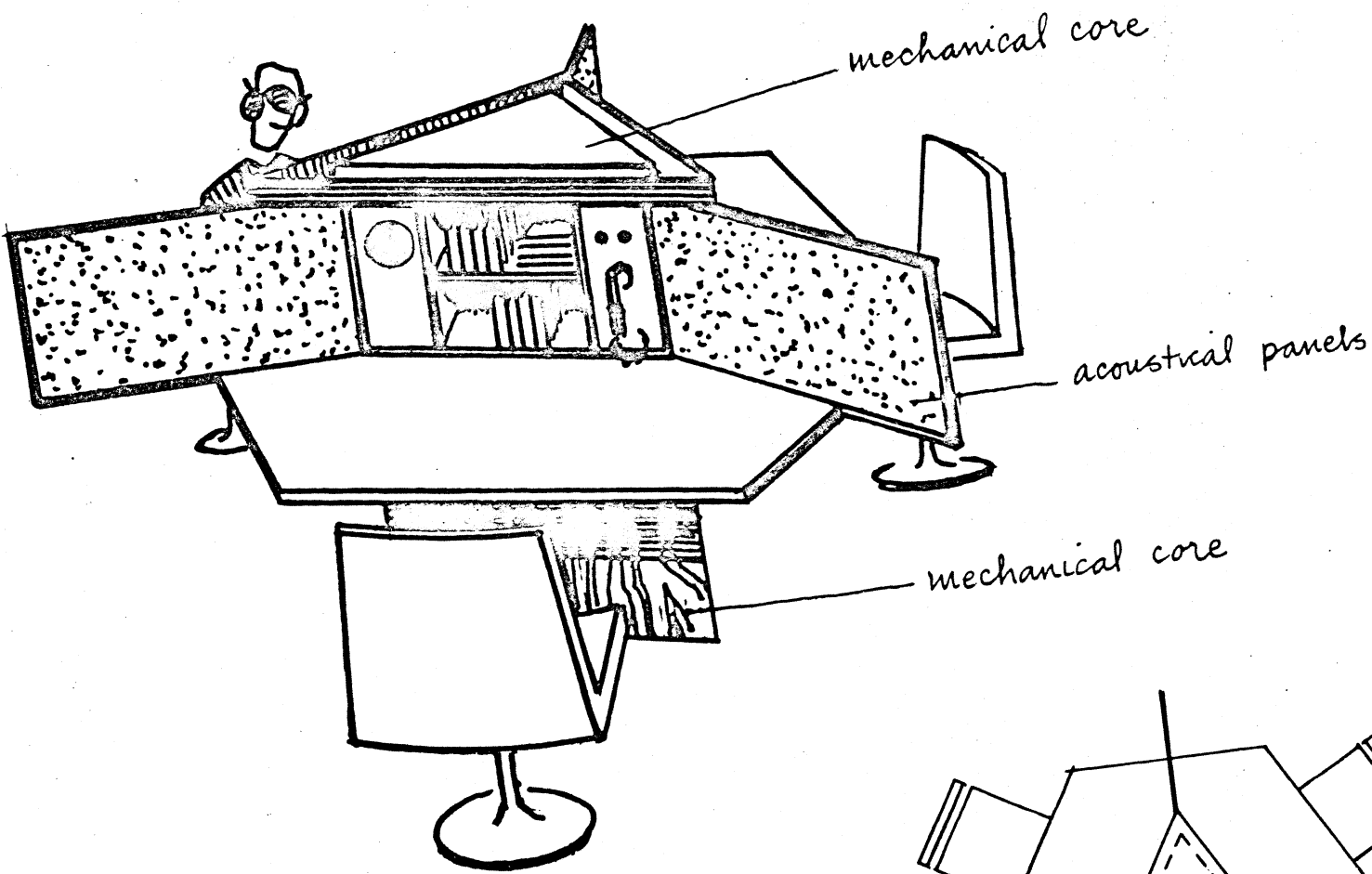


Carrels for four student places using octagonal table

\*"The School Library, Facilities for Independent Study in the Secondary School," by Ralph E. Ellsworth, Ph.D and Hobart D. Wagener, A.I.A., edited by Ruth Weinstock

