A SCHOOL OF DESIGN

by

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Introduction

> "The creative impulse, that which is concerned with the making and doing, is the source of freedom and health. The creative impulse is that which by giving direction and meaning to our activities transfigures life into art."
>
> Joseph Hudnut [1]

This thesis is concerned with the training of competent architects, designers, and artists. The need for artistically creative people has never been as urgent as it is today.

A searching review is made of the philosophy of design education. The views of many of the leaders in architecture and other arts are considered in relation to the training of young men and women in the various creative fields. The philosophy of education at the School of Design has been formulated from these and the writer's personal opinions.

The various departments of the school and the complete physical requirements for each are decided upon and these decisions are expressed in the design program.

The planning of the buildings and setting necessary to provide the tools, space, and inspiration for the students of design is the epitome of this thesis. It is proposed that the students do a major portion of the construction of the school. A schedule is suggested to achieve the completion of the master plan over a period of years.

Such a School of Design will include the present Virginia Polytechnic Institute Architectural Department and the additional facilities needed for training and research in allied fields. The school will be

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1) Joseph Hudnut: Architecture and the Spirit of Man, Harvard University Press, Cambridge, Mass., 1949, p. 231.

associated with Virginia Polytechic Institute, but will be an administrative entity in itself. An institution of this type will theoretically parallel in the creative field the rapid advancements now being made in the South in such other fields as scientific research, industrial development, and agricultural methods.

Acknowledgments

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Photographs of the model were taken and processed by Mr. Richard H. Craigue,

PART ONE

PHILOSOPHY OF DESIGN EDUCATION

Purpose of Design Education

> "The general indolence of people towards the arts and architecture and the prevalent methods of education in design seem to be interdependent. Through improved general humanistic education, people should therefore be encouraged to believe again in the basic importance of art and architecture for their daily lives."
>
> Walter Gropius 2)

The education necessary for the adequate training of an architect or artist should be and must be in no essential way different from adequate general education. The only variation is in scope of specific interests. The purpose is the same in both cases: that is, to ready young people to live successfully and happily as individuals and in groups. The student must understand the characteristic happenings in the world, to be able to sincerely discover form in life. Art itself is the only true and proper teacher, and art must be the understood art of the people. For that reason, the one principal aim of the School of Design will be to give a feeling of appreciation for art to all people and to train architects and artists to work for the good of all people.

Design education, as presented in most architectural schools in recent years, has become a drawing board procedure, with very little contact with actual materials, techniques, and building procedures. The student must do these things himself in order to know of building . Creativity must be the single ideal emphasized above all others. The essential education can not be entirely obtained in any school, for surely it is a lifelong endeavor.

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2) Walter Gropius: Journal of Architectural Education of the Association of Collegiate Schools of Architecture, Number 6, 1951, p.81.

To honestly show the students the way, the School of Design must be an independent organism, free to direct creative activities without outside impediments.

The Free, Cultured Individual

"Art, like life, should be free, since both are experimental."

George Santayana 3)

The School of Design will provide the atmosphere of complete individual freedom, with great emphasis being placed upon the creative growth of ea each student. All students will be encouraged and required to do their own searching and to find the relationship between the creativeness of life and nature. The free mind is requisite for imaginative endeavor. Mass-production education will have no place in the free and individualistic training in the School of Design. Frank Lloyd Wright, speaking on creative training and the effect of present methods, says: "The remedy is more freedom, greater growth of individuality and protection for it ---- more men developed by way of self-discipline from within by the man himself." 4)

To have mental freedom, the students will have to become cultured people with many varied interests. A competent architect or artist must first of all be a good man, a good neighbor, and a good citizen. He must appreciate the human dignity and integrity of all people, and must work for the betterment of the complete human society.

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3) George Santayana: The Life of Reason, Chas. Scribner's Sons, New York, 1906, p. 178.

4) Frank Lloyd Wright: T. H. Creighton, Ed., A Symposium- Building for Modern Man, Princeton University Press, Princeton, N. J., 1949, p. 189.

Imagination and Creativity

> "One often wonders what becomes of the lively imagination of children. It seems to wither on the vine as they progress along the unimaginative and standardized production line of our schools. One of the greatest natural gifts is lost . . ."
>
> Walter R. MacCornack 5)

Any example of living and lasting architecture or art has as its source the creative imagination of a freely thinking individual. The creative impulse is strong in all people, but today the power of creativity is commonly becoming the tool of the possessive impulse. Creativeness for the pure joy of creating is being neglected and often forgotten. This disregard for imagination and individuality begins early in the formal education of children and continues to such a degree that the original creative spirit is greatly decreased or killed altogether. In most institutions, supposedly nourishing imagination, the adulteration continues when the major stress is placed upon bookish learning instead of learning by doing.

The School of Design presented in this thesis will be a working place for creative people. The imaginative impulse of the students will be protected and strongly advocated. This impulse will be stimulated by the active participation of all students in the building of useful and visually attractive objects, ranging from household utensils to the buildings occupied by the school. Design forms will be searched for and created with an entirely unlimited scope of materials.

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5) Walter R. MacCornack: Architecture - A Profession and a Career, The Octagon, Washington, D. C., 1945, p. 17-18.

Work and Self-Development

> "Work is the key to creative growth of mind. As long as man is compelled to find his own way, his mind is bound to increase in inventiveness. So the seed of creation is planted. And through work the seed grows."
>
> Eliel Saarinen 6)

Creative architecture and art cannot be taught; each student has to learn for himself by doing. The faculty can only direct the activities of the apprentices. As Mr. Saarinen suggests in the above quotation, work is the best stimulant of creative activity. Work implies activity: physical, mental, and from the heart. At the School of Design, every student will be given the opportunity to work on many types of construction operations, as the School will be built by the students, under adequate supervision. These buildings will be constructed in stages over a period of years, with a portion of the shops, studios, and drafting rooms scheduled to be undertaken first. The students will work in teams, but each will be able to do a share of every operation. The necessary skilled directors and tools will be supplied by the school. The texture, properties, and color of various materials will be learned as well as the assembly methods.

"How can a student understand flashing and roofing via the drafting board, or, for that matter, the economical problems involved in the sequence of the building process merely from drawings?" 7)

Architectural design problems will be studied as models, not as two-dimensional elevations and perspectives. Art students in the varied fields will learn the materials and fundamentals of their craft early, and will execute their designs at all stages of their educations The emphasis

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6) Albert Christ-Janer: Eliel Saarinen, Univ. of Chicago Press, Chicago, Ill., 1948, p. 110

7) Supra 2), p. 84.

will be on individual technique and creativity. Concerning this teaching procedure, Mr. Saarinen comments: ". . . The reciprocal training of both mind and hand - concept and creation, thought and action - is not only the best method but the only one." 8) This is the process of creative development.

The Bauhaus in Germany offered a similar system which has influenced design for the past three decades. "Gropius demended that students first utilize their hands, familiarize themselves with the simplest of traditional and industrial material, and having mastered a craft, approach the vast problem of planning and design within an industrial society." 9)

By intense work and self-development, the resulting knowledge, stimulation, and competence of the student gives him a feeling of individuality and self-reliance.

The Workshop Laboratory

> "Our schools should be laboratories . . . We must make them into workshops each shaped for exercise and practice."
>
> Joseph Hudnut 10)

Workshop laboratories will be provided for each department of the School of Design. Facilities and equipment necessary to learn the use of the basic tools of the particular field, and for creative design and original investigations for all students will be available. At the very beginning of a student's training in design, the emphasis will be placed on

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8) Eliel Saarinen: Search for Form, Reinhold Publishing Co., New York, N. Y., 1948, p. 328.

9) Peter Blake: Marcel Breuer:Architect and Designer, Architectural Record, New York, N. Y., 1949, p. 9.

10) Joseph Hudnut: Architecture and the Spirit of Man, Harvard University Press., Cambridge, Mass., 1944, p. 241.

personal creative expression. On this subject, Walter Gropius said:

. . . basic design - and - shop practice combined should introduce to the students the elements of design -- surface, volumn, space, and color -- and simultaneously the elements of construction for 'building' by developing three-dimensional exercises to be carried out with materials and tools." [11]

The purpose of any design program is to encourage and stimulate the ability of the students to express their ideas in a clearly understandable manner. The development of any artist requires the constant expression of ideas in a plastic medium. Applied to architecture and city planning, the workshop is a laboratory of community design. Community planning will be studied in three-dimensions also with the aid of models.

All faculty members are provided with private office-studios or office-laboratories. With the teachers and students striving for individual creativeness, there will be no hinderance to the investigation of any new idea, whether this idea be a new painting technique, a new structural scheme, or an advanced method of radiant heating, etc. School materials and funds will be available for research. It is expected that industry will join in the research programs to the extent of provideing materials, machines, technical assistance, and financial aid.

Every student leaving the School of Design will know what it is to build, investigate and create.

