A COLLEGE OF ARCHITECTURE AND DESIGN

FOR

KANSAS STATE UNIVERSITY

by

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A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARCHITECTURE

College of Architecture and Design

KANSAS STATE UNIVERSITY

Manhattan, Kansas

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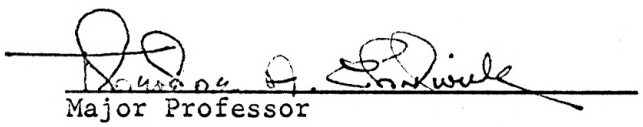

Major Professor

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INTRODUCTION

History of Kansas State University

The Kansas State University campus is at the northwest corner of the city of Manhattan, convenient to both business and residential sections. The campus itself consists of 315 acres of land carefully landscaped; beyond the campus there are 4,036 acres of land belonging to the University used for experimental work in agriculture. The enrollment is 12,570 students.

The University, founded on February 16, 1863, two years after Kansas became a state, was established under the Morrill Act, signed by President Abraham Lincoln, under which land-grant colleges came into being. The University was the first of the nation's land-grant colleges, a system of higher education institutions created by the Congress of the United States as a principal means of developing the enormous human and natural resources of the young nation.

At first the University was located on the grounds of the old Bluemont Central College, the precursor of Kansas State Agricultural College, chartered in 1857. The original Bluemont building of a three-story structure was located about two miles northwest of the Manhattan townsite, a mile west of the present campus. In 1861, the trustees of Bluemont Central College petitioned the legislature to accept the building, library, apparatus and land to establish the state university at Manhattan. After the approval of the Morrill Act, the deed of the Bluemont properties was executed, June 10, 1863, by the trustees. Professor Joseph Denison was appointed to the presidency of Kansas State Agricultural College. There were 52 students enrolled on September 2, 1863, for the first term. The total for the year was 106, but 92 of these were in preparatory department (comparable to grade and high school) and there were 15 between the ages of 8 and 10.

Although graduate work was not formalized until 1886, the catalog for 1868-69 lists Martha A. White as a "resident graduate". She is probably the first graduate student enrolled in Kansas State Agricultural College. In 1875, S. Wendell Williston was awarded a Master of Arts in Chemistry. In 1931, the state legislature changed the name to Kansas State College of Agriculture and Applied Sciences and a year later the Regents authorized the granting of the Ph.D. degree in chemistry, milling industry, bacteriology and entomology.

In 1875, most of the work of the University was moved to the present campus site. In the hundred years since its founding, the Kansas State University has developed some fifty departments integrated under Colleges of Agriculture, Commerce, Engineering, Architecture and Design, Home Economics, Veterinary Medicine, Education, and Arts and Sciences.

College of Architecture and Design

The department of Architecture had its beginning in 1877. When Professor John D. Walters, a native of Unterramsern in western Switzerland, was invited to Kansas State Agricultural College by President E. R. Nichols; he was elected instructor in industrial drawing in this College, and took charge of the department as its head in January, 1877. This class later was renamed industrial design, and then home planning and farm structures. As the formal course in architecture, it was retained within the Division of Engineering. In 1903, Professor Walters obtained permission of the Board of Regents to organize a regular course in architecture, and in 1904 it emerged as a full-fledged department of the College. In 1964, the College of Architecture and Design was made independent from the College of Engineering, and became a new college of the University.

In national ratings, the College of Architecture and Design of Kansas State University was among 21 colleges and universities whose regional planning programs were recognized by the American Institute of Planners. An accrediting team, the American Society of Landscape Architecture, recognized the Landscape Architectural Program as one of the thirteen accredited departments in the United States.

The College of Architecture and Design now offers the bachelor's degree in each of the following areas:

Architecture, Architectural Structures, Interior Architecture, Landscape Architecture, and Building Construction.

The Master's degree is also offered in Architectural Design, Landscape Architecture, Architectural Structures, Interior Architectural Design, as well as in Regional Planning. This degree is available to students holding a bachelor's degree from a recognized college or university with an undergraduate program substantially equivalent to those at this University.

The purpose of a college of architecture is to provide proper facilities for the education and training of future architects and planners. The well co-

ordinated arrangement of the specific physical facilities as well as the general space for classrooms, studios, faculty offices, in which students are going to work, to think, and to be inspired for their creative works are vital. This environment, of course, must also satisfy both physical and emotional needs.

In 1961, The College of Architecture and Design of Kansas State University, with an enrollment of 418 students, held the position of the sixth largest accredited architectural school in the United States. Since then, the number of students has increased every year; however, the space for teaching has become increasingly inadequate. The following table lists the number of students enrolled for each semester of the academical years since 1961 through 1969.

Table I

Year	1961	1962	1963	1964	1965	1966	1967	1968	1969
Fall	418	423	445	498	612	602	582	581	602
Spring	361	383	420	465	550	529	532	596	

The figures listed in Table I show clearly the tendency for enrollment to increase year after year. By conservative estimate, the 1971 enrollment in Architecture, Regional Planning and Landscape Architecture will be 750.[1]

At the present time, Seaton Hall, usually called the Engineering Building, in which the College of Architecture and Design is now housed is so crowded that no room space is available for future expansion. The physical facility in terms of space in this college is extremely inadequate. It seems that the best way to solve this problem is to have a new building complex at some well chosen location on the campus.

According to a report,[2] new spaces that must be added to accommodate improved teaching facilities are:

1. Area for building of small scale models and material samples.
2. Additional departmental library area.
3. Space for exhibition and judgment of students' work.
4. Administrative suite (including space for additional staff).
5. Additional faculty offices.

A detailed study of the space requirements and analysis will be discussed in the section of Space Requirements and Analysis for The Proposed Project.

[1,2] Academic and Space Requirements for Training Students in Architecture--1961, College of Architecture and Design, October 26, 1961.

CHANGES IN ARCHITECTURAL EDUCATION

A headline of the Life Magazine declares that education's next revolution will be reaching right into the crib.[1] Experiments have demonstrated that babies are able to learn by memory in their first days of life. The fact that four-year-olds can be taught algebra and to spell complex words has been established by many educators. These experiments have proved so valuable that the influential National Education Association's policies commission has made a revolutionary proposal: a formal program of education for all children should begin at age four. This, indeed, is such an important discovery that it will surely result in changes in the educational system. Hence, a new teaching program and technique should be worked out and must be carefully developed in order to meet the needs presented by the revolution.

Actually, the change in education has been underway throughout a thousand years, and educators have been using every effort to improve teaching to achieve the best result; even though they have not yet reached a perfect conclusion. In the field of architecture, special study of architectural education has for a long period engaged the attention of many experts and architect. Most of them of them are unanimous in their opinions. Their findings are being employed in the instructional system. Recently, architectural educators have concentrated their attentions on a newly proposed "two-two-two" system. The following paragraphs will be devoted to the discussion of this system.

The objectives in the teaching of architecture range from developing basic skills in drawing to application of highly technical fields of natural science and social science and the ability to solve complex problems in integrating structures and environment creatively. But, what is the most important factor which will influence the teaching of architecture? "No other people are as important to the future of the architectural profession as those who teach," Mr. Philip Will, Jr. said once at a Seminar.[2] "You mold the men and women who in turn will shape the future visible substance of a nation." It is true! However, this writer thinks the planning of educational curricula and devel-

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[1] "Early Learning's Secrets," Life Magazine, Vol. 62, No. 13, March 31, 1967.

[2] The eighth annual Teacher Seminar of the American Institute of Architecture and the Association of Collegiate Schools of Architecture, held at the Cranbrook Academy of Art in June, 1963.

oping techniques appear basically to be the most important factors which will affect the entire achievement.

Early in 1965, Professor H. H. Williamson[3] was engaged in a personal private research project which relates to recommended changes in the teaching of architectural design. He expressed this opinion, "For the past hundred years architectural design has been the major emphasis in formal architectural education. More time is allocated to the study of design in college curricula, by far, than to any other single subject. Design is the basic core of architects' work--it is the accepted measure of professional capabilities." Recently, new discoveries and information about the learning process, the creative process, and the biological functioning of the brain have indicated that educational methods should be re-evaluated. There are reasons to believe that the present methods of design instruction may have retarding effects upon the development of the student's capabilities in design. Among those problems the first question that should be answered correctly is when should architectural design be taught? The answer deserves a careful consideration before we can go on explaining what is the best technique in instruction.

It is widely understood that competence in design must be preceded by considerable basic knowledge both for the creation of interior and exterior spaces, and for the determination of human needs. And the designer should possess the wisdom needed for the successful application of this knowledge. According to Professor Williamson's suggestion[4] such basic knowledge should include, but not necessarily be limited to, the following:

* Aesthetics - the factor which elevates building construction to a fine art - and its vocabulary: space, form, color, texture, light, etc.

* Structure, structural methods, and structural systems.

* Human behavioral patterns - social classes and stratification, social institutions, social tensions and coherences, etc.

* Perception.

* Geology - surface and sub-surface conditions.

* Botany - plant materials and the nature of their growth.

[3,4] "From the Educators," The American Registered Architect, October, 1965.

* Environmental factors influencing design.

* Programming research - physical requirements, land-use analysis, planning statistics, etc.

* Mechanical, electrical, and plumbing systems.

* Construction materials - characteristics and limitations.

* Legal aspects of design.

* Profit and risk.

A study of the learning process reveals that learning takes place when the same response occurs with a continued frequency in a repeated situation. Continued repetition serves to reinforce this response until it eventually becomes an automatic subconscious reaction. Though it is unusual, the student sometimes learns a misinterpretation that causes him to make a wrong response. If an architectural student learns initially to design without having a fundamental knowledge of and a consideration for the information basic to the creation of interior and exterior spaces and the satisfaction of human needs, he has, then, learned a wrong response. It has been suggested, after considerable psychological research, that the successful architect must skillfully combine the diverse abilities of lawyer, engineer, psychologist, artist, psychiatrist, scientist, businessman, journalist, and educator. Obviously, these are not characteristics of a student just one year out of high school. It is, then, believed that there are inherent dangers to the student's potential development if design instruction is begun too early.

At the present time most architectural schools in the United States start teaching architectural or landscape architectural design courses during the first year along with other subjects which provide the basic knowledge required for developing creative design ability. This procedure will hurt the beginners according to Williamson's theory. A new curricula should therefore be worked out to replace the old one in order to avoid its destructive consequences.

The American Institute of Architects conducted a project on the re-examination of architectural education and practice. A team composed of five members,[5] charged by the Graham Foundation, made some recommendations which agree with those of Professor H. H. Williamson. The Institute, however, made

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[5] "Blueprint '65," AIA Journal, October, 1965.

a more concrete suggestion; namely, that the AIA encourage schools of architecture to require their students to qualify for Bachelor of Arts or Bachelor of Science degrees. These degrees would require two years of liberal education and two years of specialization in architecture. Another two years of graduate work would lead to the first professional degree. Students with three or four years of work in liberal arts colleges offering studio courses could complete their work for the first professional degree in about three years. College students without preliminary training in architecture would need four additional years to qualify for the professional degree. The recommendation has been accepted widely by educators throughout the country, though the new curricula is difficult to be rigidly organized.

The proposed "two-two-two" system has also been accepted by the College of Architecture and Design at this University. Certain faculty members of this College are working on the new program which will replace the present five-year program.

COURSES INVOLVED IN ARCHITECTURAL EDUCATION

As was mentioned before "a successful architect must skillfully combine the diverse abilities of lawyer, engineer, artist, psychologist, psychiatrist, scientist, businessman, journalist, and educator;" in other words, an architectural school should be able to offer courses carefully designed to develop understanding and sensitivity for the needs of man and his physical environment. From a general study of the curricula provided by most architectural schools in this country, it is found that the courses involved in architectural education could probably be itemized as follows:

1. Basic courses in liberal arts.
2. History and theory of architecture.
3. Basic techniques (graphics, etc.).
4. Aesthetics.
5. Environmental technology.
   a. Mechanical equipment (heating, ventilation, air-conditioning, etc.).
   b. Electrical equipment (lighting, electrical machinery).
   c. Plumbing systems.
   d. Acoustics.
   e. Solar problem.
6. Structure, structural methods, structural systems.
7. Building construction and materials.
8. Design practice.
   a. Architectural design.
   b. Landscape architectural design.
   c. Interior architecture.
   d. City planning project.
9. Miscellaneous.
   a. Professional practice, business administration, etc.

A general discussion of each item listed above is presented in the following sections.

1. Basic Courses in Liberal Arts.

The liberal studies enables the student to acquire a broad preparation for life in a democratic society, to obtain a sound basis for his professional training, to develop his skill in communication with others, to appreciate the heritage of the past, to understand the laws of nature, to participate in the arts,

and to maintain a healthy and happy life. A liberally educated man can think rationally, logically, objectively, and knows the difference between facts and opinions. When the occasion demands, however, his thought is imaginative and creative rather than logical. He is perceptive, sensitive to form, and affected by beauty. His mind is flexible and adaptable, curious, and independent.

This ability is particularly important for the young architectural students during the first two years of their professional studies. For instance, literature naturally exerts the least influence, since it is not a visual art like painting, sculpture, and industrial design. But certain fundamental ideas connected with modern literature, such as a feeling for the artistic virtues of ugliness, and a hypersensitivity to the importance of sincerity, have had drastic influence on architecture, and indeed have affected all the visual arts. Similarly, the growth of literary criticism also helped to create architectural criticism, and this naturally affected architecture itself.

2. History and Theory of Architecture.

Stated in simplest terms, an architect needs to be able to write clearly and understandably. In broader terms, an architect as an educated human being will want to be familiar with the literature of his own and other cultures. He also needs to understand the economic forces that will condition many of his problems. And if he is to arrive at convictions about the expression of his own culture in architecture, he will want to understand how the present has come into being out of the past, and so he will want to explore history.

Study of the past brings the architect an awareness of the development of his profession and the art he practices. He sees the relationship between the development of culture and its expression in architecture. He observes the development of forms, spaces, and style. He notices the impact of architecture on its times, a development which is the counterpart of architecture as an expression of those times.

The type of history we need is what César Daly[1] called "a philosophical history of architecture"; a history which will attempt "not to pass in review a list of the executed works and technical improvements effected ... , but to set in relief the evolution and revolution in architectural thoughts and architectural sentiments which have succeeded one another in the period ..." It

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[1] Changing Ideals in Modern Architecture 1750-1950, Peter Collins, Faber and Faber, London, 1965. Page 16.

should be concerned more with ideas than with buildings, and it should be able to convey an idea of what architects have been trying to achieve, rather than to analyze stylistically all the buildings they built.

3. Basic Techniques.

As an architect, a man wants to record what he sees and to set down alternative possibilities of pieces of the world as he might design them. Drawing is an architect's major means of analyzing a problem and communicating a conclusion.

The courses in drawing aim to develop the architect's perception and his ability to depict what he sees. He will learn both to record and to convey an impression, through a process generally known as freehand drawing. He will put on paper more exact aspects of buildings and their environs, a process called architectural drawing. He will combine them in practice. In order to record, study, and communicate he will draw freely, with pencil, brush, or pen, on any kind of a sheet of paper. The more precise aspects of a building will be studied on a drafting board with T-square, triangle, and other tools, and that is where final contract or working drawings will be prepared. Through this process buildings will be cut across horizontally and recorded as plans, or vertically as sections, and looked at from an infinite distance as elevations. The architect will acquire the technique putting objects or buildings in to perspective view.