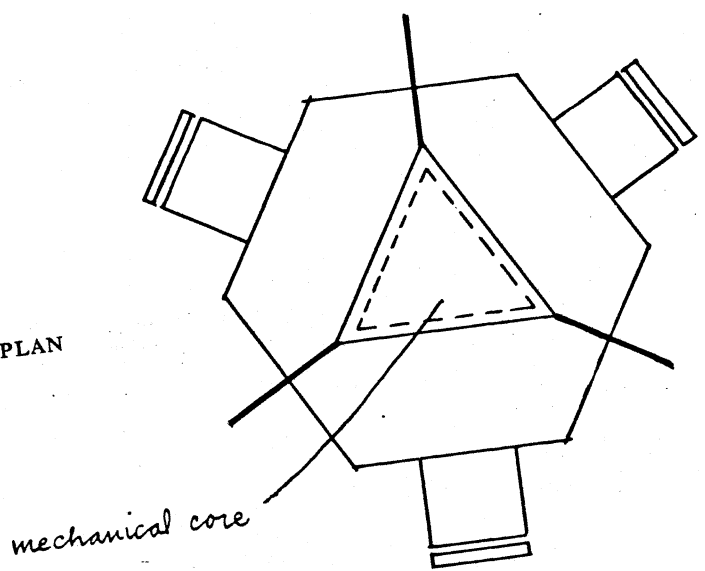
LIBRARY VIEW SHOWING PRESSURE PIPES WITH CARRIERS ON EXTERIOR WALL





HEXAGON-BASED CARREL WITH MECHANICAL CORE

PLAN

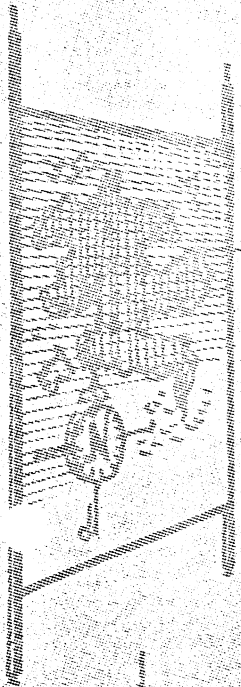




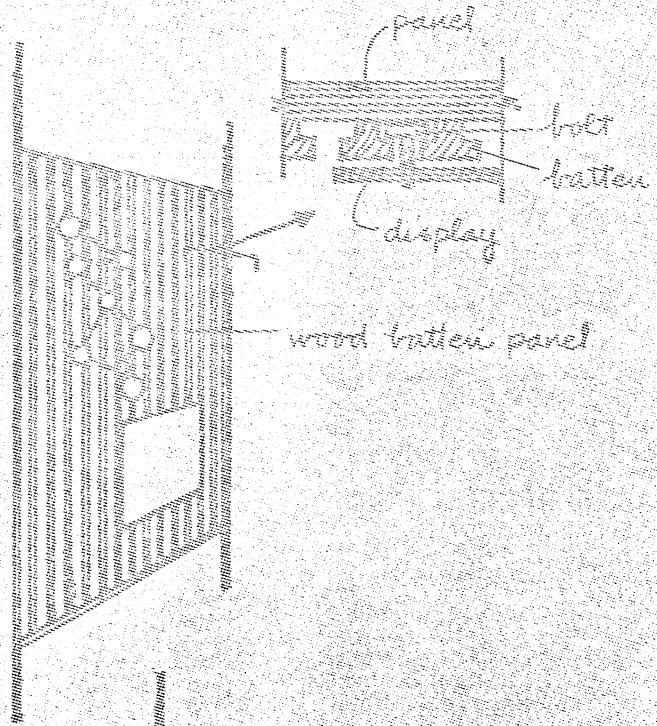
INTERIOR LIBRARY VIEW SHOWING PRESSURE POLE  
SCREENS AND FREESTANDING CARRELS



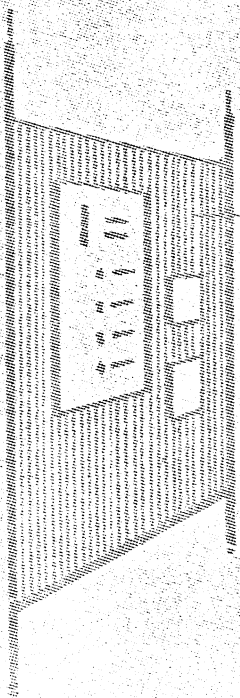