Each faculty member will be an expert in his field as well as a current

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11) Supra 2), p. 85-86.

practitioner. The same freedom to investigate and experiment is available to the faculty as to the students.

The Arts

> " . . . Through creative participation in the arts, people will build up a discipline which provides the very basis of culture, if we can trust history. It will lead to the unity of its visible manifestations, embracing everything from a simple chair to the house of worship."
>
> Walter Gropius 12)

Ours is unfortunately a predominately materialistic and technical civilization. The arts have become discredited and generally neglected by most people. The mere fact that esthetics are lacking in most of man's undertakings is all too evident. The basic cause of this esthetic deprivation is the existing method of general education. The arts are given a very subordinate place in our schools, with technology and business receiving the major emphasis. This weakness has been realized by certain leaders in formal education. Concerning the results of the recent Massachusetts Institute of Technology Educational Survey, Carl Feiss says: "The committee found that there are four fields of activity which should be cultivated at the institute: Engineering, Science, Architecture, and the Humanities. It's noteworthy that in an institution of the educational national prominence of Massachusetts Institute of Technology, that architecture is singled out on a par with the other three great areas of knowledge." 13)

In the School of Design, young architects and artists prepare to become future leaders in creative endeavor as a parellel to the training

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12) Supra, 2), p. 79.
13) Carl Feiss: Out of School, Progressive Architecture, Reinhold Publishing Corp., New York, N. Y., Jan., 1951, p. 119.

offered to engineers and scientists in technical institutions. As a further and an equally important objective, the School of Design aims to educate laymen and college students of other curricula toward the value of art in life, art in industry, and, of course, art in building. Speaking of the value of art in life, George Santayana said: "The value of art lies in making people happy, first in practicing the art and then in possessing its product." [14] Further: "If happiness is the ultimate sanction of art, art is in turn the best instrument of man." [15]

At the School of Design, an understanding and appreciation of all of the arts integrated into the single art of living is the intended end of the efforts of all teachers and students.

Industry and Art

> "All industry contains an element of fine art and all fine art an element of industry . . ."
>
> George Santayana [16]

As already stated, industry and art have become divorced in recent years, as have man and art in most cases. At the Bauhaus in Germany in the 1920's, Walter Gropius led the movement to again combine art and industry, and art with daily living. There was a time in the past when art and architecture influenced the design of many of the objects used by man. With a return to this condition, art will become important and enjoyable to all people, and will truly become the art of the people.

Designing with and for industry can be the great moving force which

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14) Supra 3), p. 222.
15) Supra 3), p. 229.
16) Supra 3), p. 33.

will bring art and our objects of daily use in closer harmony. The School of Design will utilize industrial tools, skills, and technique to aid in the development of creative students. Research will be conducted in each sphere of study at the school with the purpose of giving to man better useful products. The value of architecture, painting, sculpture, textiles, ceramics, woodworking, and photography will be judged according to their intrinsic value to the all-inclusive art of living. Fine art will influence the machine in industry so that the machine may serve man more completely.

Collaboration and Coordination

> "The present situation in architecture parallels that in medicine. In both professions, we begin to see the restoration of the general practitioner, capable of dealing with every part of his field and concerned with the welfare of the human being as a whole, and has become a condition for the sound use of specialized knowledge."
>
> Lewis Mumford 17)

In the role of coordinator, the architect of today must be thoroughly versed in the various fields involved in the final production of a building, and must also understand people and human nature. To forward this ability, the School of Design puts great stress on mutual understanding and appreciation between those working in the many fields embraced by the very broad and general headings of architecture and the arts. Further, stress is placed upon coordination of art and architecture with the interests of the professions, business, industry, and government. The purpose is not to make the architect an expert in all the fields involved,

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17) Lewis Mumford: North Carolina State School of Design Catalog, Raleigh N. C., 1950, p. 3.

but it is, rather, to give him the knowledge required intelligently to coordinate the work of specialists. The desired end product is a work of art --- art that is created by the architect and/or artist by taking advantage of the scientific and industrial advances of our day.

To further this principle, students will work in teams on various projects. The teams will be composed of an architectural design student as coordinator, with other students of structure, painting, sculpture, general design, and landscaping acting as collaborators. By this method, the final result will be a work of art, created and produced by the coordination and cooperation of several creative people with a common aim.

To broaden the understanding of coordination, the students of the school will be encouraged to develop an extensive cognition of life, living, and people. Frank Lloyd Wright voiced a conviction on this subject when he said: "In our education, we must realize there can be no real separation of religion, philosophy, science, and the great art of building. They are one or none." [18]

Community Creativeness

> "The architect serves more than his individual ego: he works to satisfy a client and to create a community."
>
> Ralph Walker [19]

To realize effective results in the idealized realm concerned with giving art and architecture to the average man, it is necessary to work with communities as well as individuals. Creative architecture, as

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18) Supra 4), p. 186.
19) Ralph Walker: The Education Necessary to the Professional Practice of Architecture, Journal of the A. I. A., The Octagon, Washington, D. C., Feb., 1951, p. 71.

applied to a typical community, implies intelligent design of all of the physical features: such as living units, the street communication system, services, and recreation areas, and the successful landscaping of all elements. The architect and artist must design not for themselves, but for the well-being and esthetic attractiveness of the community. The specific field dealing with such designing is usually known as urban or city planning. The School of Design will train special students very extensively in city planning, and will also give to all architectural students adequate preparation in the thinking and design processes involved. The particular emphasis will be placed upon the social consciousness of all students of design and their sense of evaluating the existing environment. The realization that much of the natural landscape has been destroyed or at least adulterated by man will be paramount. Intelligent utilization and conservation of our existing resourses, and the rebuilding of our natural endowment will be the primary basis for design. William Vogt, in regarding our resources, said: "We have been skidding down the road to national suicide by destroying the environment that permits our survival: a reversal of our direction is unthinkable in any but democratic terms. Here may well be the most fruitful opportunity democracy has ever had." [20]

R. Buckminster Fuller is leading the movement to conserve the raw materials we now possess and to use these materials in a much better way. He is even interested in conserving water by the skillful and frugal use of

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20) William Vogt: from Carl Feiss, Out of School, Progressive Architecture, Reinhold Publishing Corp., New York, N. Y., March 1951, p. 144.

it in special instruments to perform such daily water-consuming tasks as bathing and dishwashing. Fuller's principal maxim is to use the minimum of material for the maximum result.

Only the creative leadership of architecture and associated arts can give the best possible environment.

Scope of Design Education

> "Basic design, as I see it, then shapes up into the form of Leonardo's notebooks, sketches of ideas based on man and nature, personal, varied, intense, free, mathematics, physics, and esthetics. Nothing too great or too small. And all building toward the understanding of what are the underpinnings of comprehensive architecture - - man living freely and with pleasure in the environments provided for him by artifice and God."
>
> Carl Feiss [21]

To make the objectives of the aforementioned philosophy feasible, it is important to provide the educational background and a physical plant that is adequate for all activities.

No definite, complete course of study will be suggested, but the general fields of design education will be decided upon and provided for.

Our contemporaries in Europe and South America receive five to seven or more years of training and leave school as architect-structural engineers. These men are very well trained and generally are capable of performing intelligent and mature design work with varying degrees of creativeness.

For the American design student, the job must be accomplished in five or six years and cultural education as well as design training must be stressed. The School of Design will incorporate its philosophical standards

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21) Supra 13), Feb., 1951, p. 150.

into the basic design courses in the early years of training. The necessary technical, cultural, and related art or architectural courses will be integrated into the overall curricula with the accent in each case being placed upon relating the courses to the general design program.

It is interesting to note that at the Cranbrook Academy of Art, one of the foremost existing design schools, the following courses of study are offered: architecture, design, ceramics, painting, sculpture, metalsmithing, weaving, and survey of the arts. In contrast, Frank Lloyd Wright suggests, for his proposed design center, a feeling of inspired experimentation in these fields: glassmaking, textiles, pottery, sheet metal, woodworking, casting in metal, printing, and "process reproductions". Such a center is primarily for the advancement of the integration of industry and art - - all in an architectural environment. The Bauhaus, in Germany, practiced this principle in actuality with outstanding results. Similar basic divisions of activity were offered in the "laboratories of design", that is: cabinetmaking, theatrical crafts, dyeing, weaving, printing, wall coverings, and metalworking.

Herbert Read, speaking on education and art said: "In this process aesthetic education is fundamental. Such aesthetic education will have for its scope:

1. The preservation of the natural intensity of all modes of perception and sensation.
2. The coordination of the various modes of perception and separation with one another and in relation to the environment.
3. The expression of feeling in communicable form.

4. The expression in communicable form of modes of mental experience which would otherwise remain partially or wholly unconscious.