The analysis of color and its use will begin in the drawing courses and be carried on in design. There is much to be learned about color, particularly in the relativity of its impact. A color is changeable. It changes under varying lights, whether natural or artificial, and it changes when it is put alongside another color.

Working with small scale models will develop a sense of the third dimension that is lacking on the drafting board. It will also give the architect an understanding of the nature of materials that are shaped in a plastic state, such as concrete, or plaster.

4. Aesthetics.

These courses deal with the elements of the allied arts. The students will acquire the basic concept of space, form, color, texture, light, etc. As H. H. Williamson said in his writing that aesthetics is "the factor which elevates building construction to a fine art."

By studying the history of architecture one finds that allied arts played

a very important role in architectural design, and this relationship is still true. Furthermore, modern architecture has been achieved through a close contact with the allied arts. In emphasizing this importance, Ruskin, in an appendix to his Edinburgh lecture (1854), announced that "no person who is not a great sculptor and painter can be an architect, for if he is not a sculptor and painter he can only be a builder."[2] He said again in the preface to the second edition of the Seven Lamps of Architecture, that "there are only two fine arts possible to the human race, sculpture and painting." "What we call architecture," he continued, "is only the association of these in noble masses, or the placing them in fit places; all architecture other than this is, in fact, mere building."

5. Environmental Technology.

The courses in environmental technology are related, as are all the technical courses, basically and finally to the design process. Once a building has been designed in relation to climate, mechanical equipment for heating and cooling, acoustics and artificial lighting are needed. The architect will need to understand the process in heating, air-conditioning, lighting, and of power installations leading to elevators and other equipment. Some times he may not be asked to design complete systems in his building because he can consult with the engineers who are specialized in the field. But he must have a full understanding of this knowledge during his design process in order to integrate the mechanical installations with his buildings and to provide the space for the equipment.

The purpose of a building is to make the condition within the building as favorable as possible for its users. This objective can be accomplished through design considerations such as orienting the building so as to take maximum advantage of sun, shade, and wind, and through placing glass areas to relate the heat of the sun to the climate. The sun rays can be controlled through shading devices such as overhang slab, louvers, or screens.

If the shape of a school auditorium, a theater, a church, etc. is determined without considering acoustic factors, this design will never satisfy the requirements of good acoustics. This important factor in designing a building,

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[2] Changing Ideals in Modern Architecture 1750-1950, Peter Collins, Faber and Faber, London, 1965. Page 271.

no less than the other factors, should be planned for at the very beginning. It is not good practice to add the "acoustic treatment" after the plans, or even the building has been completed, because having good acoustics in a building is not merely a matter of applying patent sound absorbent materials to walls or ceilings, but is fundamental in the design of the building. The building's size, shape, volume, and its location in relation to the noise source are all important factors which have a great bearing on its acoustics.

6. Structure, Structural Methods, Structural Systems.

The course in structure offers an opportunity to the student to study the fundamental structural analysis and structural design. Without a good understanding of structural problems, an architect will not be able to integrate the structural design into his building as a whole. Structural design involves determining the most suitable proportions of a structure and dimensioning and detailing the structural elements and details of which it is composed. The most important design decision made by an architect is the selection of the most suitable structural form to satisfy the various requirements and objectives of a particular project. Most often, he is not able to identify immediately the best solution, and he must continue to consider the several alternative structural types throughout the planning and design phases of the project until he is able to identify the best of the alternatives. The most suitable structural form is the one which satisfies the functional, economic, sociological, aesthetic, and other requirements to the highest degree and which may be economically and reliably built using the structural materials and the construction method. Without an understanding of structural alternatives, the architect cannot intelligently make the decisions that will determine the forms and spaces of the buildings he designs. In more basic terms, there is no architecture without structure.

7. Building Construction and Materials.

The materials with which we build and the ways in which they are put together have inherent characteristics that can determine the qualities of architecture. The student will want to get a feel of these characteristics early. To the traditional and natural materials such as wood, stone, and brick that served us for centuries, modern technology has now added synthesized and composite materials. This development is continuing at a fast rate. In the past, the knowledge of the natural materials, such as wood and stone, came from direct contact as we handled them. Now in our modern time, knowledge of the

characteristics of man-made synthetics and composites has to come from laboratory tests.

There are basic principles in the proper use of materials. The problem is to understand their characteristics and relate them to the orderly process of building. In understanding the physical characteristics of materials lies the key not only to their practical uses but also to the visual quality they give to architecture. Architects need to know their materials not only to keep the rain out of their buildings but also as instruments with which they shape design. They will need to get the feeling of them, through working with them and analyzing their properties.

8. Design Practice.

Just as the design process is the core of the architect's practice, so is the study of design the central and continuing element in the school curriculum. The courses already mentioned in the previous sections prepare for design and feed into it. The study and the process begin after the student has a good understanding of the supporting knowledge and will never cease as long as an architect practices, since the search for form and its expression in design is included in everything the architect does. Design in a more direct sense involves the composition of the diverse forces and elements that make up architecture, into a whole that is unified functionally, structurally, and visually.

The design practices will begin with what is called fundamental design, or basic design in which he will look at structure, form, and space in more fundamental terms than in a specific project. Then, enters the second step, design in the formal. The first formal design will involve problems whose solutions take the form of simple spaces and structure. For example, "A Pavilion in the Park at Tuttle Creek" could be a typical subject. The design problems become more complicated as the curriculum develops, growing from requirements for one room to groupings of spaces, from a single use to those of varied functions. Finally, problems will come to include a complex of buildings, then a neighborhood, and perhaps a town. The problems of town and regional planning are the problems of the architect, and they can not be solved without him. The curricula in architectural interior design, landscape architectural design, and regional planning will also be set up as a procedure similarly to that of the architectural design study just stated previously.

9. Miscellaneous.

There are courses in the professional responsibilities of the architect, in the business of administering his responsibilities, and the economic basis of the projects he designs. The course in professional administration is a prime example of the importance of what people do in contrast with what they merely say. It aims to span the gap between the theory of school problems and the realities of architectural practice. The course provides an opportunity to understand the professional status of the architect and his responsibilities to client and society.

There is another course, the inspection trip, which students are required to take in most architectural schools. This course brings to the student architects an opportunity for traveling occasionally around the country to study significant buildings completed or under construction. Studying these buildings on the site, under staff supervision, the students can obtain a clearer impression than he can get from drawings or photos of these buildings.

CURRICULUM IN THE COLLEGE OF ARCHITECTURE AND DESIGN, K.S.U.[1]

The College of Architecture and Design provides professional study in Architecture, Architectural Structures, Interior Architectural Design, Landscape Architecture, Building Construction and Urban and Regional Planning.

The undergraduate and graduate programs are carefully designed to develop understanding and sensitivity concerning the needs of man and his physical environment. The curriculum in each department of this College is intended to help the student in the attainment of the following:

1. Adequate and effective understanding of human needs and desires.
2. Knowledge of the means and methods by which these needs and desires can be accommodated.
3. Logical and analytical thought processes in problem evaluation and solution.
4. Concern for creativity and aesthetics in this process.
5. Ability to communicate ideas by oral, written, and visual means.
6. Awareness of professional responsibility, personal organization, and self-discipline.
7. Incentive and ability to continue the educational process after earning the baccalaureate degree.

Curriculum in Architecture

Bachelor of Architecture

The curriculum in Architecture prepares students to design all types of buildings. Design problems include residences, governmental and business buildings, schools and churches. A carefully integrated sequence of courses and individual guidance in the design laboratories encourage students to develop creative solutions for these problems. Instruction stresses not only aesthetic considerations but also the proper integration of structure and mechanical equipment.

The curriculum includes courses that develop a student's facility to prepare sketches, contractors' drawings, specifications and structural designs in wood, steel, and concrete.

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1 Kansas State University Bulletin, General Catalog 1966-1968, Pages 92-98, 102, 104, 105.

First Year

First Semester

Dept.	Course No.	Course	Sem. Hrs.
Engl.	229 100	English Composition I	3
Arch.	105 131	Fundamentals of Design I	2
Arch.	105 207	Architectural Graphics I	2
Math.	245 220	Analysis Geometry and Calculus I	4
L. A.	110 100	Landscape Design	3
Ph. Ed.	261 010	Physical Education	0
Arch.	105 110	Architectural Lectures	0
		Elective	2
	Total		16

Second Semester

Engl.	229 120	English Composition II	3
Spch.	281 105	Oral Communication I	2
Arch.	105 132	Fundamentals of Design II	2
Arch.	105 208	Architectural Graphics II	2
Hist.	241 111	History of Western Civilization I	3
Psych.	273 110	General Psych. or	
Soc.	277 211	Introduction to Sociology	3
Ph. Ed.	261 010	Physical Education	0
Arch.	105 118	Architectural Assembly	0
	Total		15

Second Year

First Semester

Phys.	265 211	General Physics	4
Arch.	105 231	Design Analysis	4
Phil.	241 150	Elementary Logic	3
		Elective	3
Arch.	105 118	Architectural Assembly	0
	Total		14

Second Semester

Phys.	265 212	General Physics II	4
Arch.	105 270	History of Architecture I	2
Arch.	105 232	Principles of Environmental Design	4
Ap. M.	520 205	Applied Mechanics A	3
		Elective	3
Arch.	105 118	Architectural Assembly	0
	Total		16

Third Year

First Semester

Dept.	Course No.	Course	Sem. Hrs.
Arch.	105 331	Architectural Design I	5
M. E.	580 406	Air Conditioning A	3
Ap. M.	520 220	Strength of Materials A	3
Ap. M.	520 224	Strength of Materials Lab.	1
Arch.	105 311	Architectural Constructions I	3
Arch.	105 375	History of Architecture II	2
Arch.	105 118	Architectural Assembly	0
Engl.	229 090	English Proficiency	0
	Total		17

Second Semester

Arch.	105 332	Architectural Design II	5
Arch.	105 421	Timber Structures	2
Arch.	105 320	Theory of Structure I	3
E. E.	550 406	Illumination A	2
Arch.	105 312	Architectural Constructions II	3
Arch.	105 378	History of Architecture III	2
Arch.	105 118	Architectural Assembly	0
	Total		17

Fourth Year

First Semester

Arch.	105 341	Architectural Design III	5
Arch.	105 422	Theory of Structures II	4
Arch.	105 335	Building Equipment I	3
		Elective	3
Arch.	105 379	History of Architecture IV	2
Arch.	105 118	Architectural Assembly	0
	Total		17

Second Semester

Arch.	105 342	Architectural Design IV	5
Arch.	105 428	Theory of Structures III	4
Arch.	105 437	Building Equipment II	3
Arch.	105 413	Environmental Seminar	2
		Elective	3
Arch.	105 118	Architectural Assembly	0
	Total		17

Fifth Year

First Semester

Dept.	Course No.	Course	Sem. Hrs.
Arch.	105 351	Architectural Design V	5
Arch.	105 620	City Planning Principles	3
Arch.	105 536	Professional Practice	2
		Elective	6
Arch.	105 390	Inspection Trip	0
Arch.	105 118	Architectural Assembly	0
	Total		16

Second Semester

Arch.	105 352	Architectural Design VI	5
Arch.	105 630	City Planning or	
Arch.	105 640	Urban Design	3
		Elective	7
Arch.	105 118	Architectural Assembly	0
	Total		15

Number of hours required for graduation, 160.

Only four hours of electives may be taken in Basic Military Science.

Option in Architectural Structures

Bachelor of Architecture

The Architectural Structures option is offered for the student particularly interested in the design and integration of the mechanical, electrical, and structural systems and equipment in buildings. After thorough instruction in basic mathematics and science, the student applies these principles to structural problems, related equipment, and service problems found in building.

Advanced students in Architectural Structures maintain close cooperation with students in the Architectural Curriculum to develop the proper team approach and assure the integration of all the elements necessary for the development of a proper physical environment.

First Year

First Semester

Engl.	229 100	English Composition I	3

Dept.	Course No.	Course	Sem. Hrs.
Chem.	221 210	Chemistry I	5
Math.	245 220	Analytic Geometry and Calculus I	4
Arch.	105 207	Architectural Graphics I	2
Arch.	105 131	Fundamentals of Design I	2
Ph. Ed.	261 010	Physical Education	0
Arch.	105 110	Architectural Lecture	0
	Total		16

Second Semester

Engl.	229 120	English Composition II	3
Chem.	221 230	Chemistry II	3
Math.	245 221	Analytic Geometry and Calculus II	4
Arch.	105 208	Architectural Graphics II	2
Arch.	105 132	Fundamentals of Design II	2
Spch.	281 105	Oral Communication I	2
Ph. Ed.	261 010	Physical Education	0
Arch.	105 118	Architectural Assembly	0
	Total		16

Second Year

First Semester

Phys.	265 310	Engineering Physics I	5
Math.	245 222	Analytic Geometry and Calculus III	4
Econ.	225 110	Economics I	3
Arch.	105 231	Design Analysis	4
Arch.	105 118	Architectural Assembly	0
	Total		16

Second Semester

Phys.	265 311	Engineering Physics II	5
Math.	245 240	Series and Differential Equations	4
Ap. M.	520 305	Statics	3
Arch.	105 232	Principles of Environmental Design	4
Arch.	105 118	Architectural Assembly	0
	Total		16

Third Year

First Semester

Ap. M.	520 415	Mechanics of Materials	3
Ap. M.	520 418	Mechanics of Materials Lab.	1
Arch.	105 311	Architectural Constructions I	3

Dept.	Course No.	Course	Sem. Hrs.
Ap. M.	520 412	Dynamics	3
Arch.	105 331	Architectural Design I	5
Arch.	105 118	Architectural Assembly	0
		Elective	2
	Total		17

Second Semester

C. E.	530 331	Anal. Stat. Det. Str.	3
Arch.	105 421	Timber Structures	2
Arch.	105 332	Architectural Design II	5
Arch.	105 312	Architectural Constructions II	3
G. E.	560 350	Engineering Materials	2
G. E.	560 351	Engineering Materials Lab.	1
Arch.	105 118	Architectural Assembly	0
Engl.	229 090	English Proficiency	0
	Total		16

Fourth Year

First Semester

C. E.	530 332	Structural Analysis II	3
C. E.	530 422	Soil Mechanics I	3
Arch.	105 335	Building Equipment I	3
Arch.	105 301	Appreciation of Architecture	3
		Elective	3
Arch.	105 118	Architectural Assembly	0
	Total		15

Second Semester

Arch.	105 422	Theory of Structures II	4
M. E.	580 406	Air Conditioning A	3
Arch.	105 437	Building Equipment II	3
C. E.	530 426	Foundations	3
Arch.	105 413	Environmentals Seminar	2
Arch.	105 118	Architectural Assembly	0
	Total		15

Fifth Year

First Semester

Arch.	105 428	Theory of Structures III	4
E. E.	550 406	Illumination A	2
Arch.	105 445	Constructions Problems I	3

Dept.	Course No.	Course	Sem. Hrs.
Arch.	105 536	Professional Practice	2
		Elective	6
Arch.	105 118	Architectural Assembly	0
	Total		17

Second Semester

Arch.	105 680	Theory of Structures IV	4
Arch.	105 391	Senior Project	3
Arch.	105 446	Construction Problems II	3
		Elective	6
Arch.	105 118	Architectural Assembly	0
	Total		16

Number of hours required for graduation, 160.