SUGGESTED PANEL TREATMENTS FOR PRESSURE POLE SCREENS



map sealed  
in plastic panel



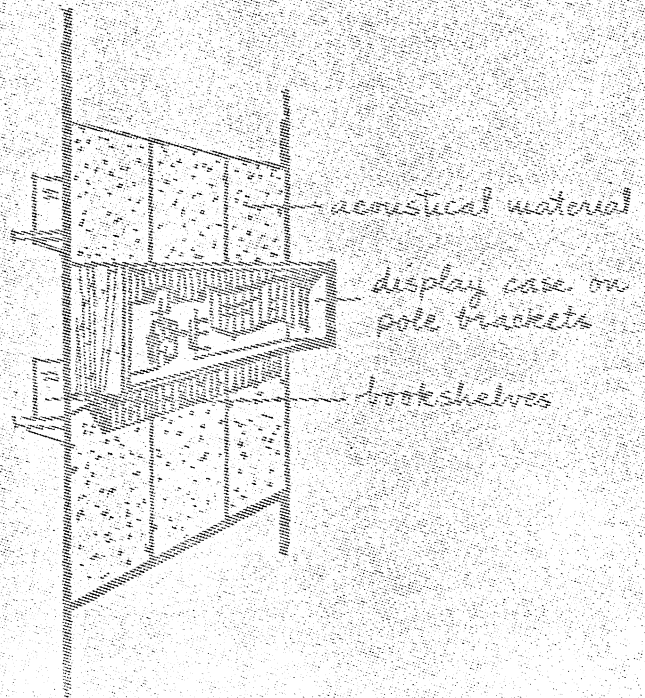
wood batten panel



pegboard with  
acoustical filler

or  
perforated metal with  
acoustical filler - use  
magnets for applying  
display material

or  
corkboard



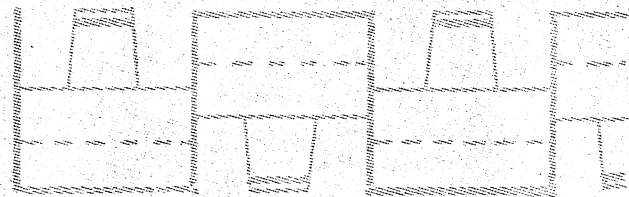
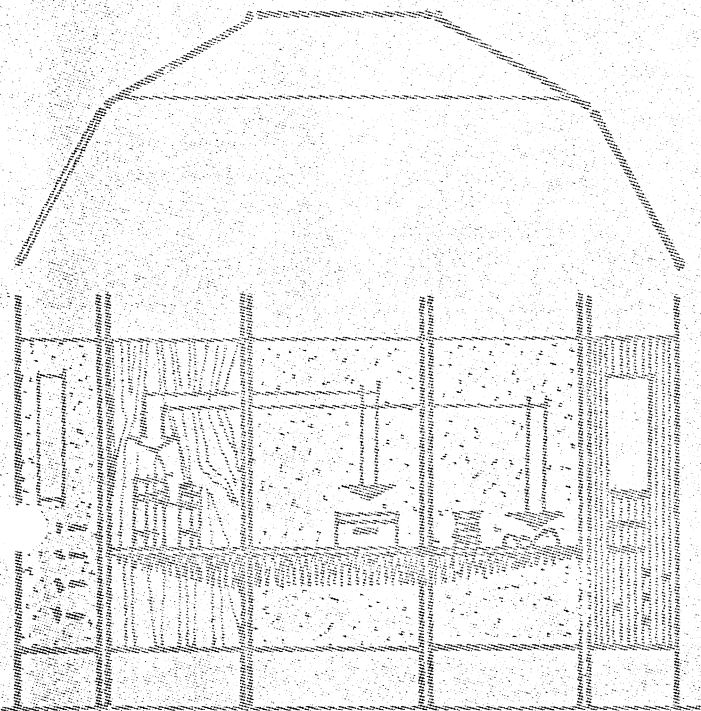
acoustical material