5. The expression of thought in required form.

"Regroup these techniques of aesthetic education so that they correspond to, and are an expression of, the four main functions into which our mental processes are traditionally divided:

I.	Design	- Corresponding to Sensation
II.	Music and Dance	- Corresponding to Intuition
III.	Poetry and Drama	- Corresponding to Feeling
IV.	Craft	- Corresponding to Thought" [22]

Frank Lloyd Wright sums up his basic philosophy concerning design education in this manner: "Architecture, the great Mother Art, is in itself the highest knowledge-in-action of which we have any record and cannot be bought or even acquired from books. One good look at an actual building, and a man has found what no reams of writing or years of teaching could give him - - providing he has the eyes to see." [23]

From past, existing, and theoretical design schools, it is possible to observe the fields of activity which they accentuate. Extending these suggestions to include other related fields, the following departments are to be units of the School of Design: architecture, general design, structural design, landscape design, painting, sculpture, ceramics, textiles, and creative visual media. Such will be the scope of design education subject matter offered.

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22) Herbert Read: Education Through Art, Pantheon Books, New York, N. Y., 1945, p. 9.

23) Supra 4), p. 188.

PART TWO

FUNCTIONS AND REQUIREMENTS

General

The School of Design will be an administrative entity in itself, but a working association with the Virginia Polytechnic Institute will be maintained. The present Architectural Department will form the nucleus of this school. Most academic subjects, such as English, mathematics, history, and various cultural subjects will be taught by Virginia Polytechnic Institute professors who will make the short trip to the School of Design campus for all classes. All other courses, of either an artistic or technical nature, will be taught by members of the design faculty. Philosophy, history, ethics, and economics will form the basic elements of the cultural background offered to all students.

The departments of the school and the approximate number of students in each are as follows:

Architecture	120
Urban Planning	20
General Design	60
Structural Design	60
Landscape Design	30
Painting	30
Sculpture	20
Ceramics	20
Textiles	20
Creative Visual Media	20
	400 Total

To provide the maximum training to the students, it is essential to have a small student to faculty ratio. Such a ratio of ten to one in each department will be maintained.

As a means of facilitating the successful handling of lecture and discussion groups, an adequate number of seminar or classroom areas is required for each department, and for the academic center of the school itself. The approximate percentage of classroom hours and laboratory hours for each year is as follows:

Year	Classroom Hours	Laboratory Hours
1	65%	35%
2	55%	45%
3	30%-45%	55%-70%
4	15%-30%	70%-85%
5	10%-20%	80%-90%
6	10%-15%	85%-90%

The above percentages are based upon typical college curricula, but they are revised to meet the standards of the design philosophy of the School of Design; that is, the philosophy of learning by doing requires adequate workshop and laboratory areas. The number and size of the classrooms as well as shop areas will thereby be determined.

An auditorium of sufficient size to seat 500 people comfortably is a design requisite. Interested people in all fields will be invited to share the visits of the outstanding design leaders who will come to the school.

Housing facilities for twenty resident faculty members, ten part-time or visiting professors, thirty married students, twenty female students, and 350 male students will be provided within a convenient walk-

ing distance from the basic buildings. Dining facilities for all unmarried students will be necessary.

It will be essential to provide all utilities as an integral part of the design.

The following is a complete statement of the proposed academic make-up of the school's various departments:

Department	No. Years	Degree	Grad. Year	Degree
Architecture	5	B. Arch.	1	M. Arch.
Urban Planning	5	B. A.	1	M. A.
General Design	4	B. F. A.	1	M. A.
Structural Des.	4	B. S.	1	M. S.
Landscape Des.	4	B. F. A.	1	M. A.
Painting	4	B. F. A.	—	—
Sculpture	4	B. F. A.	—	—
Ceramics	4	B. F. A.	—	—
Textiles	4	B. F. A.	—	—
Creative Vis. Med.	4	B. F. A.	—	—

The above schedule is based upon the writer's personal recommendations.

Architecture

The course in architecture is planned to give to all participating students an intense, yet broad, understanding of materials, methods, man, and esthetics.

This department will be designed to accommodate 120 students in the six years of work offered. The sixth year will be the graduate school of architecture, and is planned to attract outstanding students from other

schools. The approximate breakdown of the number of students per year is as follows:

Year	Number of Students
1	35
2	25
3	20
4	15
5	10
6	15

It is fully realized that the number of students in each year, as well as in each department, will vary from one year to the next. Flexible planning makes it an easy matter to accommodate yearly enrollment fluctuations.

Provision for twelve faculty members is necessary. The majority of the faculty will be in permanent residence, but three or four will be part-time or visiting professors.

An average of forty-two square feet of drafting room space is to be provided for each student. This space also allows a model workshop area in each drafting room. Specially designed drafting tables will be built by the students and will incorporate drafting and model making facilities.

A large display area is required for the exhibition of architectural drawings and models. This area will be planned in conjunction with a student lounge and visitor's lobby.

Workshop area adequate to house actual full-scale building details, research projects, and typical power tools are necessary to make the learning

by doing philosophy of design education a reality.

Other facilities to be included in the Architectural Department are: a library for 5000 volumes, a seminar room seating seventy-five, an adequate number of classrooms, and outdoor research area.

Toilets, storage rooms, and janitor closets will be included in all departments.

Urban Planning

The Urban Planning department is primarily a graduate unit, but a first professional degree is offered to students taking the first three years of the architectural curriculum, and then entering this department for the fourth and fifth years.

The objectives of this department are to further the coordination of the technological advancements of our age with artistic qualities in large-scale planning.

A total of twenty students will be enrolled in this branch of the School of Design. Approximately six of the students will be undergraduate students and the remainder will be in the graduate section of the department.

This department will require the following facilities: drafting room and model-making facilities, a seminar and lecture area, offices for two faculty members, a library for 1000 volumes, a lobby and lounge area, and an exhibition area.

General Design

The esthetic design of the many objects of daily use is the concern of this department. These objects include home conveniences, furniture,

furnishings, commercial and industrial products, and product containers.

To assure complete design, in many cases it will be necessary to have close coordination between the designers of technical apparatus and the artistic designer of the attractive and salable package. An example of this type of coordination is the design of attractive and functional automobile bodies to go with the mechanical excellence of the rest of the product.

Grants from business and industrial organizations are expected to provide equipment and funds for both teaching and research in this department.

A full range of materials will be used with hand and power tools.

The facilities of the General Design Department will be planned for sixty students, and will include these elements: drafting and model-making area for all students at forty-two square feet of floor space each, a large workshop for the use of industrial and standard power tools, six faculty offices, a lounge and lobby space, exhibition area, a seminar room, two class rooms, a 2000 volume labrary, and an extensive outdoor research area.

Structural Design

The curriculum in structural design will be firmly based upon its usefullness in providing efficient, effective, easily constructed, and visually pleasing structural forms and systems. A close relationship between technology and creativeness, a condition not always found in actuality, will be constantly stressed.

Sixty students in the basic and graduate units of this department will

be supplied with drafting and model-making space also at forty-two square feet per student, lecture and seminar areas, lobby and lounge areas, an exhibition space, a 2000 volume library, calculator rooms, and a large workshop-laboratory.

The workshop-laboratory will be used by the students and faculty to conduct structural tests, analyses, and experiments; to execute related research commissions; and, to display typical full-scale structural details. Office provisions for a research director and associated clerical workers are an additional physical requisite of this department. The research director will coordinate the efforts of all of the departments of the school in investigative work.

Landscape Design

Nature has given to us an unending variety of materials and methods useful in complementing architectural and artistic forms. As many of our created forms show the influence of nature, the harmonious association of nature and man's creativeness is both strong and evident. The Department of Landscape Design will attempt to give landscape planning the proper place in the overall planning procedure. The materials used in teaching landscape design are the living and inert materials of nature.

Three faculty members, directing the activities of thirty students in the five years of investigation offered in this curriculum, make up the personnel of the department. The physical essentials for this division of the school are: drafting areas, workshop area, greenhouse, a seminar room, exhibition and lounge area, faculty offices, library for 500 volumes, and an outdoor area composed of the entire site.

The students and faculty of this department will design, lay out, and cultivate the landscape scheme for all elements of the school. Constant changes, additions, and refinements will give interesting and practical experience to the students from one year to the next.

The Arts: General

The five departments included under "The Arts" category are: Painting, Sculpture, Ceramics, Textiles, and Creative Visual Media. Each department will offer a four-year course. Again, imagination and creativity will be paramount with these groups, but the use of the basic materials and the knowledge of the history and culture of each art is important for all beginning students. Work of the students and faculty will be exhibited locally. A permanent art collection is to be housed in the school museum.

An analysis of the various functions and requirements of the five departments follows:

Painting

The scope of the services of the present art group of the Department of Architecture of Virginia Polytechnic Institute can be increased to successfully handle the requirements of the Department of Painting within the new School of Design. Thirty students, enrolled in a four-year course, and three faculty members make up the people of the department. Studios area for both students and faculty, and an exhibition-lounge is used in conjunction with other art departments. A 1000 volume library, a seminar room, and an outdoor work area are the other primary requisites for the study of painting. The faculty offices will be large enough to serve as individual studios. A

model's dressing room is necessary for life classes. Painting will be taught in an experimental atmosphere, with a definite stress being placed upon original and individual techniques and choice of subject matter. The advantageous use of painting with architecture is the prime objective of this department.