Only four hours of electives may be taken in Basic Military Science.

Option in Interior Architectural Design

Bachelor of Architecture

Students in the Interior Architectural Design option are concerned with problems of design related directly to this specialization. After a thorough introduction to basic design, students develop studio exercises involving a design and detailing of interior spaces. The sequence of courses includes problems in integrating acoustical considerations, illumination, and mechanical equipment with materials and spatial design. This curriculum is offered for those desiring to specialize in this particular aspect of design.

All student drawings and designs may be retained by the College of Architecture and Design at the discretion of the faculty. These undergraduate curricula terminate with the Bachelor of Architecture degree. Graduates enter the architectural profession and practice their various specialties in private practice, public service, or in association with large contractors, engineers, or manufacturers of building products.

First Year

First Semester

Engl.	229 100	English Composition I	3
Arch.	105 131	Fundamentals of Design I	2

Dept.	Course No.	Course	Sem. Hrs.
Arch.	105 207	Architectural Graphics I	2
L. A.	110 100	Landscape Design	3
		Elective	3
Spch.	281 105	Oral Communication I	2
Ph. Ed.	261 010	Physical Education	0
Arch.	105 110	Architectural Lecture	0
	Total		15

Second Semester

Engl.	229 120	English Composition II	3
C. & T.	610 240	Interior Design I	2
Arch.	105 132	Fundamentals of Design II	2
Arch.	105 208	Architectural Graphics II	2
Hist.	241 111	History of Western Civilization I	3
Psych.	273 110	General Psychology or	
Soc.	277 211	Introduction to Sociology	3
Ph. Ed.	261 010	Physical Education	0
Arch.	105 118	Architectural Assembly	0
	Total		15

Second Year

First Semester

Phys.	265 211	General Physics I	4
M. L.	253 131	French I	3
Arch.	105 231	Design Analysis	4
Phil.	241 150	Elementary Logic	3
C. & T.	610 340	Interior Design II	3
Arch.	105 118	Architectural Assembly	0
	Total		17

Second Semester

M. L.	253 135	French II	3
Arch.	105 270	History of Architecture I	2
Arch.	105 232	Principles of Environmental Design	4
Econ.	225 110	Economics I	3
Phys.	265 212	General Physics II	4
Arch.	105 118	Architectural Assembly	0
	Total		16

Third Year

First Semester

Arch.	105 331	Architectural Design I	5

Dept.	Course No.	Course	Sem. Hrs.
C. & T.	610 260	Textiles	3
I. E.	570 212	Woodworking I	2
Arch.	105 311	Architectural Constructions I	3
Arch.	105 375	History of Architecture II	2
Engl.	229 090	English Proficiency	0
Arch.	105 118	Architectural Assembly	0
	Total		15

Second Semester

Arch.	105 332	Architectural Design II	5
I. E.	570 212	Woodworking II	2
M. E.	580 406	Air Conditioning A	3
Arch.	105 312	Architectural Constructions II	3
Arch.	105 378	History of Architecture III	2
		Elective	2
Arch.	105 118	Architectural Assembly	0
	Total		17

Fourth Year

First Semester

Arch.	105 481	Interior Architectural Design I	4
I. E.	570 312	Finishing	3
E. E.	550 406	Illumination A	2
Arch.	105 379	History of Architecture IV	2
		Elective	5
Arch.	105 118	Architectural Assembly	0
	Total		16

Second Semester

Arch.	105 482	Interior Architectural Design II	4
B. A.	305 440	Marketing	3
Arch.	105 413	Environmental Seminar	2
C. & T.	610 645	History of Furniture Design	3
Arch.	105 437	Building Equipment II	3
		Elective	2
Arch.	105 118	Architectural Assembly	0
	Total		17

Fifth Year

First Semester

Arch.	105 581	Interior Architectural Design III	5

Dept.	Course No.	Course	Sem. Hrs.
Arch.	105 536	Professional Practice	2
C. & T.	610 600	Advanced Design	2
		Elective	7
Arch.	105 390	Inspection Trip	0
Arch.	105 118	Architectural Assembly	0
	Total		16

Second Semester

Arch.	105 582	Interior Architectural Design IV . . .	5
Arch.	105 583	Contemporary Furniture Design	4
		Elective	7
	Total		16

Number of hours required for graduation, 160.

Only four hours of electives may be taken in Basic Military Science.

Curriculum in Landscape Architecture

Bachelor of Landscape Architecture

The Curriculum in Landscape Architecture is designed to prepare students for the field of professional landscape architecture and is a carefully balanced program drawing from several related areas. Special emphasis is placed upon space organization, land planning, topographical manipulation, landscape planning and construction, and the role of adapted plant materials in the landscape.

First Year

First Semester

L. A.	110 100	Landscape Design	3
Arch.	105 207	Architectural Graphics I	2
Arch.	105 131	Fundamentals of Design I	2
Engl.	229 100	English Composition I	3
Bot.	217 210	General Botany	4
Ph. Ed.	261 010	Physical Education	0
L. A.	110 301	Landscape Seminar	0
		Elective	2
	Total		16

Second Semester

Dept.	Course No.	Course	Sem. Hrs.
Arch.	105 208	Architectural Graphics II	2
Arch.	105 132	Fundamentals of Design II	2
Engl.	229 120	English Composition II	3
Hist.	241 111	History of Western Civilization	3
Math.	245 150	Plane Trigonometry	3
Soc.	277 211	Introduction to Sociology	3
Ph. Ed.	261 010	Physical Education	0
L. A.	110 301	Landscape Seminar	0
	Total		16

Second Year

First Semester

Phys.	265 211	General Physics I	4
Arch.	105 231	Design Analysis	4
		Elective	2
Hort.	040 260	Plant Materials I	3
Phil.	241 150	Elementary Logic	3
L. A.	110 301	Landscape Seminar	0
	Total		16

Second Semester

Arch.	105 232	Principles of Environmental Design	4
C. E.	530 213	Plane Survey	3
Hort.	040 270	Plant Materials II	3
Geog.	234 207	Int. Phys. Geog.	4
Spch.	281 105	Oral Communication I	2
L. A.	110 301	Landscape Seminar	0
	Total		16

Third Year

First Semester

L. A.	110 471	Landscape Construction I	3
L. A.	110 361	Elementary Landscape Architecture	4
L. A.	110 381	History and Theory of Landscape Arch.	3
Arch.	105 311	Architectural Construction I	3
B. A.	105 325	Business Law I	3
L. A.	110 301	Landscape Seminar	0
Engl.	229 090	English Proficiency	0
	Total		16

Second Semester

Dept.	Course No.	Course	Sem. Hrs.
L. A.	110 472	Landscape Construction II	3
L. A.	110 362	Elementary Landscape Architecture II	4
Arch.	105 312	Architectural Constructions II	3
Hort.	040 600	Landscape Horticulture	3
		Elective	2
Arch.	105 413	Environmental Seminar	2
L. A.	110 301	Landscape Seminar	0
	Total		17

Fourth Year

First Semester

L. A.	110 473	Landscape Construction III	3
L. A.	110 461	Elementary Landscape Architecture III	4
L. A.	110 442	Planting Design I	3
Soc.	277 531	Urban Sociology	3
		Elective	3
L. A.	110 301	Landscape Seminar	0
	Total		16

Second Semester

L. A.	110 462	Elementary Landscape Architecture IV	4
L. A.	110 443	Planting Design II	3
L. A.	110 420	Community Planning	3
		Elective	6
L. A.	110 301	Landscape Seminar	0
	Total		16

Fifth Year

First Semester

L. A.	110 561	Landscape Architectural Design I	5
L. A.	110 585	Design of Parks and Recreation Areas	3
L. A.	110 444	Planting Design III	3
Arch.	105 620	City Planning Program	3
		Elective	2
L. A.	110 301	Landscape Seminar	0
	Total		16

Second Semester

Dept.	Course No.	Course	Sem. Hrs.
L. A.	110 562	Landscape Architectural Design II	5
L. A.	110 599	Senior Project in Landscape Arch.	3
L. A.	110 591	Professional Practice	2
		Elective	5
L. A.	110 301	Landscape Seminar	0
	Total		15

Number of hours required for graduation, 160.

Only four hours of electives may be taken in Basic Military Science.

Curriculum in Building Construction

B. S. in Building Construction

The Building Construction Curriculum is designed to prepare graduates for one of the many phases of the construction industry. Instruction includes an introduction to the preparation of architect's drawings, a thorough grounding in structures, business practices and techniques related directly to building. Courses in office management, material storage and procurement, layout, forming and scaffolding, estimating and organization techniques prepare the student for positions as construction superintendents, office managers, estimators and related positions with large contractors. This curriculum terminates with the degree Bachelor of Science in Building Construction.

Students are encouraged to secure practical experience, during the summer vacation, either on construction projects or in the offices of architects, engineers, or contractors.

Freshman

First Semester

Engl.	229 100	English Composition I	3
Math.	245 220	Analytic Geometry and Calculus I	4
Spch.	281 105	Oral Communication I	2
Arch.	105 207	Architectural Graphics I	2
		Elective	3
Ph. Ed.	261 010	Physical Education	0
Arch.	105 110	Architectural Lecture	0
	Total		14

Second Semester

Dept.	Course No.	Course	Sem. Hrs.
Engl.	229 120	English Composition II	3
C. E.	530 213	Plane Survey	3
Arch.	105 208	Architectural Graphics I	2
Phys.	265 211	General Physics I	4
Econ.	225 110	Economics I	3
Ph. Ed.	261 010	Physical Education	0
Arch.	105 118	Architectural Assembly	0
		Elective	2
	Total		17

Sophomore

First Semester

Phys.	265 212	General Physics II	4
Arch.	105 311	Architectural Constructions I	3
B. A.	405 325	Business Law I	3
B. A.	405 273	Principles of Accounting	3
		Elective	3
Arch.	105 118	Architectural Assembly	0
	Total		16

Second Semester

Arch.	105 312	Architectural Constructions II	3
Ap. M.	520 205	Applied Mechanics A	3
B. A.	405 301	Office Management	3
Geol.	234 100	General Geology	3
		Elective	5
Arch.	105 118	Architectural Assembly	0
	Total		17

Junior

First Semester

Ap. M.	520 220	Strength of Materials A	3
Ap. M.	520 224	Strenght of Materials Lab.	1
M. E.	580 406	Air Conditioning A	3
Arch.	105 301	Appreciation of Architecture	3
Arch.	105 335	Building Equipment I	3
Stat.	285 320	Elementary Statistics	3
Arch.	105 118	Architectural Assembly	0
	Total		16

Second Semester

Dept.	Course No.	Course	Sem. Hrs.
Arch.	105 421	Timber Structures	2
Arch.	105 320	Theory of Structures I	3
E. E.	550 406	Illumination A	2
Arch.	105 437	Building Equipment II	3
Math.	245 350	Computing Techniques	2
		Elective	4
Arch.	105 118	Architectural Assembly	0
	Total		16

Senior

First Semester

Arch.	105 422	Theory of Structures II	4
Arch.	105 445	Construction Problems I	3
Econ.	225 620	Labor Economics	3
Arch.	105 536	Professional Practice	2
		Elective	5
Arch.	105 118	Architectural Assembly	0
	Total		17

Second Semester

Arch.	105 413	Environmentals Seminar	2
Arch.	105 428	Theory of Structures III	4
Arch.	105 446	Construction Problems II	3
Arch.	105 391	Senior Project	3
		Elective	5
Arch.	105 118	Architectural Assembly	0
	Total		17

Number of hours required for graduation, 130.

Only four hours of electives may be taken in Basic Military Science.

Within each curriculum there are several hours reserved for "electives." Each student is encouraged to include a block of courses in one of several related areas of study. These areas of secondary interest are as the following:

Art, Art History, Business Administration, English, Geology and Geography, History, Humanities, Landscape Architecture, Modern Language, Philosophy, Regional Planning, Psychology, Sociology, and Anthropology.

Graduate Curriculum in Regional Planning

Regional planning applies intelligent foresight to the development of the physical environment in cities, regions, states, and the nation. The objective encompasses both the understanding of urban environment, primarily known as city planning, as well as the recognition of economic and social forces of area development. Professional planners prepare plans and policies to guide community and regional growth. The design principles of architecture, landscape architecture, and civil engineering are combined with the analysis techniques of the social sciences, such as sociology, government, and economics. Planners have the overall responsibility for both functional efficiency and aesthetic beauty.

Since 1945, rapidly increasing awareness of the problems of urban growth has created a shortage of professionally trained planners. Some positions have had to be filled by professionals from allied fields. More responsible positions require professional training. Graduate planners serve as staff members or directors of city, regional, metropolitan and state planning agencies, conduct the planning phases of urban renewal, and are consultants in these fields, as well as advisors to private industry in the planning of large-scale projects from urban redevelopment to the construction of entire new communities.

The following list gives the courses offered to both undergraduate and graduate students who will seek a Master degree in this field.

105 620 City Planning Principles. (3) I, II.
105 630 City Planning. (3) I, S.
105 640 Urban Design. (3) II.
105 650 Subdivisions and Housing. (3) II.

The following courses are for graduate credit only.

105 801 Regional Planning I. (3) I, II, S.
105 802 Regional Planning II. (3) I, II, S.
105 808 Internship in Planning. (3) I, II, S.
105 816 Advanced Planning Theory. (3) I, II.
105 875 Planning Legislation and Regulation. (3) I, II.
105 899 Research in Planning. Credit arranged. I, II, S.

Remarks

A fully detailed description of each course is omitted here. Information can be obtained by checking the Kansas State University Bulletin, General Catalog 1966-1968.

SPACE REQUIREMENTS AND ANALYSIS FOR THE PROPOSED PROJECT

The Present Spaces Used in Seaton Hall[1]

The present spaces accommodating the College of Architecture and Design in Seaton Hall are mainly located on the second and third floors of the front part of the building. The spaces allocated to different uses are:

1.	Offices	3,407 sq. ft.
2.	Classrooms	2,796 sq. ft.
3.	Drafting and design studios	13,730 sq. ft.
4.	Library	1,783 sq. ft.
5.	Storage	600 sq. ft.
6.	Rest rooms	420 sq. ft.
7.	Sculpture studio	960 sq. ft.
8.	Architecture assembly hall	3,840 sq. ft.
	Total	27,536 sq. ft.

Additional Spaces Needed in 1971[2]

The required additional spaces for improved teaching facilities in 1971 are suggested as the following:

1.	Offices	2,000 sq. ft.
2.	Classrooms and studios	8,000 sq. ft.
3.	Graduate students' studios	3,000 sq. ft.
4.	Administration	1,500 sq. ft.
5.	Jury and exhibition	1,500 sq. ft.
6.	Library	2,300 sq. ft.
7.	Model shop and materials lab.	2,500 sq. ft.
	Total	20,800 sq. ft.