display case on  
pole brackets

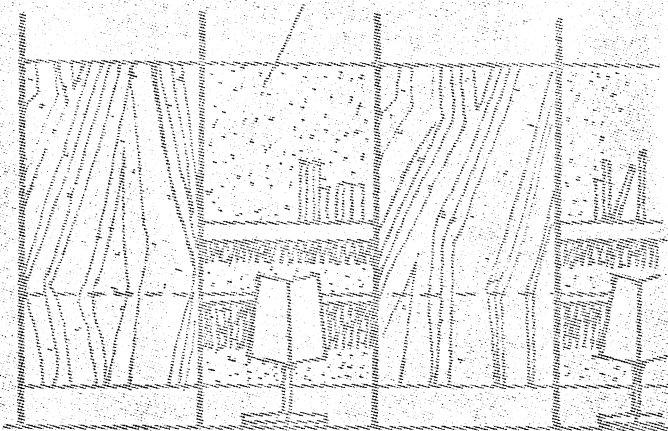
bookshelves

*Frames set up to provide exhibit; arrangement can be expanded to provide listening area for tapes or hi-fi, using acoustical panels*

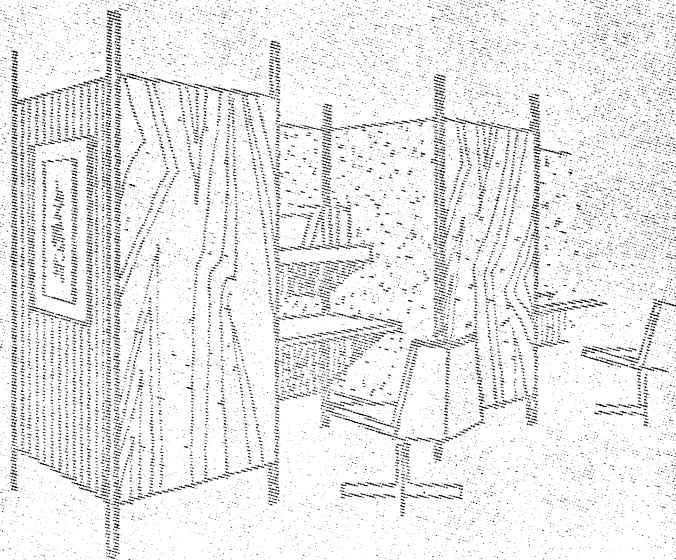
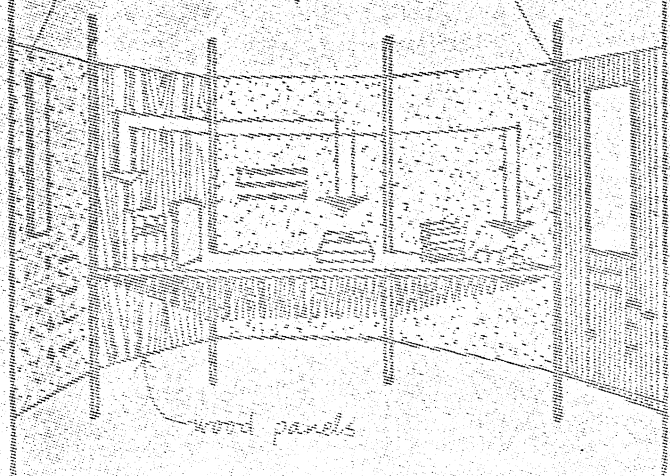
*Frame used with acoustical liner panels and shelves to create study units*