Sculpture

Like painting, sculpture will be considered in its own right and also as a complement to indigenous architecture. Twenty students working with two faculty members in creating sculpture are the personnel components of this department. The faculty offices will be combination studio-workshops. Student studio-workshops, an exhibition area, a library to contain 500 volumes, a seminar room, and an outdoor area are to be provided for the investigation of sculpture for man and architecture.

Ceramics

Ceramic products of art for daily use in the home and in industry are the desired objects of creation of the Ceramic Department. The basic machinery and tools, and the space necessary to investigate and produce ceramic ware ar are the main physical essentials of the unit. Exhibition and lounge area, work space for twenty students, office-studios for two teachers, a 500 volume library, and a seminar room are the additional elements to be provided.

Textiles

The teaching of the artistic design and use of textiles is the aim of this department. An importance, however, is placed upon the theory and practice of hand and mechanical weaving. As in the other departments of the school, the desired close relationship of textiles with architecture and the arts is

emphasized.

A specific task of the department will be to design and apply most of the textile material used as furnishings or decorations within the school.

The physical requirements are: a workshop adequate to house the tools of weaving and provide work area for twenty students and the faculty, two faculty offices, an exhibition-lounge area in conjunction with other departments, a seminar room, and a 500 volume library.

Creative Visual Media

The purpose of this department is to train creative designers of visual subject matter. The principal media for expression will be photography and typography. The artistic lay-out of printed material and the effective use of applicable photographs will be one primary objective. This department has an infinite usefulness to society. It will be a pleasant experience to see attractive and creative printed matter in place of many of the drab and monotonous publications observed daily by most people. Many services can be rendered to the school by this group in the way of regular and special publications of an informative and persuasive nature.

Provisions must be made for twenty students and two faculty members. Workshop-design areas, two faculty offices, a 500 volume library, an exhibition-lounge area, a seminar room, a model's dressing room, a photographic studio and photograph laboratory will set the space requirements. The workshop will contain the basic tools and material useful in typographic lay-out and general display media.

PART THREE

DESIGN ANALYSIS

Scope of Analysis

The following portions of the general design analysis are primarily concerned with the resultant product, the final design and subservient considerations. Various mechanical and evolutionary details are mentioned and are located in the total picture. The design requirements, previously mentioned, form a basis for the mechanics of design.

No written enumeration of esthetic reasoning or design technique will be undertaken. The explanation for this viewpoint is that words were not the tools of the design, thereby words shall not be used in explanation of the resulting building group. Words can only describe technical considerations, specific and general requirements, and in particular, philosophical foundations. The summarized results can only be demonstrated by four-dimensional (three dimensions plus time) means, the model; plus helpful two-dimensional media, the drawings.

The model that is presented is the summation of the mental and physical design processes involved, and will speak for itself. Such a presentation carries to fruition the basic philosophy of the school and of this thesis; i. e., design and study by the mind, heart, and hands.

Site Selection

The original intention of the writer was to find a suitable site for the School of Design on land presently owned or leased by the Virginia Polytechnic Institute. Several possible sites on nearby farm land used by the School of Agriculture were considered. These sites were predominantly level with an extensive agricultural and mountainous landscape. A survey of the present Virginia Polytechnic Institute campus determined the lack of a site adequate

either in size or setting to satisfy the desire to supply the school with an initial freshness and independence. The desired independence is an independence from existing customs and institutions.

The site finally selected was the hilltop which is at present a partially developed subdivision near Blacksburg known as Highland Parks. This site offers many advantages not found in the sites initially considered. First, the setting indicates the independence and basic freshness desired. Second, this site is ideally oriented in relation to the design requirements: i. e., the major vista from the school is approximately northeast, which makes it quite easy to face all drafting rooms and student studios to receive steady natural lighting. Third, the vista mentioned above is both magnificent and extensive. On a clear day, one can look northeast the entire distance from the site down the Roanoke River Valley to Catawba. Continuous mountain groups on either side of the valley form natural collonades extending northward to the limit of the distinguishable vista. Extensive, interesting, and beautiful views are also available from any other vantage point of the school.

The School and the Region

The school is quite fortunately located at a central point of the Middle-Appalachian region of the Eastern Seaboard. In close proximity there may be found all of the components of an active, independent region: i. e., agriculture, industry, the markets, transportation, labor supply, educational and research centers, the seat of the national government, and several great seaports.

As a design center, the mutually advantageous reorientation of the relationship between art and technology can be hastened. The functions of the

school as an integral, influencial, and important part of the region are clearly obvious.

The Building Group

The relationship of the various buildings of the school has been determined by the functions of the activities to be housed. The ten departments of the school have been grouped into units of logical affinity. The Architectural, General Design, and Landscape Design Departments are located in one building unit. The five art departments; Painting, Sculpture, Textiles, Ceramics, and Creative Visual Media are located together in the second major building with the Urban Planning Department adjoining. The Urban Planning Department is located across the court from the Architectural Department. The third major building unit houses the Structural Design Department, the school auditorium, and the school administrative offices.

The three major building elements are tied together by a series of paved terraces descending from one level to the next lower level. Landscaping, freely arranged, forms an integral part of the terrace composition. A small fountain on the uppermost terrace level flows successively down the hillside in pools from one level to the next.

Secondary buildings have been considered only as a means of completing the total site plan. These buildings include a dining hall, male and female dormitories, faculty residences, married students' apartments, and utility buildings. The relative locations of these buildings and adjoining exterior areas are shown in schematic form on the master site plan.

Utilities

The scope of this thesis includes the design of the primary buildings of the School of Design. The secondary buildings and the adjoining roads and necessary utilities are provided for and considered in the overall design undertaking, but are in no definite manner specifically designed. Such considerations follow.

Electric power for the entire School of Design facilities can be readily supplied by a direct line from nearby Appalachian Electric Power Company resources.

Because of the topographical location of the principal portion of the school, it will be necessary to pump water from the city storage tank which is conveniently located on the adjoining hill to the northwest. A pumping station will be essential as a means of bringing water from the city tank to a tank on the school site. The School tank is designed as a massive piece of abstract sculpture as indicated in the model and shown by the photographs.

To meet the sanitary requirements of the school, a sewerage disposal plant is an inherent part of the total planning.

The heating of the buildings of the School will be accomplished as described below. Coal will serve as the heat producing medium and steam will be the heat carrying agent. It is planned that underground steam lines will be directed to all buildings except residences. Such steam will then be used in heat exchanger units located in each major building as a means of heating water to be used in radiant floor slabs.

Roads

The main road leading from town streets to the school will be hard-

surfaced, and of sufficient width to provide parallel and/or diagonal parking at locations indicated on the master site plan. Informal, gravel-surfaced service roads to the various building groups are also located on this plan.

Construction Sequence

As previously indicated, the major portion of the construction of the school will be executed by the students. Such a proposal at first may appear to be unrealistic and impossible. However, it is the belief and design premise of the writer that such an undertaking is not only feasible, but is also the crux of practical design education so pointedly lacking in general architectural or design education. To actually build a school in such a manner will of course require a number of years. An approximate sequence of construction by buildings will be as follows:

(a) The first elements to be built will be the Structural Design building and the water tank. The Architectural, General Design, and Structural Design Departments will share facilities during the first years.

(b) The second group to be built will be the Architectural, General Design, and Landscape Design Departments building unit. This building will be shared with the Urban Planning and Arts Departments for the years their buildings are under construction.

(c) The Arts and Urban Planning Departments building will be the last step in the scheduled major workshop buildings.

The construction of the terraces, pools, stairs, and the landscaping shall proceed in constant conjunction with the major buildings. Also, as

continuing smaller scale projects, there will be the construction of secondary buildings, with theheating plant, dormitories, and dining hall having priority over other minor structures. It will be the prerogative of the individual faculty members to design and build for themselves as they are able to do so.

Materials

The following is a brief outline specification of the proposed building material for specific uses:

(a) Foundations: Concrete, 2500 pounds per square inch design stress, reinforced as necessary.

(b) Masonry bearing and/or retaining walls: Native field stone, red-brown color, bound with mortar.

(c) Structural slabs: Reinforced concrete, 3000 pounds per square inch design stress.

(d) Terrace blocks: Three inches thick, 4' - 0" square, wire mesh reinforced, cast-in-place concrete slabs of 2500 pounds per square inch design stress.

(e) Exterior stairs: Concrete, 2500 pounds per square inch design stress, plain and reinforced as required.

(f) Interior, non-bearing partitions - Movable, lightweight, acoustically insulated, metal clad units.

(g) Floor covering: Cork tile in lounges; colored rubber tile in halls, lecture rooms, drafting rooms, studios, offices, toilets, libraries, and storage areas; Masterplate integral finish in heavy duty workshops; and, smooth trowel concrete finish in mechanical equipment rooms.