Space Program for The Proposed Project

The following space requirements, needed for future expansion, are basically derived from the standards for campus building. Some other data, which are particularly important to this program, have been gained through interviews with faculty members in different fields, and also from a program prepared by a committee of this University in October, 1961.[3]

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[1] Information obtained from Dean's Office.

[2,3] Academic and Space Requirements for Training Students in Architecture--1961, College of Architecture and Design, October 26, 1961.

The space analysis contains:

1. Administration area
2. Study area
3. Public circulation
4. Service area

1. Administration Area

The administration area includes the offices and related work rooms of those whose duties are concerned with the administrative as well as instructional functions of the college.

* Dean's Office Total area: 230 sq. ft.	- Should be easy to communicate with his staff.
	- Should be adjacent to his secretary.
	- Should be provided with chairs for visitors.
* Assistant Dean's Office Total area: 190 sq. ft.	- Should have space for filing cabinets.
	- Should be adjacent to secretary pool.
* Secretary Pool Total area: 270 sq. ft.	- Should be convenient to persons who desire information obtainable from the secretary.
	- Should provide space for working, should have one power-driven mimeograph, a duplication machine, tables, stapling machine, and a paper cutter.
	- Should have space for students' records filing cabinets.
* Department Head Offices Total area: 1,620 sq. ft.	- Architecture, Landscape Architecture, Architectural Structures, Regional Planning, Interior Architectural Design, and Building Construction.
	- The office should be able to accommodate the Head and his secretary as well as the space for receiving visitors.
* Faculty Offices Total area: 4,320 sq. ft.	- In general, two persons will share one room.

* Faculty Offices (Continued) - Should contain two desks, two swivel chairs, filing cabinets, a drafting table, a work table which might be a cabinet with sliding drawers large enough to store drafting boards of the size 30 in. by 40 in., and two chairs for visitors.

* Conference Room
Total area: 480 sq. ft.

- Should be furnished with a large conference table or several smaller tables of the same size which may be arranged to serve larger groups.

- Should be so furnished that the faculty members may use it as a lounge area for informal gathering when it is not in use for meeting.

- The main considerations in the acoustical design of a conference room are stated below:

  1. Seating arrangements will vary according to the size of the room, but the aim should be to seat members facing each other.

  2. The volume of the room and the height of the ceiling should not be allowed to become too great in an attempt to create a spacious effect.

  3. If the size of room is sufficient to give rise to near-echoes, dispersive or absorbent treatment of walls and ceiling may be necessary.

  4. A horizontal ceiling provides an equal reinforcement of sound to all positions in the room, and dispersive treatment prevents interreflection between committee table and ceiling.

  5. The volume of the room in relation to the number of persons usually requires the employment of absorbent material to reduce reverberation. It is most efficiently distributed around wall surfaces.

* Conference Room (Continued)

6. Provide well-upholstered seating and soft floor finishes.

7. The reverberation time should be not more than 3/4 second.

* Jury Room
  Total area: 720 sq. ft.

- Should have ample space for displaying students' work. (Use the exhibition area for large group.)
- Seats for jury members should have a clear view of the object.
- Make this space flexible for different sizes of groups.
- The furniture should be carefully arranged to fulfill use by the jury, small group seminars, sometimes, a rest area for the faculty.
- The acoustic problem in a jury room will have the same considerations as the conference room except that the seating arrangements are different as mentioned previously. The acceptable noise level is about 40 db when unoccupied.

* Janitor Room
  Total area: 95 sq. ft.

- Should include storage space for tools needed by custodians for the care of the interior of the building.

2. Study Area

The study area includes classrooms, studios, and model working shop.

* Classrooms
  Total area: 5,220 sq. ft.

- Each room should accommodate 25 - 30 students - allowing 18-20 sq. ft. per student.
- A room 20 ft. by 30 ft. will accommodate a class of 25 - 30 students.

* Design Studios
  Total area: 32,400 sq. ft.

- Includes architectural design, structural design, landscape design, interior architectural design, and regional planning as well as rooms for graphics course.
- An average space from 40-50 square feet per student is recommended. (Approximately 34 sq. ft. for each freshman

* Design Studios (Continued)	and 50-55 sq. ft. for each senior or graduate student.)
	- Movable partitions with tackboard and chalkboard panels are installed to separate the class freely.
	- There should be several sinks with hot and cold water.
	- Good natural and artificial lighting and air-conditioning should be carefully considered.
	- Small groups of sofas will be furnished scattering for students.
	- Individual work tables provided for seniors when desired.
* Model Working Shop Total area: 570 sq. ft.	- It includes the space for materials exhibition.
	- Should be adjacent to drafting rooms for students' convenience.
	- Work benches and power-driven machines should be provided.
3. Public Circulation	
* Entrance Hall, Stairs, and Corridors	- Should have direct access to related space.
	- Stairways should be located at proper places for transfer of persons and for fire escape.
* Exhibition Area Total area: 1,760 sq. ft.	- Should be easy to reach.
	- Should be amply supplied with electric outlets for indirect lights for individual displays.
	- Can be converted into jury space for large groups.
* Student Lounge	- Within exhibition area.
* Lecture Hall Total area: 3,600 sq. ft.	- Capacity for 400 seats at 9 sq. ft. per person (including circulation.)

* Lecture Hall (Continued)

- Should be located where noise is easily controlled.
- Should be convenient for people to reach and disperse rapidly.
- Accoustical treatment and sight lines are the most important factors which should be worked into its plan, shape, volume, ceiling, floors, seats, side walls, and materials used for the exposed surfaces.

* Library
Total area: 4,100 sq. ft.

- It must provide source materials such as books, maps, records, slides, and films for students and faculty, and a proper environment for their use.
- Reading area - 20 sq. ft. per student, 120 students expected.
- Book stacks - in determining the stack area, an average volume increase of five percent a year is generally considered - a total of 7,500 volumes are expected to be in this library in the year of 1971, so 200 sq. ft. of floor area will be needed for book stacks (using open book stacks.)
- Reference section - a reserved book section for both faculty and student.
- Materials storage - for records, films, slides, maps, and charts.
- Librarian's working area.
- Should be totally air-conditioned for the benefit of both people and books, because air-conditioning controls simultaneously eight factors: temperature, humidity, air motion, air distribution, dust, bacteria, odors, and toxic gases.
- The considerations of acoustics in a library are the following:

  1. It is necessary to keep the noise level low in the room; usually 40 db is acceptable when the room is unoccupied.

* Library (Continued)

2. In this project, the ceiling is not high and the room has a simple, rectangular shape. 50% of the ceiling should be treated with a highly absorptive material.

3. The book shelves, which, when filled with books, will provide an absorptive surface (coefficient of about 0.25 at 512 cycles). This situation should be taken into account concerning the control of reverberation.

4. The floor should be covered with cork tile or carpet or similar material that will minimize the noise of footfalls and provide added absorption.

4. Service Area

* Washrooms
  Total area: 1,852 sq. ft.

- Washrooms for men and for women should be located on each floor.
- It should be conveniently placed with respect to stairways and corridors.
- In classroom building the number of toilet fixtures should be provided in about the ratio of one fixture to each 25 to 30 persons in the building during the busiest hours. In toilet rooms for men the fixtures should be divided between urinals and toilet seats in the ratio of 2 to 1.

* Stairways and Elevators
  Total area: 4,400 sq. ft.

- Adequate stairways should be located at proper places for transfer of persons and for fire escape.
- For a building of more than two stories, adequate elevator service may be required for passengers and freight.

* Storage
  Total area: 2,500 sq. ft.

- Storage space should be provided for the supplies and instruments.

* Mechanical Service
  Total area: 6,500 sq. ft.

- Mechanical room for hot water boiler, heating and cooling from central plant.
- Mechanical tunnels required for ducts running up to different floors.

* Mechanical Service (Cont'd) - Space should be provided for substation.

- Better located in basement.

- Should have direct access to service road.

THE PROPOSED SITE

Climate in Manhattan

Manhattan, located near the geographic center of the United States Mainland, has a typical continental climate. Warm to hot summers, cold winters, moderate surface winds, a warm season precipitation maximum, and frequent day to day weather changes are all important features of the climate.

In Manhattan there is abundant sunshine in all seasons, especially during the summer (See Table 3). Summers are inclined to be warm, or rather hot, but are healthful with generally low relative humidity during periods of high temperatures. The transition from the cold to the warm season, and vice versa, occurs rather rapidly. March has a mean temperature of 43.6° F. compared with 55.6° F. in April (See Table 1). The change is more significant between October (71.2° F.) and November (56.0° F.) (See Table 1).

A large portion of the precipitation in Manhattan falls during the warmest one half of the year. An average of 70 percent of the annual rainfall occurs during April through September. The remaining 6 months account for only 30 percent of the annual total. Rainfall averages over 4 inches in each of the months of May, June and August. Winters are dry and the snowfall is light in Manhattan, averaging about 20 inches per year. Moderate to heavy snows occasionally occur as late as early April, but spring snows usually melt rapidly.

The prevailing direction of the wind is from the south, April to November (See Table 2). During January, February, and March, northerly winds prevail. Manhattan is favored with more clear than cloudy days.

Average relative humidity especially during daylight hours and early evening is low and this situation results in the climate being drier and more bracing with fewer muggy, "sticky", days during the summer and less damp weather in the winter than one finds in most states. Such conditions favor good health. They are especially advantageous to air-conditioning.

Tornadoes occur from time to time in Kansas and pass through Manhattan most often during the periods from June to September. On June 8, 1966, Manhattan was hit by a tornado which destroyed many buildings belonging to Kansas State University. Tornadoes are the most violent, least extensive and most sharply defined of all storms. It is doubtful whether any building, except possibly a steel reinforced concrete structure can withstand the force of a

fully developed tornado, and the latter type of building is almost sure to have its glass windows demolished.

The data taken at Manhattan, listed in the following tables, are adapted from Report of Kansas State Board of Agriculture, J. C. Mohler, Vol. LXVII, No. 285, June 1948.

Table 1 - Temperature (F°)

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
A.Nr.T.	29.6	33.8	43.6	55.6	64.9	74.3	79.7	79.5	70.5	57.0	44.0	33.7
M.Mx.T.	39.6	44.3	56.5	67.9	76.6	86.7	93.0	91.5	83.6	71.2	56.0	42.9
M.Mn.T.	18.5	21.1	31.4	42.5	52.8	62.6	67.3	65.8	57.8	45.2	31.8	22.8

A.Nr.T. - Average normal temperature

M.Mx.T. - Mean maximum temperature

M.Mn.T. - Mean minimum temperature

Table 2 - Wind

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Average wind velocity miles/hr.	9.1	9.6	10.8	10.8	9.3	9.0	8.3	8.3	8.6	8.6	9.5	8.8
Wind prevailing direction	NW	N	N	S	S	S	S	S	S	S	S	S

Annual hourly wind velocity is 9.2 miles/hour.

Table 3 - Sunshine

Average number of days clear, partly cloudy, and cloudy.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Clear	11	10	10	10	10	11	15	14	14	15	13	11	145
P.Cloudy	10	9	10	9	8	6	4	5	6	3	9	11	94
Cloudy	10	9	11	11	13	13	12	12	10	8	8	9	126
P.of P.S.	56	58	59	59	63	67	75	71	66	64	60	52	62

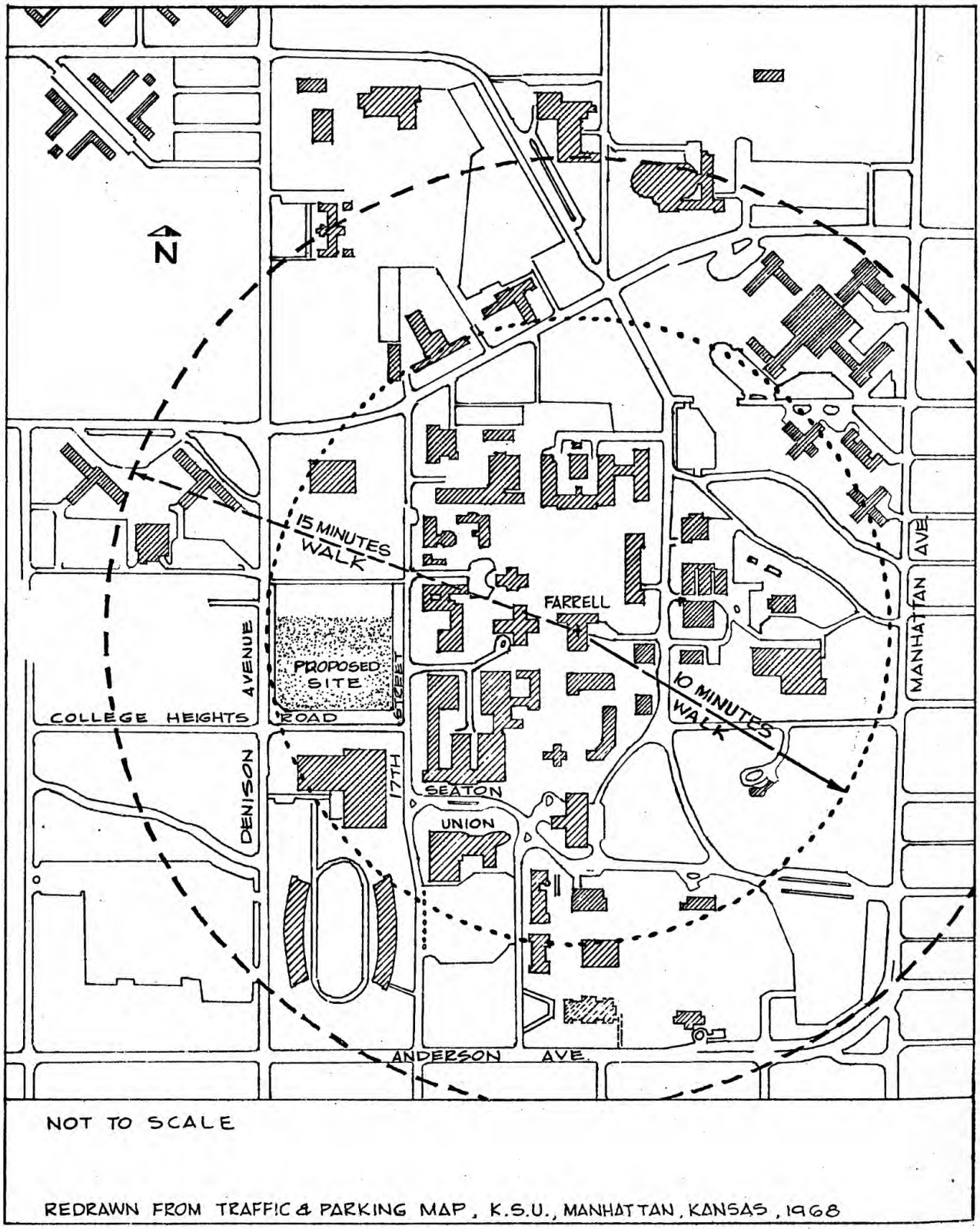
P. of P.S. - Percentage of possible sunshine

Description of The Site

The site of a building is one of the controlling factors which should be taken into account in its design. Each site has its topographical merits of disadvantages which could be either helpful or harmful. In this particular project the site of the proposed building complex should have a close relationship with the existing campus planning especially with the campus road system. It is also desirable to have the site properly located for the students who are to attend the college in order that the average distance traveled by students may be as short as possible.