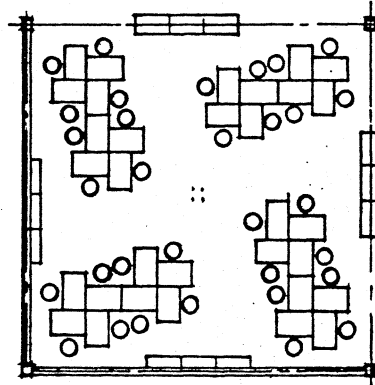
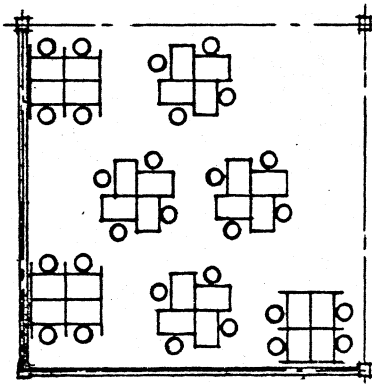
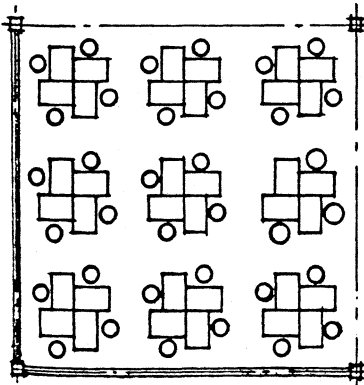
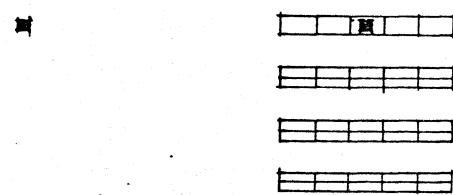
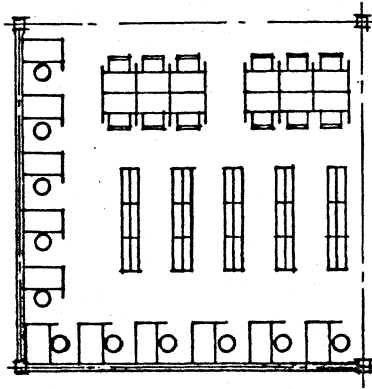
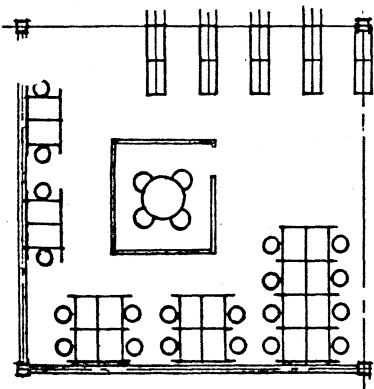
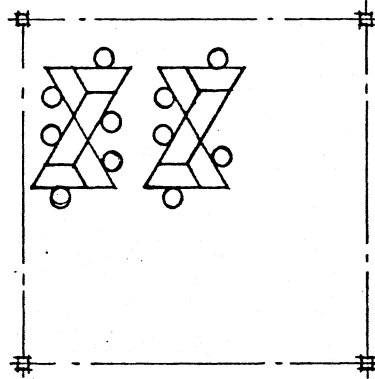
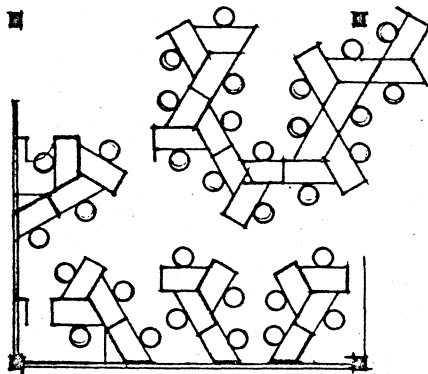
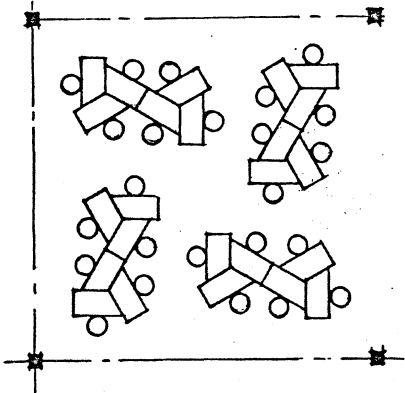
*acoustical liner*