(h) Glazing: Double glazed, large-area fixed sash and manually operated projected units.

(i) Thermal insulation: Vermiculite sub slab under all concrete slabs on earth; aluminum accordian insulation in unglazed frame walls; double glazed sash in glazed wall areas; and, two inch solid block insulation above roof structural members.

Structural Analysis

It is the writer's personal belief that architecture and structural forms are one in the same thing. That is, the structural elements required to insure a static and lasting building can also become part of the esthetic forms of architectural design. In the School of Design, this principle is exemplified by several means. Steel columns are used as structural members as well as window mullions. Rugged and attractive stone walls are used as bearing units as well as important wind resisting elements. In the auditorium, the administrative offices, and the main lobby, a ceiling is hung under the roof framing members. In all other areas of the school, all roof structural members are exposed.

The primary structural plan of the school is based upon the use of steel wide flange sections as columns spaced 8' - 0" on centers, with welded steel trusses framing into them. The welding of the upper and lower truss flanges to the columns provides wind framing along the lateral dimension of all buildings. Cofar slab forming and reinforcing units frame between the between the trusses and support roof or floor slabs. Diagonal bracing is arranged between trusses. Deeper trusses, framing the lateral dimension of the area, are required in the larger shops, the auditorium, the administrative

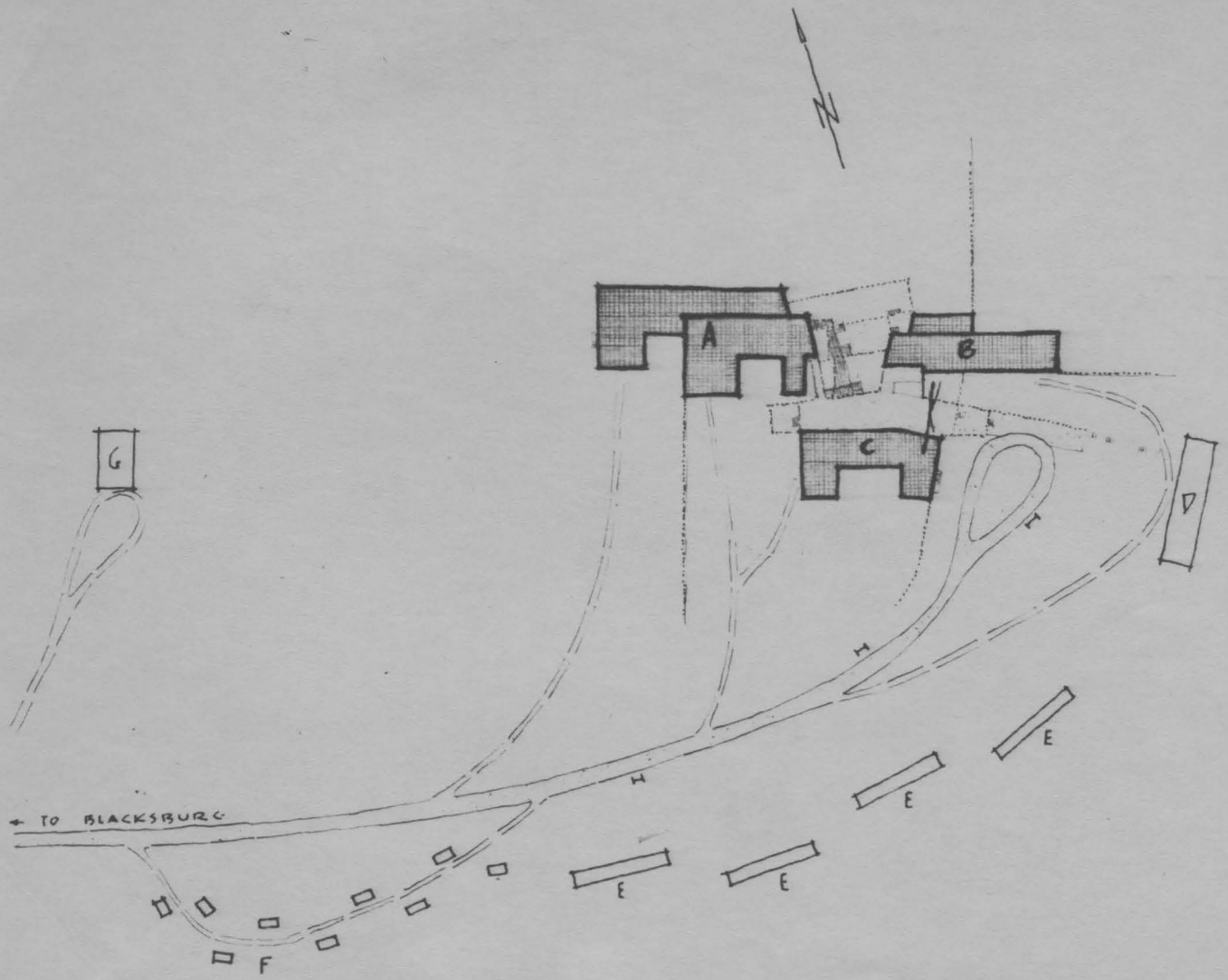
offices, and the main lobby. Concrete floor slabs are used throughout. Cantilevered concrete balconies are integral with the building floor slabs.

Structural steel was chosen as the basic framing material for all major buildings because of its rapid field erection quality and its excellent structural characteristics. After the steel frame is installed, the students will do the majority of the remaining construction work

PART FOUR

THE PRESENTATION

Drawings



LEGEND

A - ARCH., LANDS., & GEN. DES.
B - THE ARTS & URB. PLAN.
C - STRUCT. DES., ADMIN. & AUDIT.
D - DINING HALL
E - DORMITORIES & HOUSING
F - FACULTY HOUSING
G - HEATING PLANT
H - PARKING AREAS

PRIMARY BUILDINGS
SECONDARY BUILDINGS

MAIN ROAD - HARDSURF.
SERVICE ROADS - GRAVEL

46

MASTER SITE PLAN

SCALE: 1" = 300'-0"

ARCHITECTURE 77.0'
FL. EL. 65.0' LOWER
FL. EL. 77.0' UPPER

GENERAL DESIGN
LANDSCAPE DESIGN
FL. EL. 95.0'
FL. EL. 89.0'

URBAN PLANNING
FL. EL. 80.0'

THE ARTS
FL. EL. 81.0' LOWER
FL. EL. 93.0' UPPER

STRUCTURAL DESIGN
FL. EL. 86.0' LOWER
FL. EL. 110.0' UPPER

ADMIN.
FL. EL. 90.0'

AUDITORIUM
FL. EL. 90.0'

TERRACES

ENTRANCE ROAD

65.0' 70.0' 75.0' 76.0' 79.6' 80.0' 80.6' 83.0' 83.5' 85.0' 89.0' 90.0' 92.0' 95.0'

LEGEND
EXISTG. GRADE ——— 95
FINISH GRADE ——— 95.0'

PLOT PLAN SCALE : 1" = 40'

NOTE : + INDICATES LOCATION WATER TANK GUY WIRES.

TERRACE "D"

RESEARCH DIRECTOR | SECRETARIES | SHOP OFF.

LOUNGE

DN.

DRAFTING ROOM

WORK SHOP

CLASS RM.

WOM.

MEN.

LOBBY - FL. EL. 90.0'

UP

SECRETARY

DEAN'S OFFICE

EXHIBITION AREA FL. EL. 96.0'

UP | OFF. | OFF. | CALC. RM. | MEN | WOM | LIBRARY | OFF. | DN. | UP

WORKSHOP - LABORATORY
FL. EL. 90.0'