At the suggestions of Professor Emil C. Fischer, Dean of the College of Architecture and Design, and Mr. Vincent Cool, the University Architect, this building complex for the College of Architecture and Design is to be located in the middle part of the west section of the campus. With 17th Street, Denison Avenue and College Heights Road bordering on East, West, and South respectively, this proposed site is a square of approximately 560 feet by 560 feet in size. It is quite a flat piece of land with few trees scattering along the south edge and it is being used as the football practice field. The university parking lots No. 6 and No. 24 lie on the north side of this site; at the south edge of the site there is parking lot No. 12. To the South of College Heights Road lies the Ahearn Field House, and to the East of 17th Street there are the Power Plant and the Seaton Hall. The walking distance between these buildings and the site is less than a minute. This proposed site is within the fifteen minutes walking radius from the center of campus.

Proposed site location and site analysis diagram



DESIGN CONCEPT

This proposed structure is designed to solve the problems caused by the increasing enrollment in the College of Architecture ~~and Design.~~ In addition to furnishing the necessary facilities for its physical environment for training future architects and planners, it is also considered a necessity that this building complex be used as a constant demonstration; the inspiration of which would help to develop the creative ability of our future architects and planners. To symbolize the new functional approach of our time, the formal exterior texture of this building shall not be necessary homogeneous to other existing buildings on campus. However, the circulation related to the whole campus planning, especially the campus road system, has been carefully considered and planned; the space under the elevated first floor, together with the central court, is designed to invite people from every direction to enter or to pass through this building freely. Thus, the interfusing circulation on a two dimensional plan will be easily ushered to the stairways strategically located at four corners and other appropriate locations to create a three dimensional circulation system that will shorten the walking distance and will make it possible to avoid many unnecessary turning points. The central court provides not only an outdoor space for visual relaxation but also serves as a medium to link the interior space with the outdoor space.

The administration and faculty offices on the first floor are the control center of the College. They are easily accessible from the classrooms by use of one of the stairways nearby connecting with the upper levels. Their privacy in this busy area, however, will be secured by intelligent use of reliable partition materials. There, faculty members could meet from time to time and could converse at their pleasure. Through these informal meetings, they could exchange their teaching experiences and gain new ideas. It is hoped that in such an environment the faculty members will be encouraged to devote themselves totally to their teaching tasks and meet their responsibilities in harmony with each other.

The classrooms on the second floor and the exhibition area around them will be places for the community fellowship in the College of Architecture and Design, where during the intervals between classes, students will receive instructions and criticism from experienced teachers, and through discussion or even

argument with fellow students in front of their displayed works. The atmosphere of the entire building will make the students feel that they are working in an office-like situation where an underclassman may have a chance to listen to his upper-class friends. The design studios on the third floor are not definitely separated by fixed walls. They could be divided into groups freely by employing movable partitions.

The heating and air-conditioning ducts are purposely designed exposed not only for the sake of simplicity in installation and maintenance, but also as a means of teaching in the field of mechanical layouts. The student could be impressed repeatedly just by looking at them whenever he walks around in the building.

The lecture hall is actually designed for multiple purposes. It is to be used for large classes, seminars, visual demonstration and general meetings. The location is so arranged that people could be rapidly dispersed either to the ground floor of the main building for weather protection or rather directly into the open space surrounding the hall. Isolation of noises from exterior sources will be accomplished by solid walls and roof built of acoustically non-transmitted materials.

A summing up of the objectives of this project indicates that it is designed to provide a unified space for the whole family of the College of Architecture and Design where teaching, learning, and living are all made possible and enjoyable within an atmosphere of appreciation and mutual understanding.

STRUCTURE AND MATERIALS

The simple column and beam framing structural system is used in this design. In the main building, the cross section reveals a two-colmn-supported overhang floor of three stories. These will be reinforced concrete and will be cast in place. A waffle slab system is used in such a manner as to achieve the need of the architectural desirability of a uniform ceiling as well as for its structural purposes. The materials for wall structure are concrete blocks and precast panels with various exposed textures, and metal frames are used for glass windows. Some acoustical materials necessary for special effects in different rooms are also used for partitions and ceilings like the one mentioned for the lecture hall.

ENVIRONMENTAL TECHNOLOGY

1. Lighting

A means of generating light has long been recognized as a basic need in man's attempts to control his envoronment. Because man does not have a well-developed sense of smell or hearing to give direction of or warning of danger, he must normally rely predominantly on vision for guidance. A source of illumination is therefore basic to visually-oriented man - to his activities, to his ability to perform, and to his sense of well-being and security. In this sense, light is fundamental in architecture. It affects the usefulness of a building and the enjoyment of a building interior - for in darkness, architecture becomes inconsequential as a form of art, and the building becomes inadequate for most human activities. --- Architectural Lighting Graphics by John E. Flynn and Samuel M. Mills.

Lighting is related to architecture in two ways: Firstly, in the kind and quality of light produced and how this illuminates the space to reveal the contours and character of the building. Secondly, in the design of the light sources and in their integration with the architecture as design elements.

In this particular design, the main light source will be the fluorescent lamps. This light source has two main advantages: it can produce triple the output from a given wattage, and it more than triples the life of the lamp. In the lecture hall the wood baffles hanging from the ceiling are used to limit the viewing of the mechanics of the lighting system as well as to help control glare and become a factor in visual comfort. Several projector lamps are used above the stage edge to give a broader, softer beam for the person on the stage. In the main building of this project the fluorescent lamps are widely used with baffles except in the exhibition area where projector lamps will fulfill the necessary requirements for different purposes.

2. Mechanical System

The whole building will be entirely air-conditioned. The basement will contain the central heating and cooling equipment. The mechanical ducts first go through the tunnels and reach to the substation, then go up to different levels and come out, without any shielding, and stretch into different areas. The returning air ducts which will be combined together with the outlet ducts take

the same routes.

3. Solar Problems and Their Solution

In Manhattan area data[1] shows there are 145 clear days annually, and the average number of clear days is about 13 from June through September. The average normal temperature is around 75° F., but from time to time it will be more than 90° F. The control of the direct sun rays should be taken into consideration. It is desirable to screen out the sun rays for the comfort of the occupants. There are several ways to control rays through shading devices such as overhangs, louvres, or screens. In this project the overhang type is used. By projecting the concrete panels around the window they not only control the sun rays but also increase the interest and the variation of the facade.

4. Acoustics

A successful building design is the proper combination of its elements; that is, the planning of space and the mechanical arrangement through the use of materials within a structural frame. The choice of materials, of course, is governed by the acoustical requirements and right transmission as well as by right isolation.

Architectural acoustics deals with the planning for satisfactory hearing conditions in buildings; hence architectural acoustics should be considered as a positive factor in design, equal with other factors, and not as a matter of "treatment" when the design is finished.

In this project, the study of acoustics is concentrated on the lecture hall. In designing the acoustical details the following principal factors which influence the entire sound effects, have been carefully worked together: reverberation, shape and volume of room, type and distribution of sound-absorbent acoustic materials, noise, and loudness of source. The drawings showing the plan and sections of the acoustically treated lecture hall are on PLATE XIII, page 63. The complete acoustical calculations for the lecture hall are as follows.

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[1] See Tables 1 and 3, on page 40.

Acoustical Calculations for Lecture Hall

VOLUME = 65,280 cubic feet
PEOPLE = 408
PROPORTION = Height 20' (average) Length 67' Width 48' (average)
CUBIC FT/PERSON 160

	125 cps	500 cps	2000 cps
OPTIMUM REVERBERATION TIME	1.40 sec.	0.92 sec.	0.92 sec.
S (Surface Area) 19,949 Sq. Ft.			
$X = -2.3 \log_{10} (1- \bar{\alpha})$			
$= \frac{0.049 \times 65,280}{19,949 \times t_{60}}$	.1145	.1742	.1742
	.1075	.16	.16
TOTAL ABSORPTION REQUIRED $S \bar{\alpha} = A$	2140	3190	3190

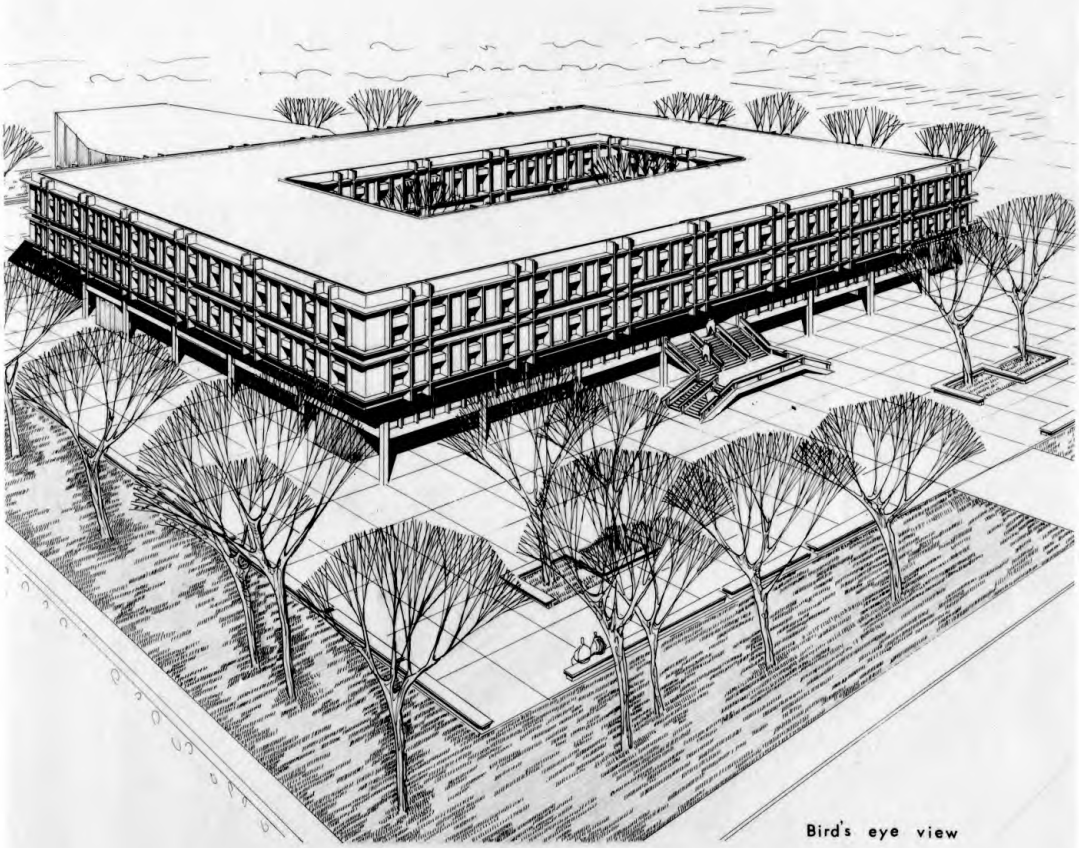
Absorption Furnished by Room

MATERIAL	SQ. FT.	125 cps α	125 cps S	500 cps α	500 cps S	2000 cps α	2000 cps S
Plaster Hung Ceiling (On Metal Lath, Some Air Space)	913	0.15	137	0.06	54.8	0.04	36.5
Plaster on Block (Stage Wall) (Side)	868	0.01	8.68	0.02	17.76	0.02	17.76
Plaster on Concrete (Rear Ceiling)	948	0.01	9.48	0.02	19.0	0.04	38.0
Plaster on Concrete (Ceiling) (Central)	2414	0.01	24.14	0.02	48.28	0.04	96.56
Wood Baffles at Ceiling	4828	0.15	725.0	0.10	482.8	0.10	482.8
Moore Fibre Board ½" Wood Soft Texture	1718	0.05	85.5	0.10	171.8	0.10	171.8
Rear Wall (Wood Strips)	282	0.31	84.5	1.00	282.0	0.84	237.0
3/4" Solid Wood Doors	252	0.10	25.2	0.05	12.51	0.04	10.00
Black Board	81	0.18	13.8	0.04	3.24	0.02	1.62
Wood Strips (Side Wall)	250	0.31	77.5	1.00	250.00	0.84	210.00
Rubber Tile Floor	1809	0.02	36.19	0.03	53.3	0.03	53.3
Audience in Upholstered	(1342)	0.60	805	0.88	1180	0.93	1250
Seats. 408 2/3 (2012 2/3)	272	3.2	870	3.8	1030	4.5	1211
Upholstered Seats (Empty)	(670)	0.49	302	0.80	536	0.82	550
408 1/3	136	2.5	340	3.2	435	3.5	475
Air 65,280/1000,	6528					2.3	150
Total			2233.99		3111.69		3305.34
New $\bar{\alpha}$ = A/S		0.113		0.156		0.166	
$X = -2.3 \log_{10} (1- \bar{\alpha})$		.12		0.17		0.181	
ACTUAL REVERBERATION							
$t_{60} = \frac{0.049 \times 65,280}{19,949\ X}$		1.335 sec.		0.942 sec.		0.886 sec.	
CHECK		OK		OK		OK	