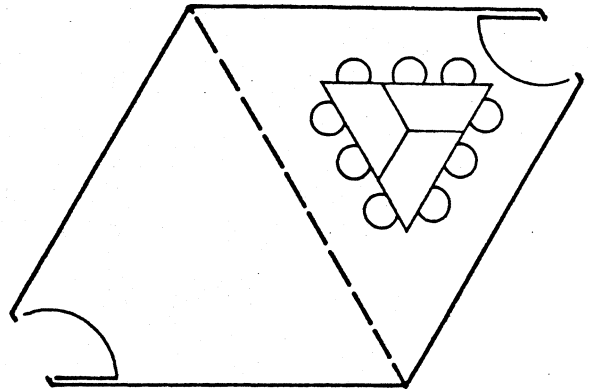
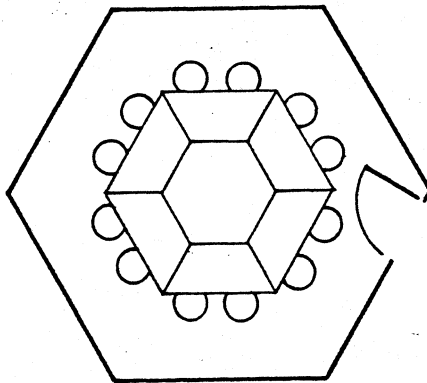
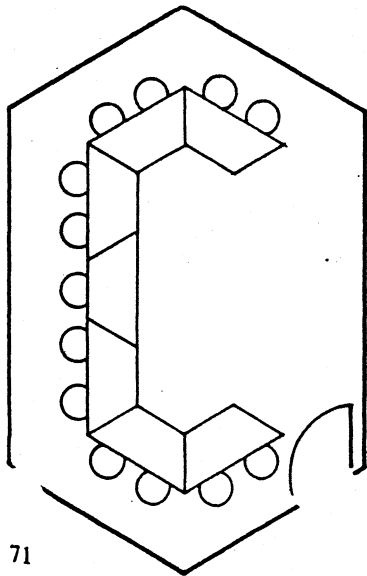
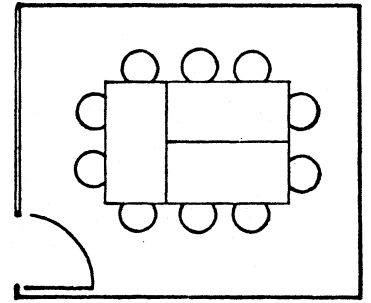
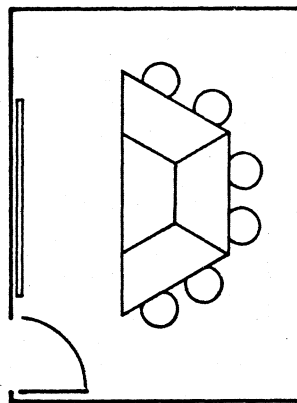
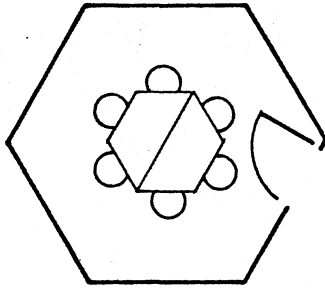
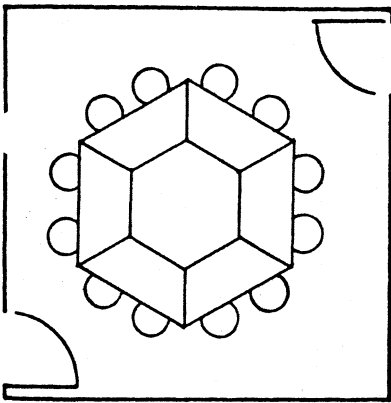
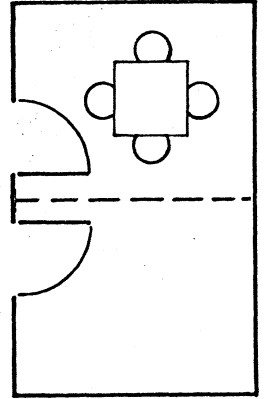
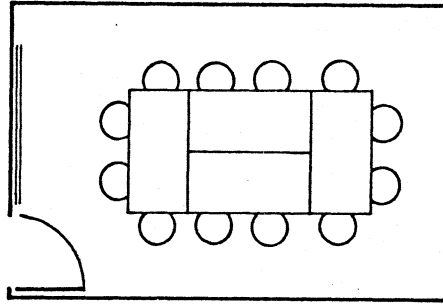
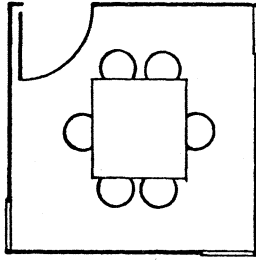
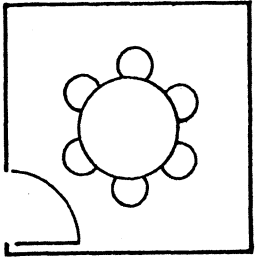
*cris panels perforated panels*



A VARIETY OF POSSIBLE CARREL ARRANGEMENTS



*A VARIETY OF POSSIBLE SHAPES AND ARRANGEMENTS  
FOR SMALL GROUP ROOMS*



## Tables and Chairs

At one time it was thought that providing good study tables and chairs would be sufficient and adequate; however, this is no longer true today.