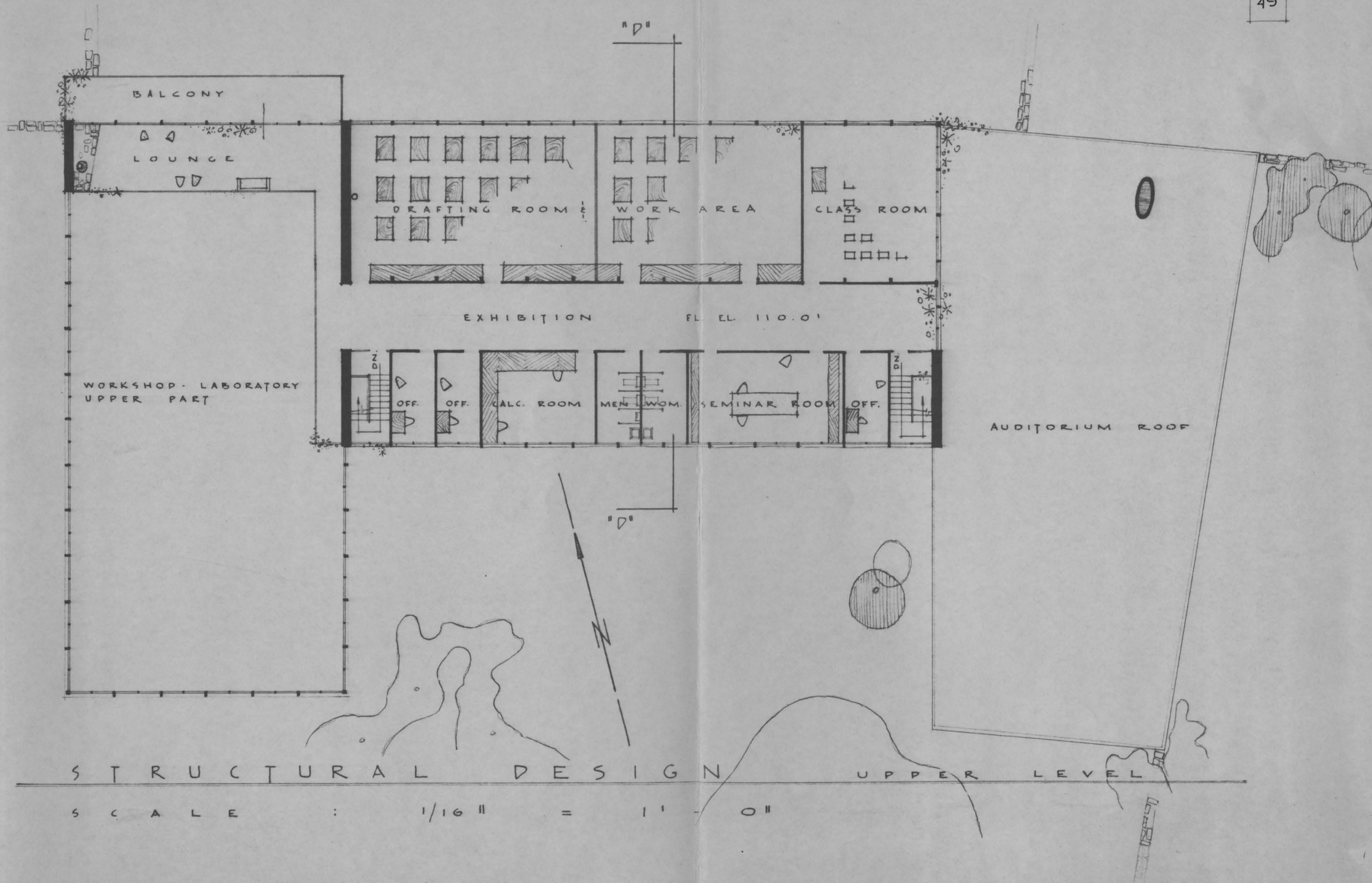
"D"

AUDITORIUM
500 SEATS

OUTDOOR RESEARCH AREA

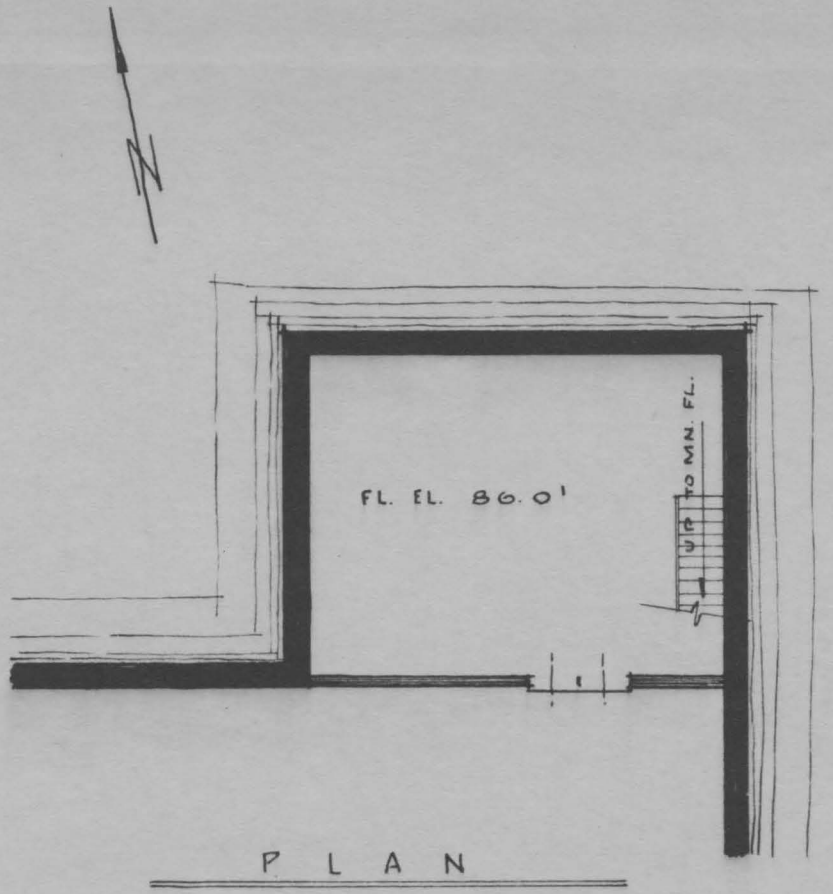
ADMINISTRATION, AUDITORIUM, AND STRUCTURAL DESIGN DEPARTMENT

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



STRUCTURAL DESIGN UPPER LEVEL

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



PLAN

MECHANICAL EQUIPMENT ROOM - MAIN FOR THE SCHOOL

ADMINISTRATION, AUDITORIUM, AND STRUCTURAL DESIGN DEPARTMENT

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

BALCONY

LOUNGE

GENERAL DESIGN

LANDSCAPE DESIGN

EXHIBITION AREA FL. EL. 95.0'

DN.

EXHIBITION

LIBRARY

OFFICE

OFFICE

MEN

WOM.

OFFICE

OFFICE

CLASS RM. 16

CLASS RM. 16

CLASS ROOM

"A"