PRESENTATION

PLATE I

A COLLEGE OF ARCHITECTURE & DESIGN FOR KANSAS STATE UNIVERSITY



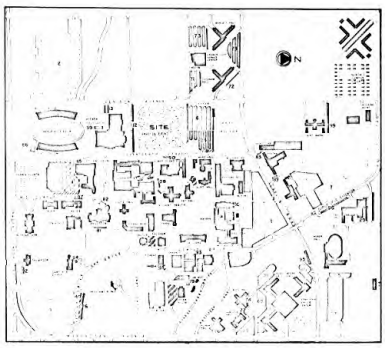
Bird's eye view

Prof: Theodore A. Chadwick

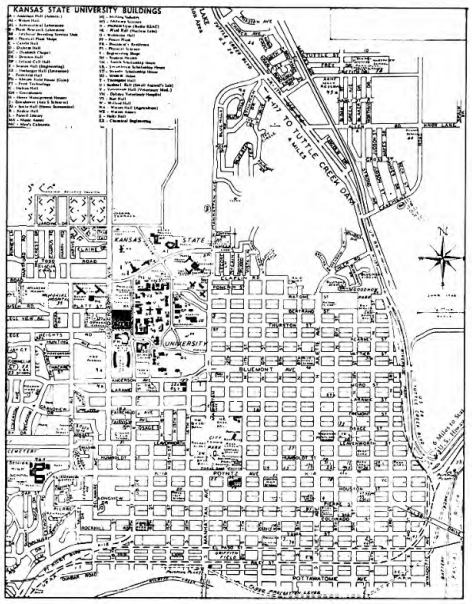
Chieng-Tung Hsio August'62

1

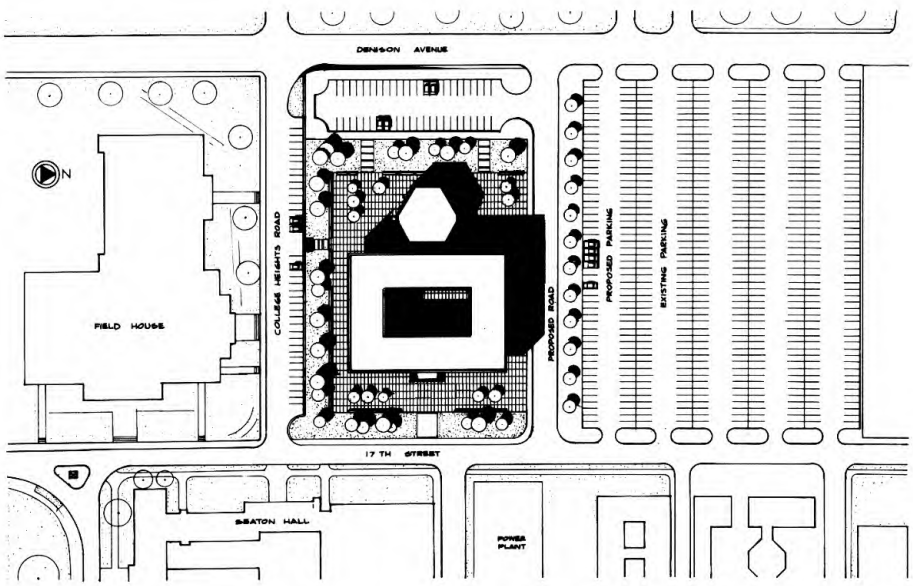
PLATE II



K.S.U. Campus Map

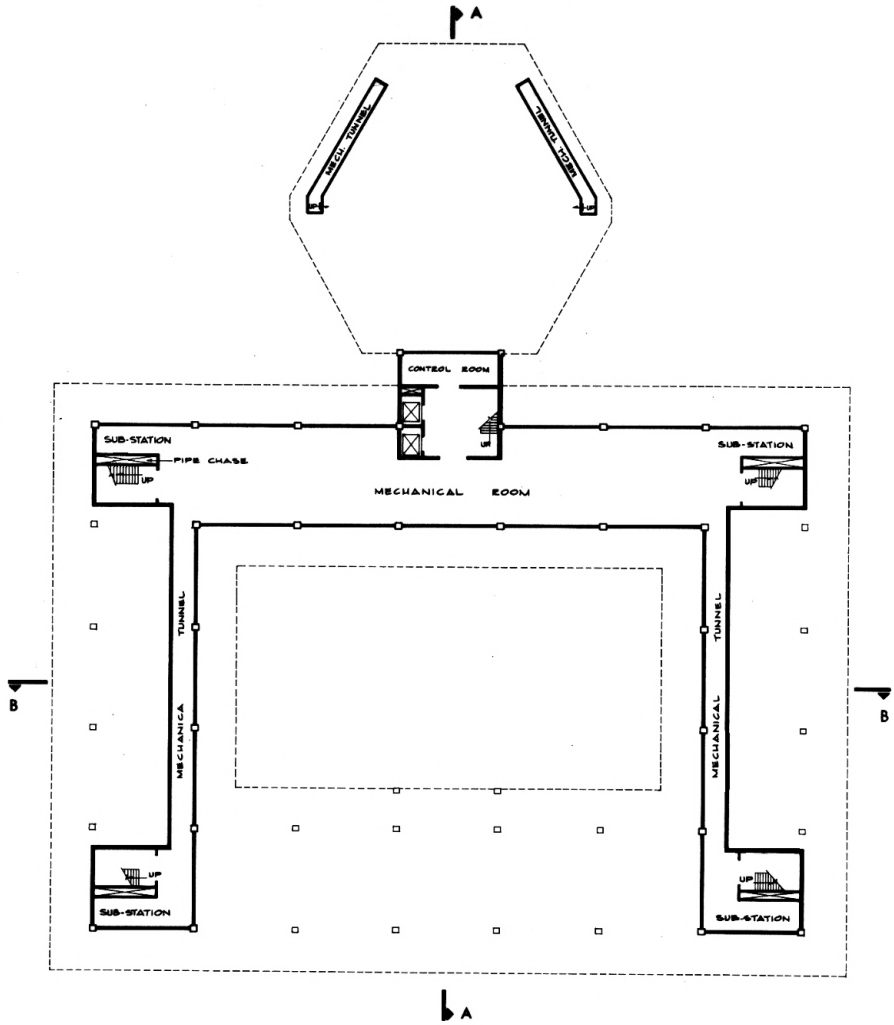


Map of Manhattan, Kansas



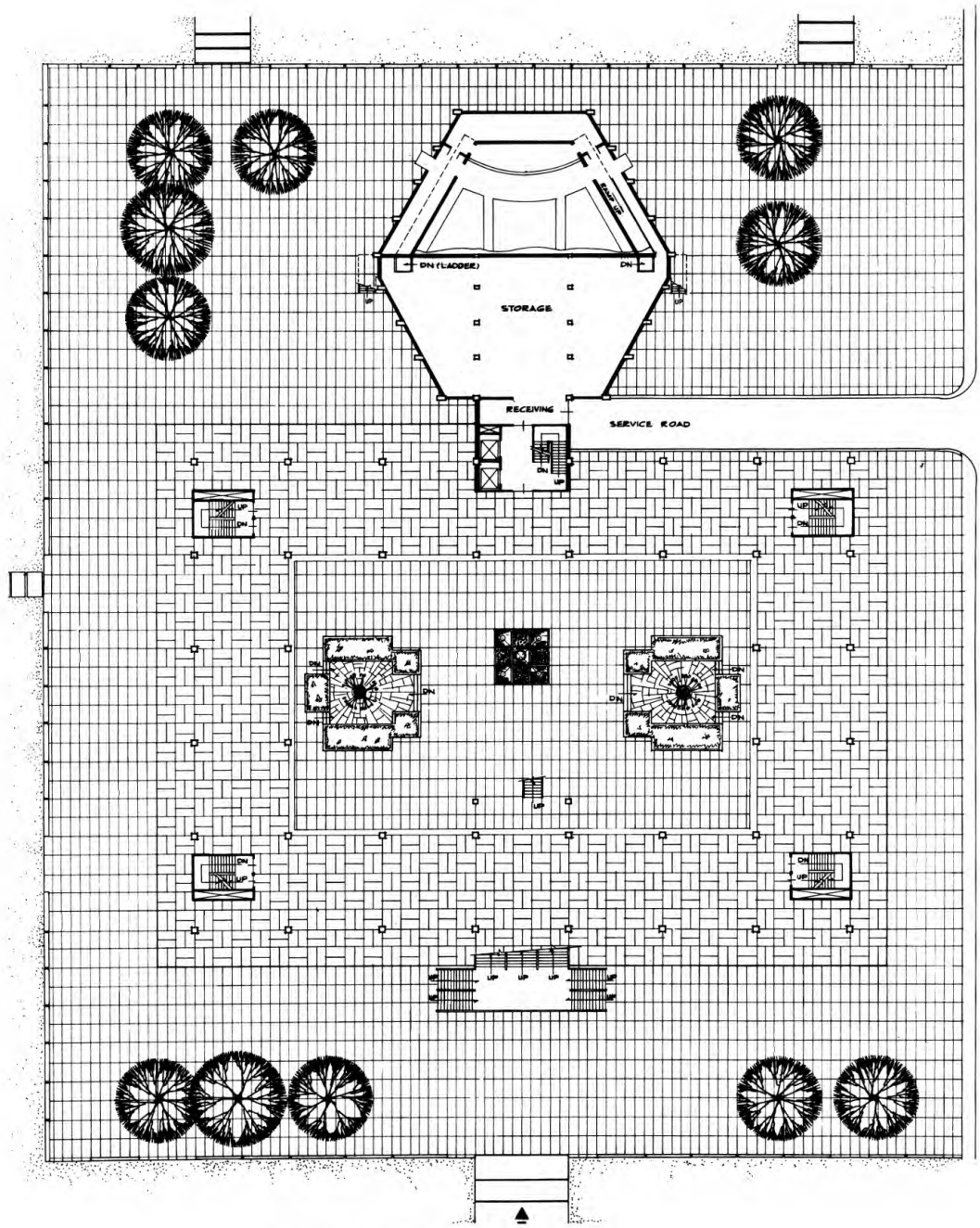
Site Plan 1/60"=1'-0"

PLATE III



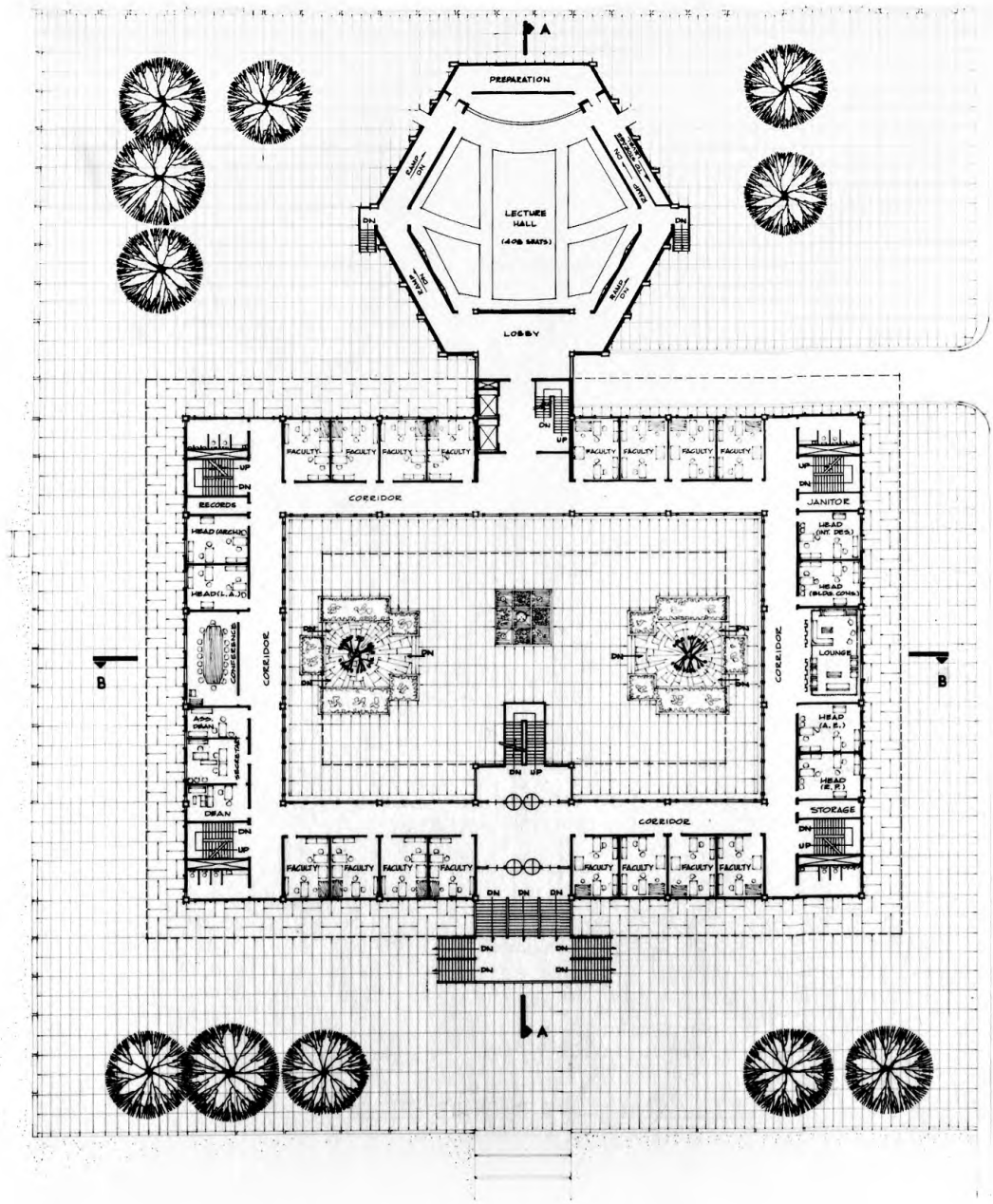
Basement Plan 1/16"=1'-0"

PLATE IV



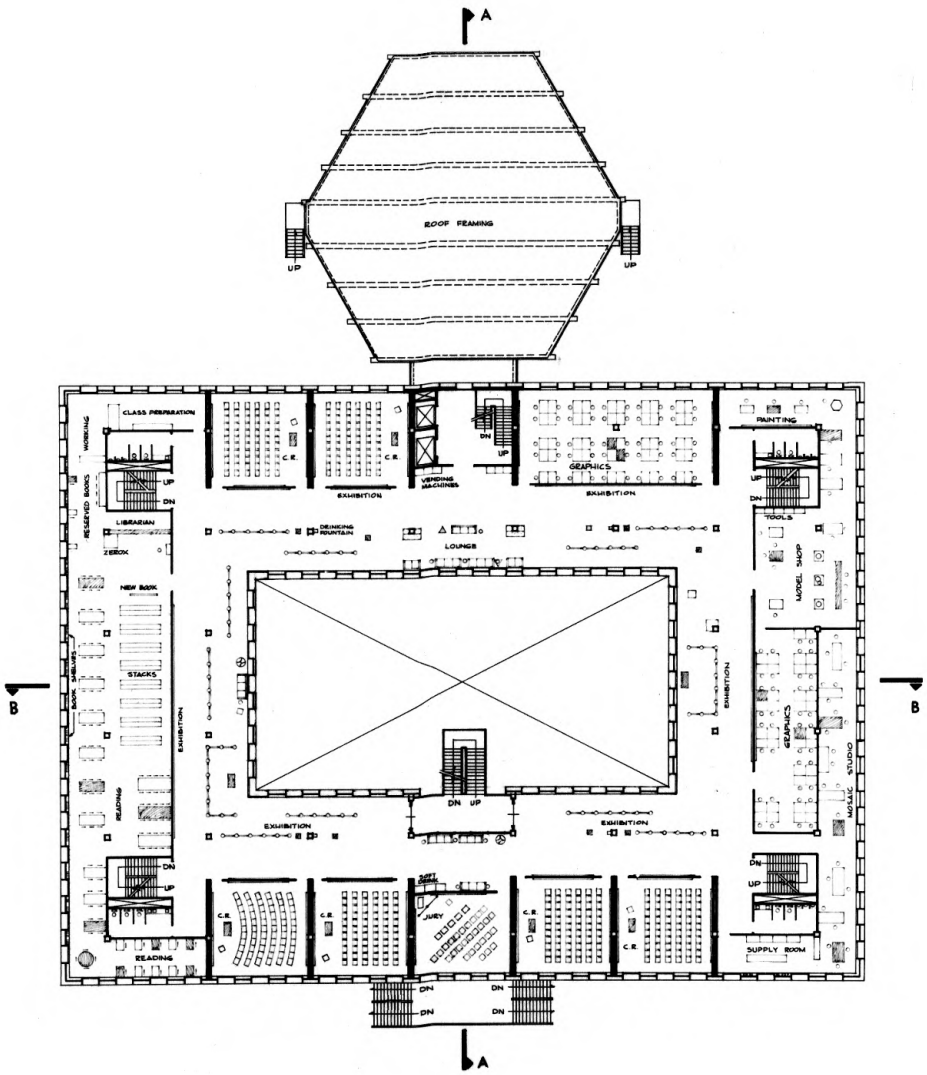
Ground Floor Plan 1/16"=1'-0"