While study tables and chairs may seem to serve the purpose quite well, the fact is that rarely do children, students, and adults sit at a table to read magazines, newspapers, and books. In conjunction with tables and chairs, some "lounge furniture" should be provided including carpeting on the floor--often students like to sit on the floor.

Implicit in this question is a general change of attitude toward the library--that is, the traditional concept of what a library should be like is giving way to new approaches that are in keeping with contemporary and projected educational practices and life itself. In short, a new kind of library setting is needed that facilitates the newer kind of teaching and learning--compatible with the ideas presented at the very outset dealing with educational trends and related factors that have a profound influence on architectural planning and designing.

In other words, if the study-hall concept of the library is abandoned, there is freedom of movement and unsupervised access to materials--open stack; the extremes of tomblike silence or rumpus room roar are avoided; separate "rooms" for study--carrels; and for talk small group

rooms are provided; some attention is given to acoustical and visual privacy. Also some consideration is given to creature comforts, decor, and atmosphere, and the student finds it easy and convenient to go to the kinds of spaces and facilities that match his present needs, interests, and way of life. The library is administered in such a way as to win pride and respect of the student. If all these conditions obtain, then and only then, will the art library function properly; meet the needs and interests of the students; be in keeping with contemporary and future educational-teaching and learning-practices; and provide a new and stimulating environment and setting for learning.

#### Specifics

The mundane specifics of tables and chairs:

Each reader should have at least 2' x 3' spaces at a table.

Avoid tables longer than 9 feet and avoid round tables except where intent is to encourage conversation, as in small group room. Table heights should be within the 28-30 inch range.

Avoid oak tops because its course graining is not a good writing surface; also avoid formica--it creates glare and has a machine-like, cold quality. Any closed-grain wood, such as birch or maple, is preferable.

Leave approximately 5 feet of space between tables.

Three types of chairs should be available to readers: (1) reading chairs,

some with and some without side arms; (2) an occasional type chair for short periods of reading; (3) a lounge chair for long periods of reading.

While paying attention to the above, equal concern should be given to design, materials, fabrics, color, and the like; these, in the final analysis, set the tone, mood, and atmosphere of the art library. Contemporary concepts of interior decoration are of concern here.

### The Collections

In discussing the facilities for the collections a number of factors need to be considered: (1) how will collections for the visual arts, music, and theatre be housed?; (2) size; and (3) space and furniture for the collections.

### Housing the Collections

If the art library serves all three areas, the collections for the visual arts, music, and theatre will be housed in one place; similarly, if each area has its own library, the collections would be housed accordingly.

For purposes, and as implied throughout, the respective collections are housed on one place--namely, the fine arts library which serves the fine arts center as a whole.



## Size

Inherent in the question of size of the collections are many related factors to consider. Even with a "rule of thumb" guide followed by many colleges and universities, one book copy for every fifteen students will hardly begin to settle the problem of size; all it provides is a very general indication.

Such factors as the total fine arts program and curriculum are these: independent study program seminar and honor courses--kind, extent, and quality of fine arts collections; inclusion (or exclusion) of related books; audio-visual instructional materials; and the community library. To this should be added the various types of materials for programmed instruction as related "study kits," teaching machines, various audio-visual devices, computers, retrieval systems.

Unfortunately, even after considering and analyzing all of the above, a definitive answer in respect to size can be given. At best, making provisions for the various carriers of information is one solution to the problem. At least, then, some "storage space" will be provided for the great variety of library materials, which goes beyond the first thing that comes to mind--stacks.

## Stacks

Parenthetically, this question should be raised in respect to stacks, before discussing details: At what point, as other carriers of information gradually increased in size, should more space be given the carriers of information than to the stacks. The day will eventually come when various types of audio-visual instructional materials and programmed materials will far exceed that of the book, magazine, and newspaper collections. Furthermore, since a great deal of "information" will be "stored" in microfilm, the implication is that eventually more space will be needed for the carriers of information than for books.

The suggestion is to provide adequate space for the new carriers of information. Now, in respect to the stacks, consider the following details:

For books and related materials, bracket book stacks are best because of their versatility, such as, locker boxes, coat racks, and carrels, and the like can be hung from them.

Book stacks come in 3' lengths, plus 2' end panels; in general, stacks or ranges should not be longer than 15 feet.

Ranges or rows should be 4'6" apart, measuring from center column; different types of stack arrangements are made accordingly. (See diagrams at end of section.)