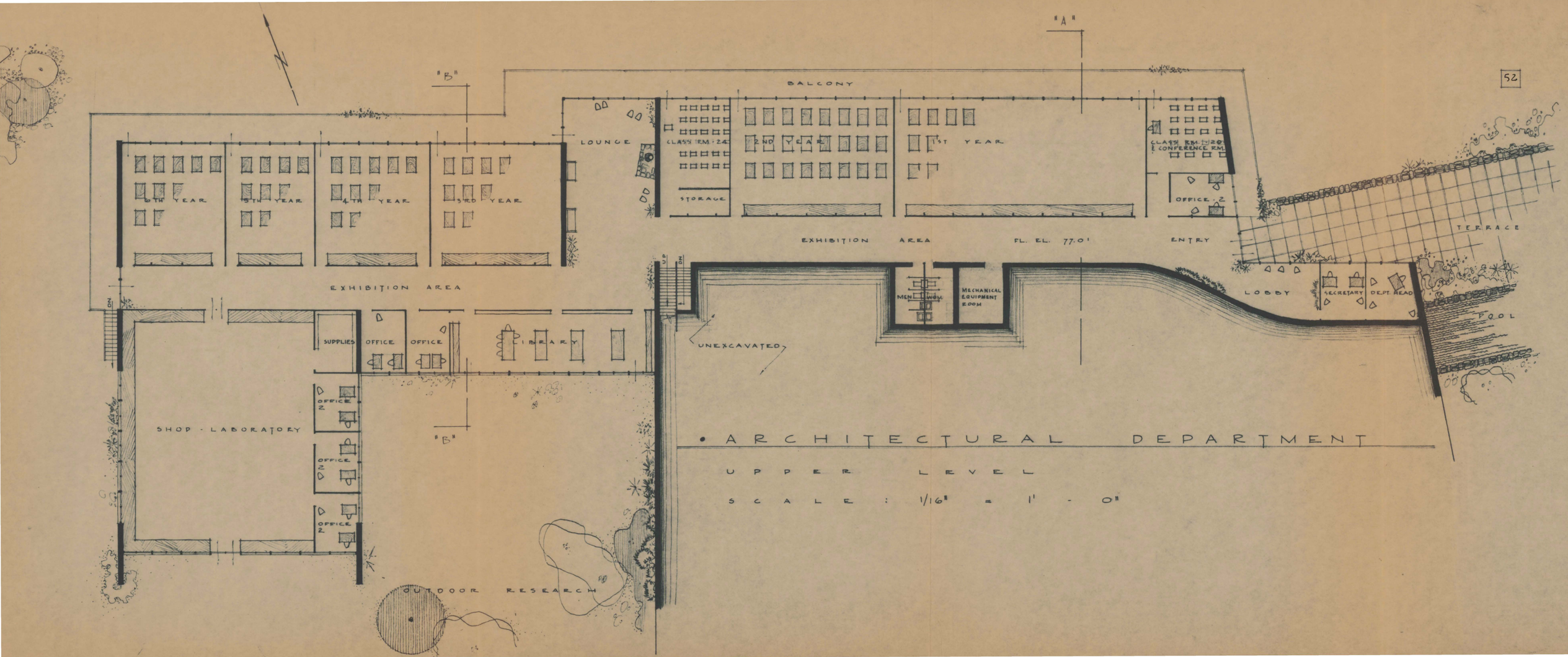
WORKSHOP - LABORATORY

GREEN HOUSE

• GENERAL DESIGN DEPARTMENT

• LANDSCAPE DESIGN DEPARTMENT

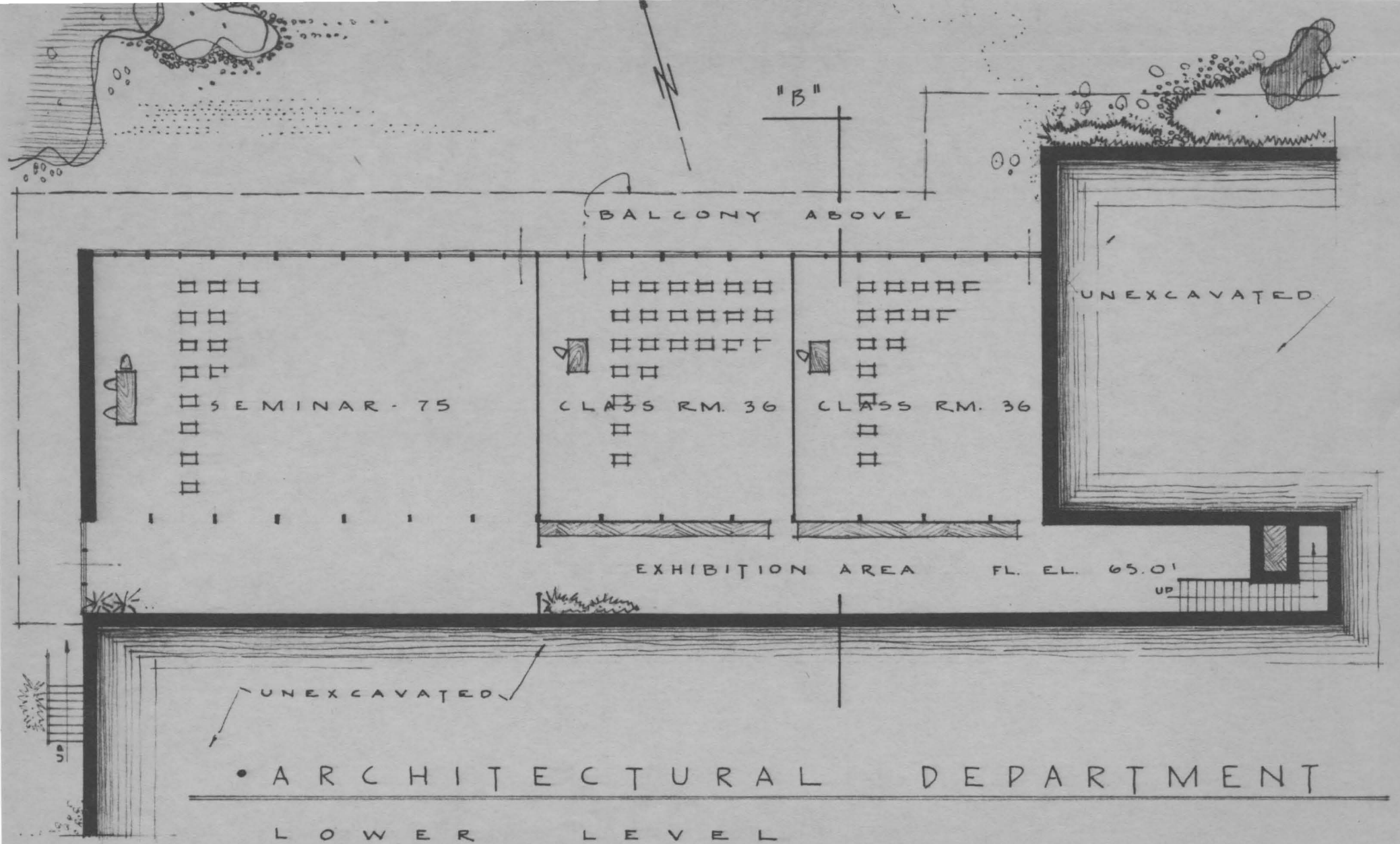
SCALE : 1/16" = 1' - 0"



• ARCHITECTURAL DEPARTMENT

UPPER LEVEL

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



• ARCHITECTURAL DEPARTMENT

LOWER LEVEL

1/16" = 1' - 0"

"A"

BALCONY

PAINTING DEPT.

CLASS RM.

LOUNGE

SCULPTURE DEPT.

CREATIVE VISUAL MEDIA

SCHOOL MUSEUM

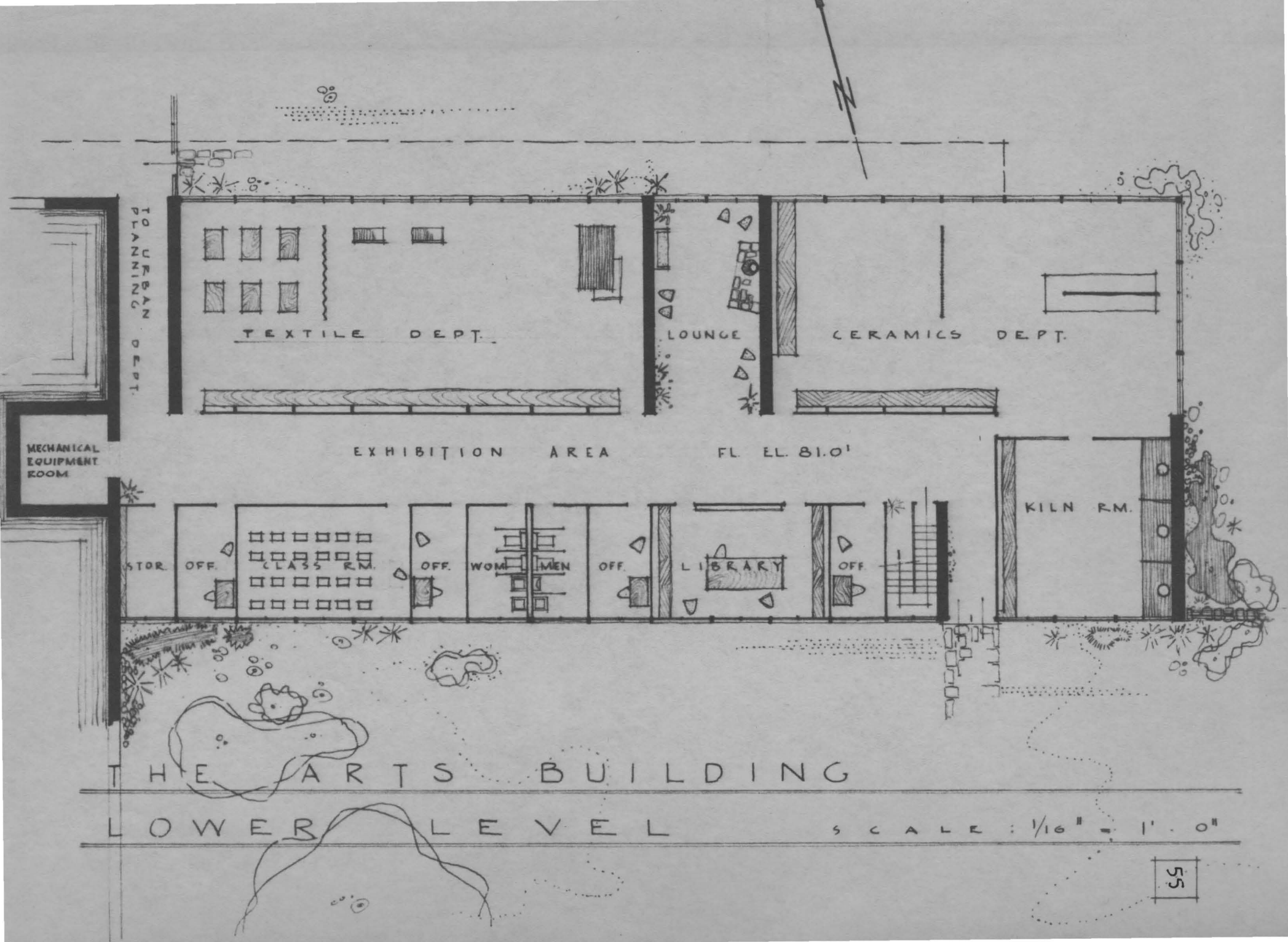
EXHIBITION AREA FL. EL. 93.0'

OFFICE OFFICE OFFICE SEMINAR LIBRARY OFFICE OFFICE WOM MEN PUBLICATIONS OFF. OFF.