PLATE V



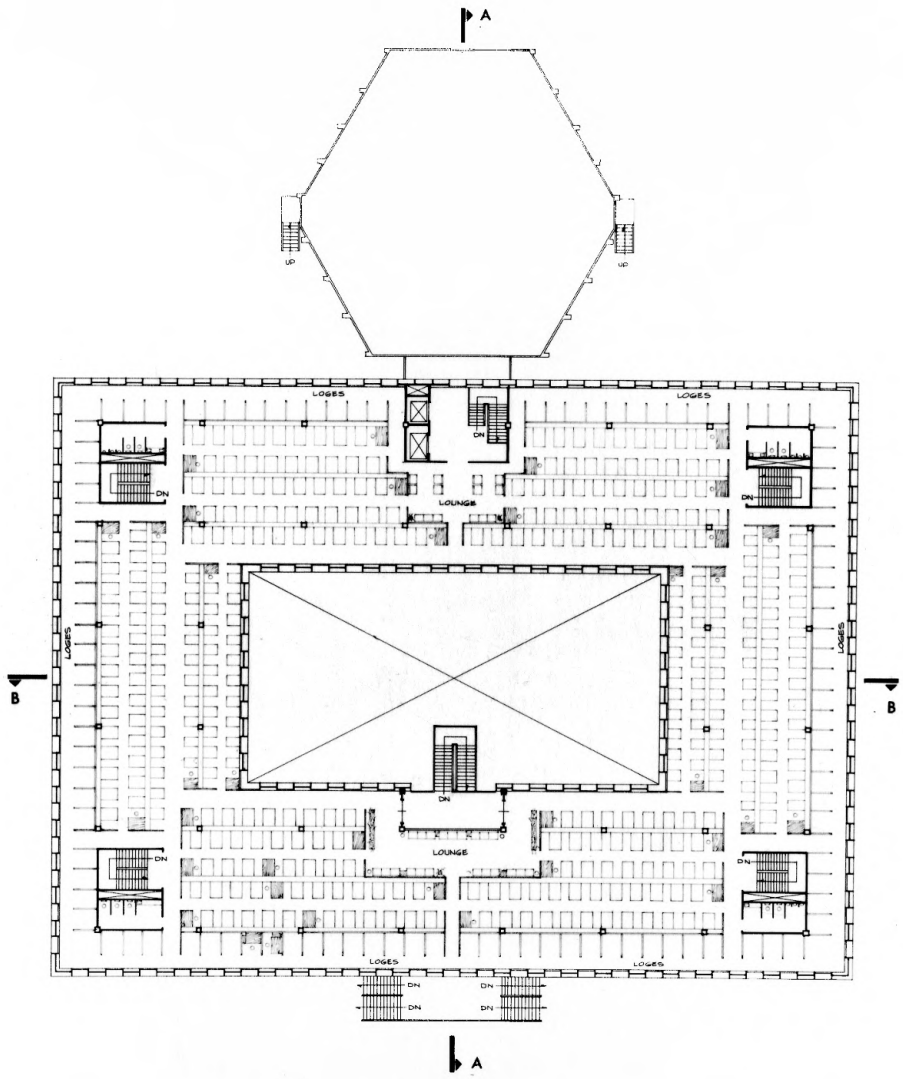
First Floor Plan 1/16"=1'-0"

PLATE VI



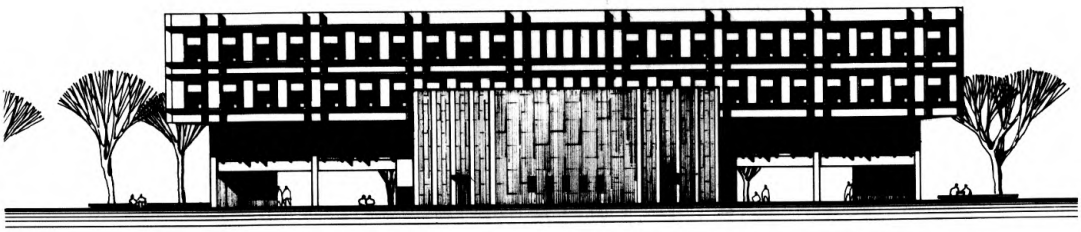
Second Floor Plan 1/16" = 1'-0"

PLATE VII

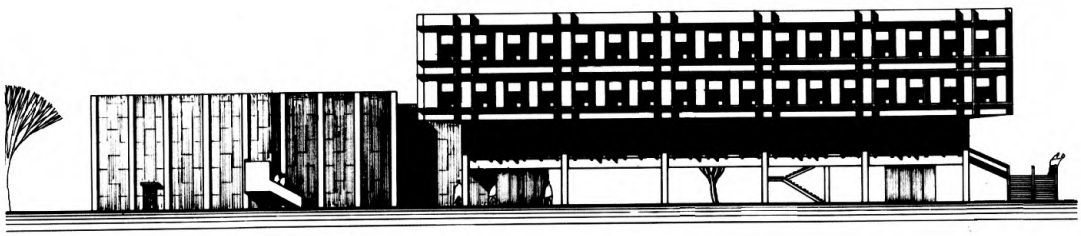


Third Floor Plan 1/16" = 1'-0"
(DESIGN STUDIOS)

PLATE VIII

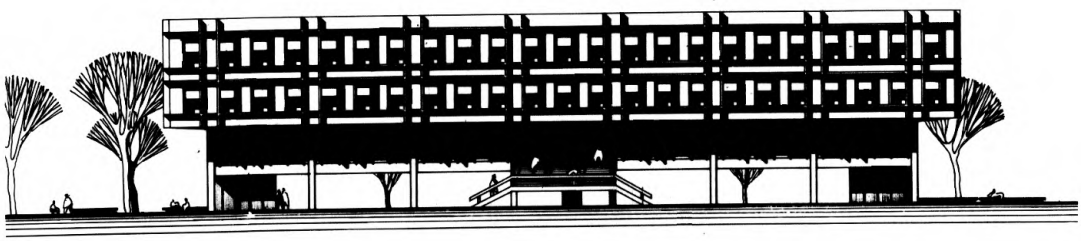


West Elevation 1/16" = 1'-0"



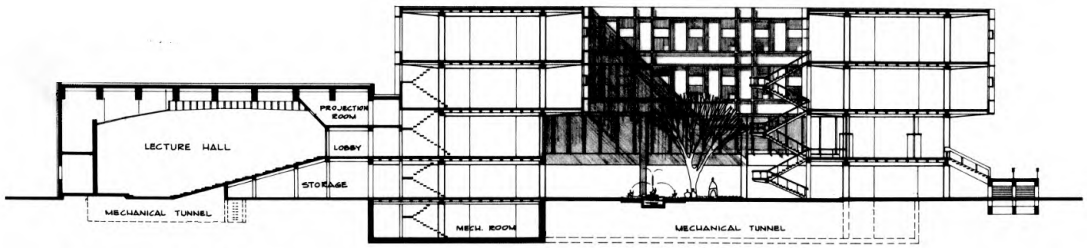
South Elevation 1/16" = 1'-0"

North Elev. Identical

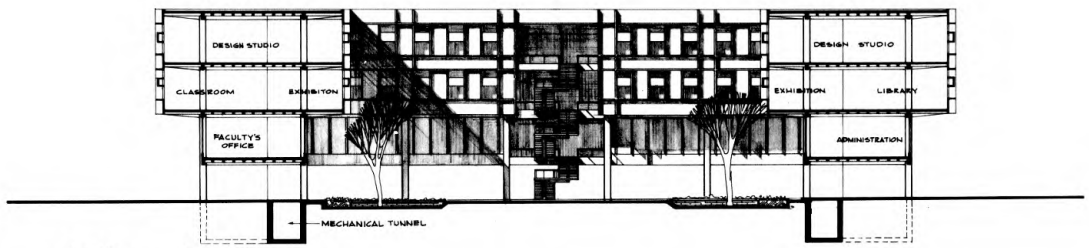


East Elevation 1/16" = 1'-0"

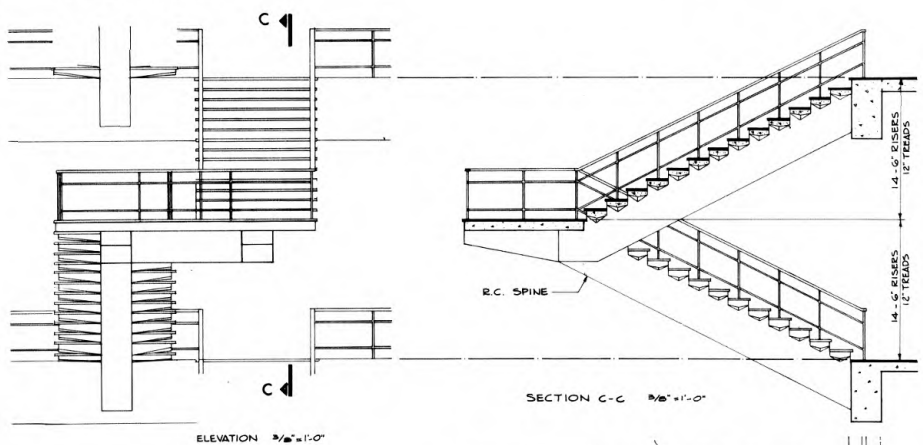
PLATE IX



Section A — A 1/16" = 1'-0"

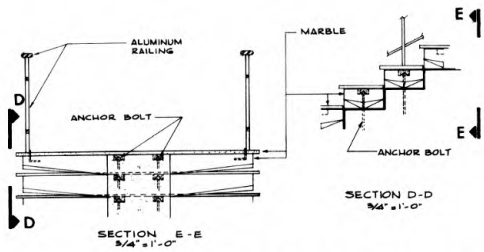


Section B — B 1/16" = 1'-0"



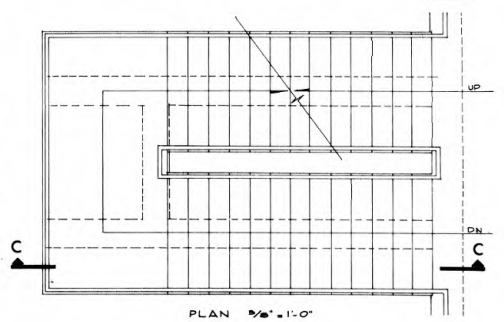
ELEVATION 3/8" = 1'-0"

SECTION C-C 3/8" = 1'-0"



SECTION E-E 3/4" = 1'-0"

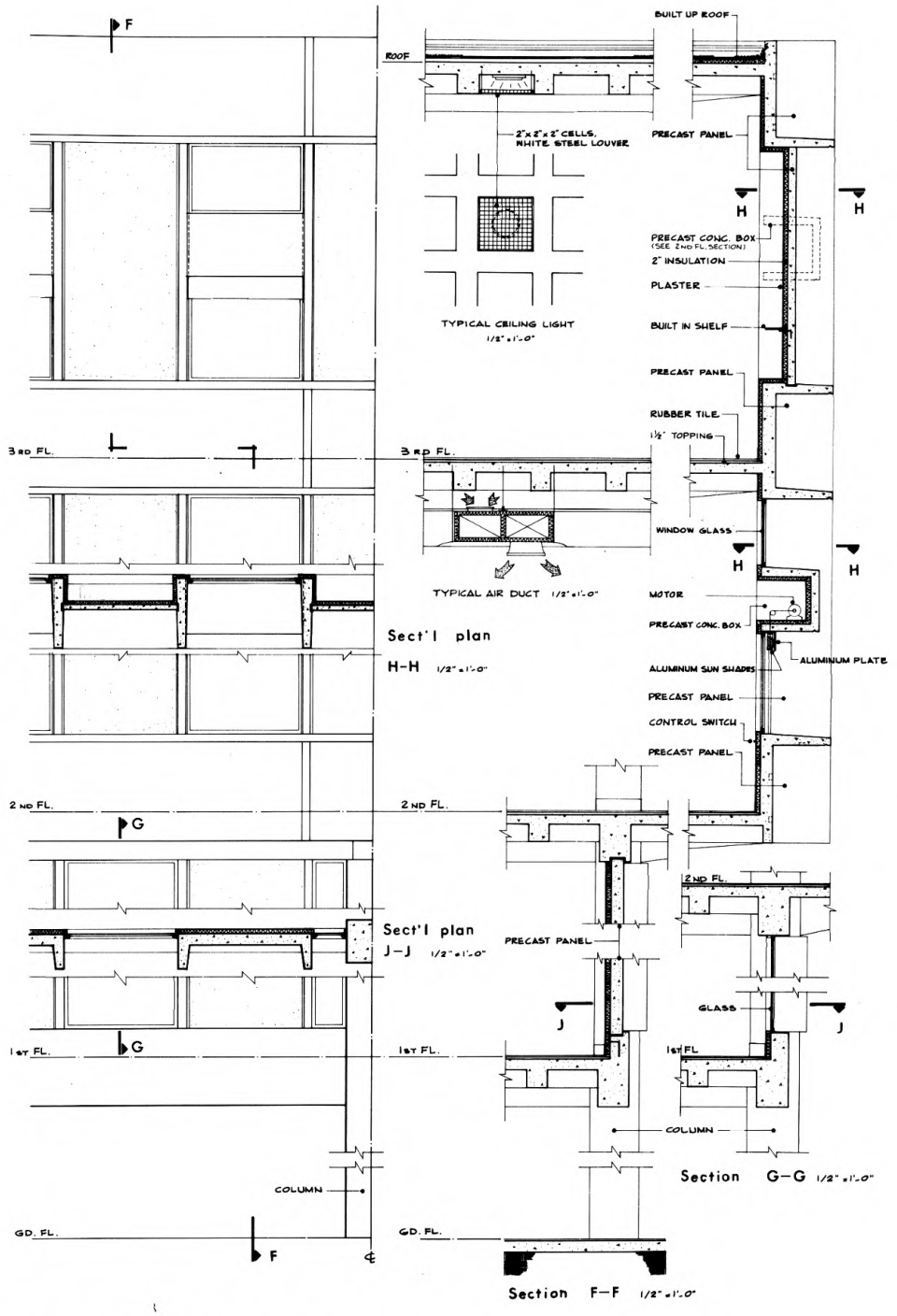
SECTION D-D 3/4" = 1'-0"



PLAN 3/8" = 1'-0"