Only 5 or 6 shelves per section must be used.

Approximately 90 per cent should be 8" wide and 10 per cent 10" wide (Folios can be laid on their sides using a double faced section.)

Five feet between the face of a book stack and adjacent tables must be left.

Rows of book stacks ought to be used in blocks, rather than in long rows.

Rows or blocks of stacks that cannot be illuminated by ceiling lights should be provided with single tube stack lights.

There must be steel bracket, free-standing cases. Sliding shelf, free-standing cases ought to be used. Wood cases using metal strip and clips are necessary.

It is better to use sloping wood or metal shelves for periodicals.

Stack boxes and lockers that can be attached to a column are recommended.

### Audio-Visual Equipment, Materials and Storage

#### Equipment

In order to know what kind of audio-visual storage space to provide, one should have a basic list of the various audio-visual devices. However, since there are constantly new developments in the audio-visual and electronic world--with an array of new devices appearing each year--the list that has been presented is obsolete. In any case, it is suggestive of the type of equipment that is part of any contemporary library.

Before listing some audio-visual devices, a number of important facts should be mentioned in respect to equipment in general. As various audio-visual and electronic devices become smaller, more compact, portable, more easy to operate, less breakable, cord and cordless, and

automated, they will play an ever-increasing role in the learning process. They will also provide new ways and new places to study; perhaps they will even render the library obsolete as a place to study. It is quite feasible that a student may be able to "dial" for most of the information he wants right from his own residence.

The equipment charts that follow will give sufficient information in respect to manufacturers, companies, details and specifications. While both lists are somewhat extensive, they are not intended to imply that all the items specified are needed for the art library; rather, they are suggestive of the type of equipment that is available. An analysis of needs and program, and consultation with audio-visual specialists and librarians will help planning committees in the initial selection of equipment for the art library. As needs and interests change, new equipment can be added.

Meanwhile, new models and new types of equipment will constantly be appearing, particularly the automated, miniaturized, portable, and transistorized kind of devices. It is these that must be given careful consideration, since these are the "future" learning tools of the student. In time, the larger equipment will be replaced in many instances or supplemented by the small, compact, and automated devices.

Finally, the list is indicative of the fact that audio-visual devices are playing an ever-increasing role in learning. Library concepts,

functions, and services need to be modified and adapted, accordingly.

While not audio-visual, the following devices should also be considered:

Micro-film readers (Griscombs or Dagmars)

Typewriters (Electric)

Calculators (Electric)

Copying Machines (Xerox, Verifax, etc.)

## Basic Equipment List

Calculators	Repetive Projector
Copying Machines	Slide Projectors
Electronic Devices	Special Purpose Projectors
Filmstrip Projectors	Sound Equipment
Microfilm Readers	Sound Filmstrip Projectors
Motion Picture Projectors	Storage Equipment
Opague Projectors	Tape Recorders and Playbacks
Overhead Projectors	Teaching Machines
Projection Equipment	Telepro Equipment
Projection Screens	Television Receivers
Radios	Transistorized Equipment
Record and Transcription Players	Typewriters
Repetitive Tape Equipment	

### Audio-Visual Instructional Materials

Equally important as books are the audio-visual instructional materials, such as charts and diagrams, films, filmstrips, micro-films, moders, prints, records, tapes, and various types of special materials for teaching machines and related devices. These need storage space, as well as usage space. It is difficult to specify how much space is needed because such materials could run into the thousands.

In general, those materials to be used with portable machines can be stored in the equipment storage room on ordinary shelving, in bins, or especially designed cabinets. On the other hand, while some materials, such as recordings, can be stored in the open stacks along with the books, other materials, such as films, will have to be treated as restricted items, because the latter need to be inspected and cleaned before they can be used again.

Materials that are designed for computers, retrieval systems and teaching machines, obviously, should be stored in the control room.

At this point, a comment or two about prints is in order. Not only should there be concern for their storage, but their use--that is, prints should be mounted properly, so that students can check them out and "live" with the painting for a week or two. Similarly, if feasible, students should be able to check out art replicas.

Finally, while this section has been primarily concerned with collections and their storage, the equipment and materials should be readily accessible to students in "open stack" manner.

### Summary

The intent of the discussion presented in this section was not to give detailed information for the construction of a library or a study area. However, ideas have been stated for a committee to consider and to request that the architects observe carefully when planning the area.



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