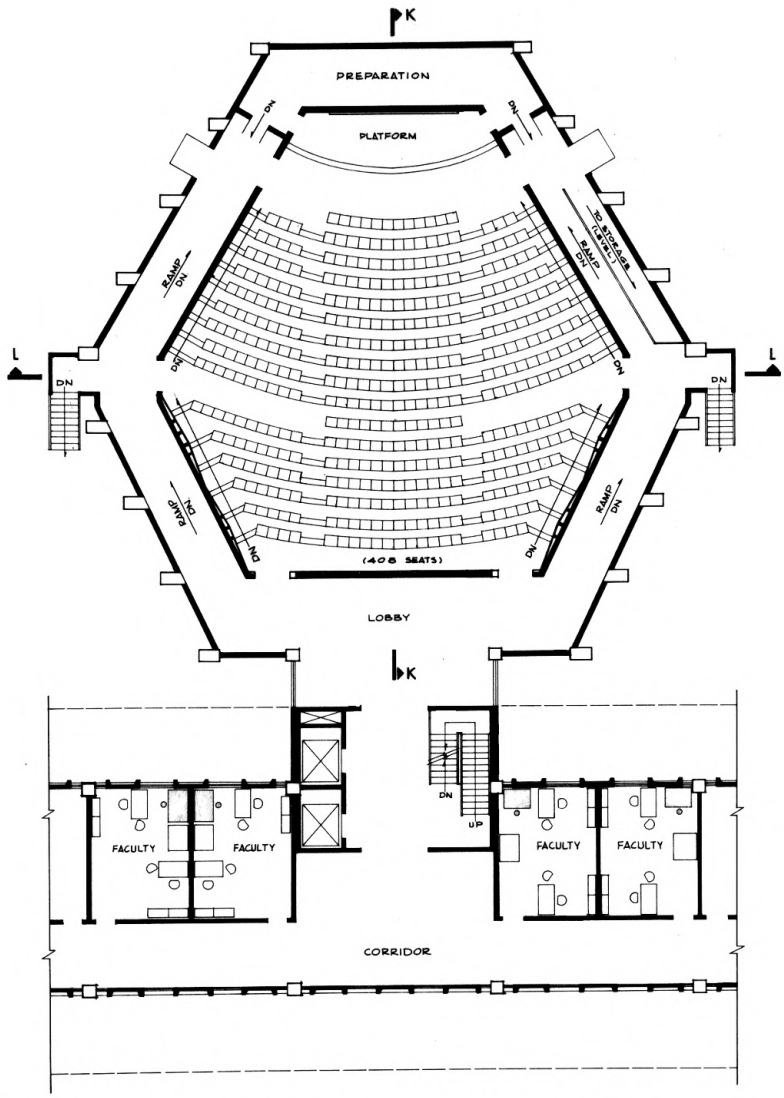
Typical Detail of Stair at court

PLATE X



Typical Elev. of Exterior Wall Unit 1/2"=1'-0"

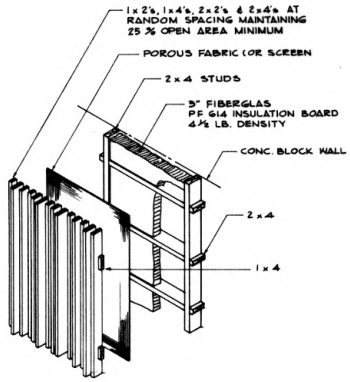
PLATE XI



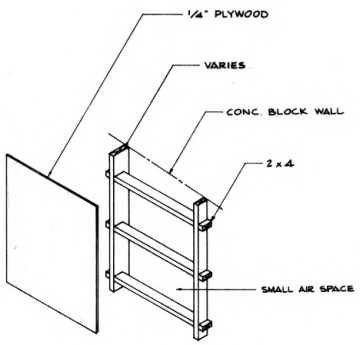
Lecture Hall & Faculty Offices

1/8" = 1'-0"

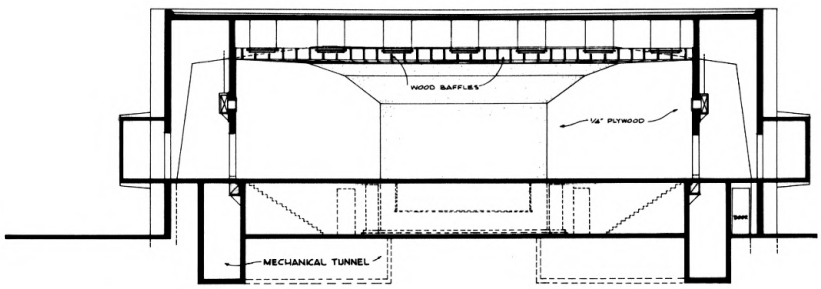
PLATE XII



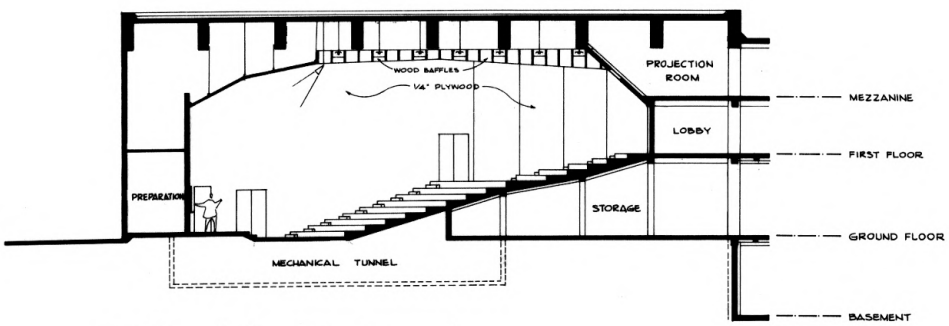
Rear Wall Detail



Side Wall Detail



Section L — L 1/8" = 1'-0"



Section K—K 1/8" = 1'-0"

PLATE XIII

DATA

VOLUME (V)	65,280 CUBIC FEET
PEOPLE:	408
PROPORTIONS:	WIDTH 48'-0" LENGTH $\frac{67'}{48'}$ = 1.39 - O.K., HEIGHT $\frac{48'}{22'}$ = 1.22 - O.K.
CUBIC FEET / PERSON:	160
TOTAL INTERIOR SURFACE (S):	19,949 SQ. FT.

REQUIRED ABSORPTION

CYCLES / SECOND	125 CPS	500 CPS	2,000 CPS
OPTIMUM REVERBERATION TIME - SECOND (t_{60})	1.40	0.92	0.92
$[-2.3 \log_{10}(1-\bar{\alpha})] = \chi = 0.049\ V/S t_{60}$	0.1145	0.1742	0.1742
$\bar{\alpha}$	0.1075	0.16	0.16
TOTAL REQUIRED ABSORPTION ($A = S\bar{\alpha}$)	2,140	3,190	3,190

ABSORPTION FURNISHED

	CYCLES / SECOND		125 CPS		500 CPS		2,000 CPS	
	MATERIALS	AREA FT²	ABS. COEF.	ABS. UNITS	DO.	DO.	DO.	DO.
A	PLASTER HUNG CEILING (ON METAL LATH)	913	0.15	137	0.06	54.8	0.04	36.5
B	PLASTER ON MASONRY	4,230	0.01	42.3	0.02	84.6	0.04	169.2
C	PLASTER ON CONCRETE (ABOVE BAFFLES)	4,828	0.01	48.3	0.06	96.6	0.04	193.2
D	¼" PLYWOOD (LIGHT BRACING)	1,718	0.30	515.4	0.15	257.3	0.10	171.8
E	WOOD STRIPS (AT REAR WALL)	532	0.31	160.0	1.00	532.0	0.84	447.5
F	RUBBER TILE FLOOR	1,809	0.02	36.2	0.03	53.5	0.03	53.5
G	AUDIENCE IN UPHOLSTERED SEAT (272)	1,342	0.60	805.0	0.88	1,180.0	0.93	1,250.0
H	EMPTY SEAT (136)	670	0.49	302.0	0.80	536.0	0.82	550.0
J	AIR (65,280/1,000)	65	—	—	—	—	2.30	150.0
	TOTAL INTERIOR SURFACE (S)	19,949						
	TOTAL ABSORPTION FURNISHED ($\bar{A}$)			2,047		3,179.4		3,017.6

FINAL REVERBERATION TIME

CYCLES / SECOND	125 CPS	500 CPS	2,000 CPS
$\bar{\alpha} = \bar{A}/S$	0.102	0.159	0.152
$-2.3 \log_{10}(1-\bar{\alpha})$ (FROM CHART) (χ)	0.108	0.173	0.165
• FINAL REVERBERATION TIME ($t_{60} = 0.049\ V/S\chi$)	1.460	0.930	0.970
ERROR (10% IS ALLOWED)	6%	1%	5%
CHECK	O.K.	O.K.	O.K.

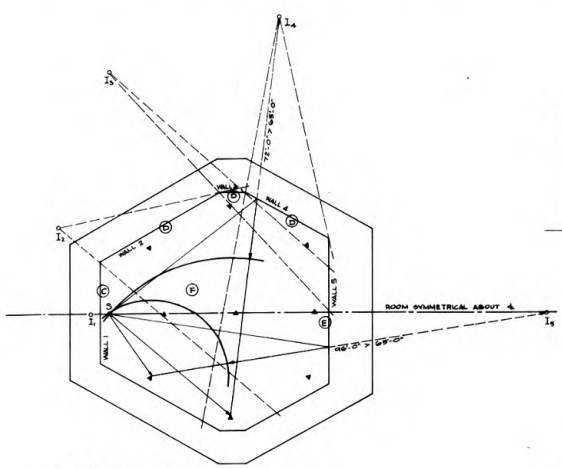
NOTES

1. THE ANGLE OF REFLECTION FOR THE SOUND RAY EQUALS THE ANGLE OF INCIDENCE, AND THE REFLECTED RAY LIES IN THE PLANE OF INCIDENCE.
2. IF A POINT OF SOUND IS PLACED ON ONE SIDE OF AN EXTENDED PLANE REFLECTING SURFACE, IT MAY BE CONSIDERED TO HAVE AN "IMAGE" AT AN EQUIVALENT DISTANCE ON THE OTHER SIDE OF THE REFLECTING SURFACE, ALONG THE PERPENDICULAR PROJECTION FROM THE SOURCE TO THE PLANE, ANALOGOUS TO THE FAMILIAR OPTICAL IMAGE.
3. IF THE REFLECTED WAVE IS SUFFICIENTLY CLOSE BEHIND THE PRIMARY WAVE - CLOSER THAN 55 FEET - IT WILL PROVIDE A BENEFICAL REINFORCEMENT OF SOUND TO THE AUDITOR, BUT IF IT IS DELAYED MORE THAN 55 FEET IT WILL PRODUCE AN INTERFERING OR "BLURRING" EFFECT, AND IF IT IS DELAYED AS MUCH AS 65 FEET IT WILL BE HEARD AS AN ECHO.
4. EYRING'S FORMULA:

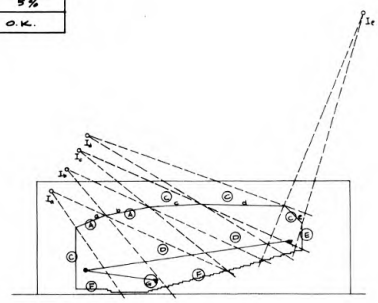
$$t_{60} = \frac{0.049\ V}{S[-2.30 \log_{10}(1-\bar{\alpha})]}$$

WHERE,

t_{60} = REVERBERATION TIME
V = VOLUME OF ROOM
S = TOTAL INTERIOR SURFACE
$\bar{\alpha}$ = AVERAGE ABSORPTION COEFFICIENT FOR THE ROOM



PLAN 1/16" = 1'-0"



SECTION 1/16" = 1'-0"

Acoustical Design

lecture hall

CONCLUSION

This thesis is the study of the College of Architecture and Design of Kansas State University. The proposed project is designed to solve the problems caused by the increasing enrollment in this College and the changes in architectural education which have been discussed in the first two chapters of this thesis. In order to provide an appropriate environment, for both faculty members and students, in which they will be teaching, learning, and living as a whole family, the designer has made an effort to understand and to analyze the nature, the structure, the development, and the possible trend in the future of the architectural school community and its every need. The author hopes this proposed project provides a solution for the functional and aesthetic needs of the students and of the staff.

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A COLLEGE OF ARCHITECTURE AND DESIGN

FOR

KANSAS STATE UNIVERSITY

by

CHIENG-TUNG HSIA

B. S., Tiawan Provincial Cheng Kung University 1959

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARCHITECTURE

College of Architecture and Design

KANSAS STATE UNIVERSITY

Manhattan, Kansas

1970

This thesis is the study of a proposed building complex for the College of Architecture and Design at Kansas State University. The designer made an analysis of the curriculum being taught in this College. As a result of this study he recommends the recently proposed "two-two-two" system for architectural education, which requires the students to take certain basic courses before starting courses in design.

The site for this project is in the middle part of the west section on the campus. It is approximately 560 feet by 560 feet in size.

As architectural design is the creation of interior and exterior spaces that should satisfactorily meet human needs, the designer furthermore believes this design should be a combination of the elements of aesthetics and functions governed by integrating environmental factors into a well planned entity. In addition to furnishing the necessary facilities for the physical environment for training future architects and planners, it is also considered a necessity that this building complex be used as a constant demonstration of inspiration which will help to stimulate the creative ability of our future architects and planners.

To symbolize the new functional approach of our time, the formal exterior texture of this building shall not necessarily appear to be homogeneous with other existing buildings on campus. However, the approach should be properly related to the campus road system; therefore, the building has a space under the elevated first floor, together with a central court, designed to invite people from every direction to enter or to pass through this building freely. The interfusing circulation of people in a two dimensional plan is easily directed toward the stairways strategically located at four corners and to other appropriate locations to create a three dimensional circulation system that will shorten the walking distance and avoid many unnecessary turning points. The central court provides not only an outdoor space for visual relaxation but also serves as a medium to link the interior space with the outdoor space as well as being a light source for the inner side of the building.

The administration and faculty offices on the first floor are the control center of the College. They are easily accessible from the classrooms by use of one of the stairways nearby connected with the upper levels. The library and the classrooms on the second floor with ample exhibition areas adjacent to them are places for community fellowship, in which students will receive in-

struction from experienced teachers and also through criticism and discussion, or even through arguments with fellow students about their works which will be on continuous display. The design studios on the third floor can be divided freely by use of movable partitions.

The reinforced concrete rigid framing structural system has been used in this design. A waffle slab system is also introducted in such a manner that it meets the architectural desirability of a uniform ceiling as well as the requirement of being the supporting structure.

The mechanical ducts will purposely be left exposed not only for the sake of simplicity in installation and maintenance, but also as a teaching model in the field of mechanical layout. The main light source will be fluorescent lamps with wood baffles. They will hang from the ceiling which is to be used to limit the viewing of the mechanics of the lighting system as well as being a help in controlling glare thus becoming a factor in achieving visual comfort. Direct sun rays will be kept outside by projecting concrete panels around windows in addition to the help of sun shades hanging in front of the windows. The control of the noise level and reverberation time in the different rooms has been considered in order to provide good acoustics. A complete acoustical analysis and design is included for the lecture hall.

The designer hopes this proposed project provides solutions for the functional and aesthetic needs of the students and staff as well as a uniform space for the whole family of the College of Architecture and Design in which teaching, learning, and living are made possible and enjoyable.