"C"

THE ARTS BUILDING - UPPER LEVEL

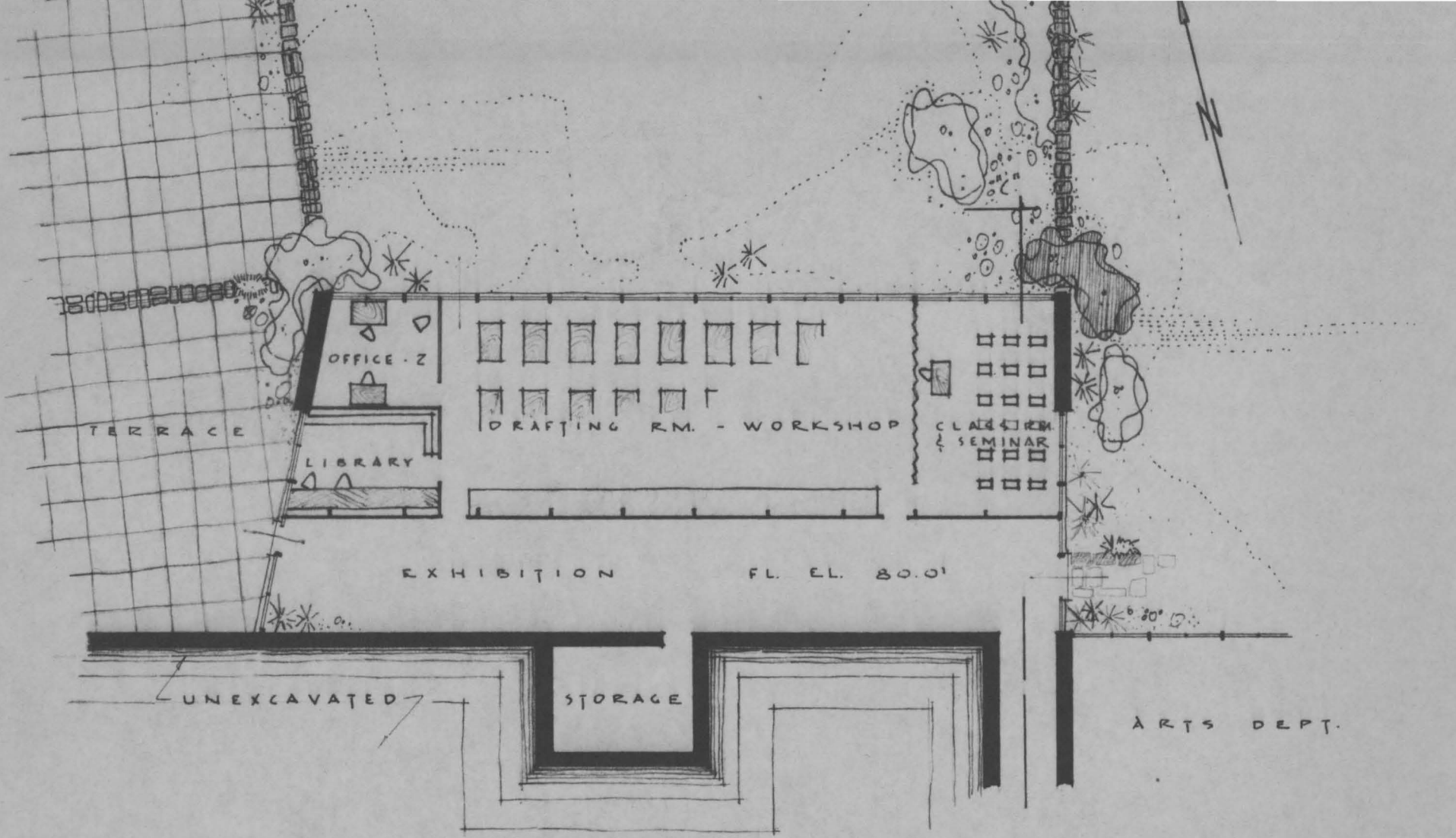
SCALE : 1/16" = 1' - 0"



THE ARTS BUILDING

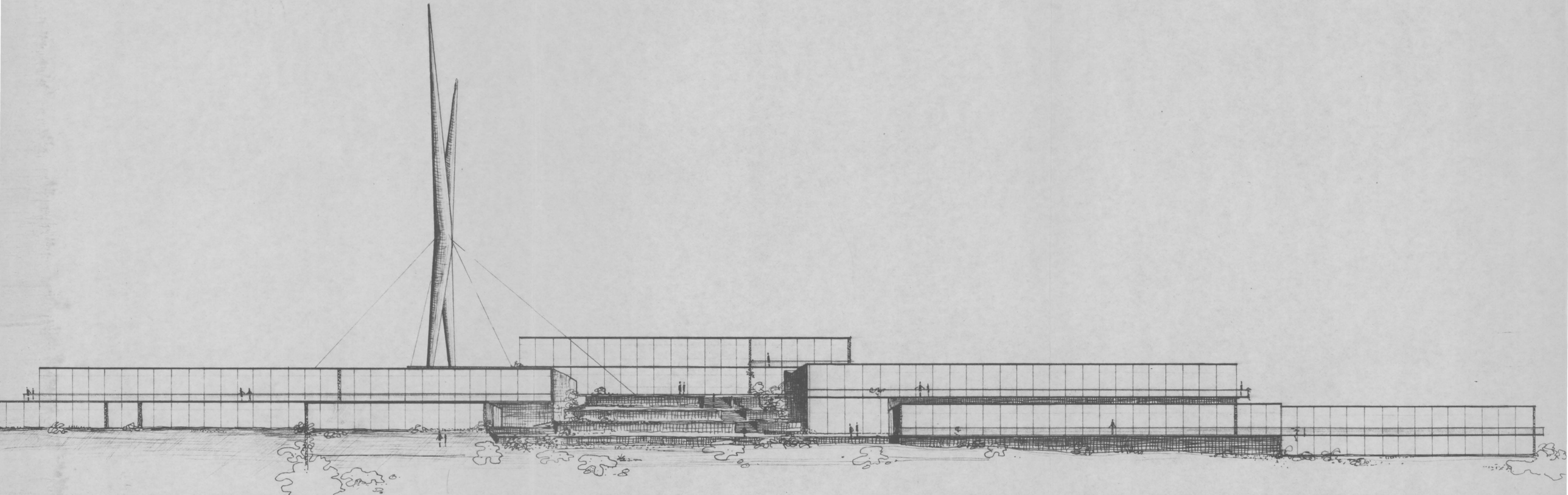
LOWER LEVEL

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



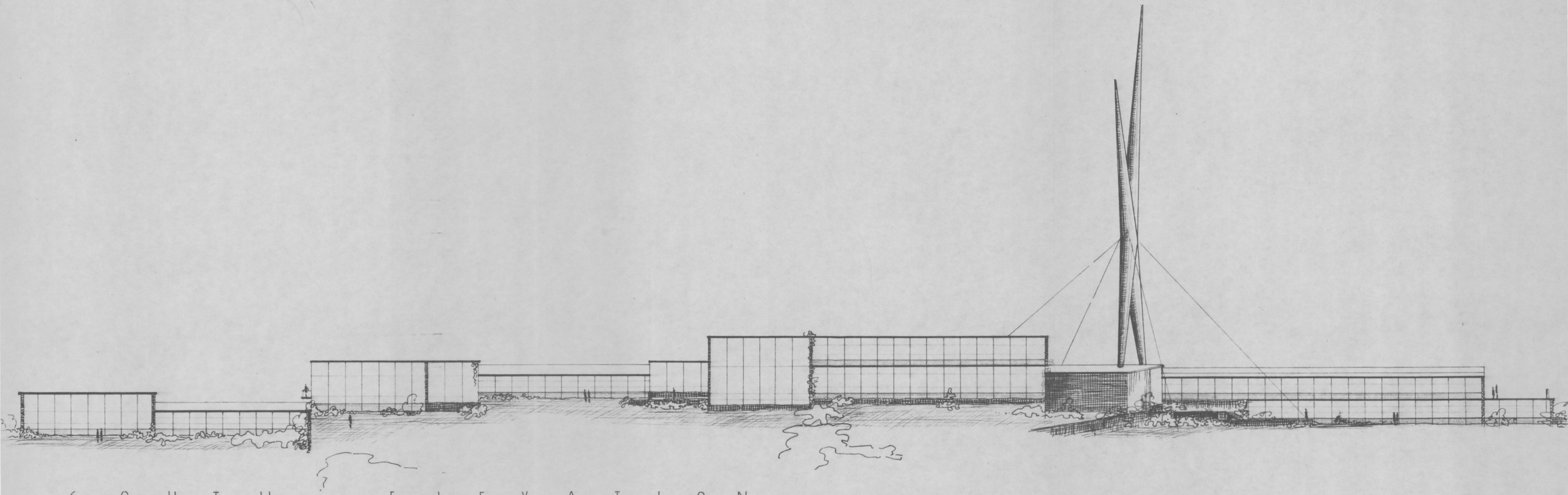
URBAN PLANNING DEPARTMENT

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



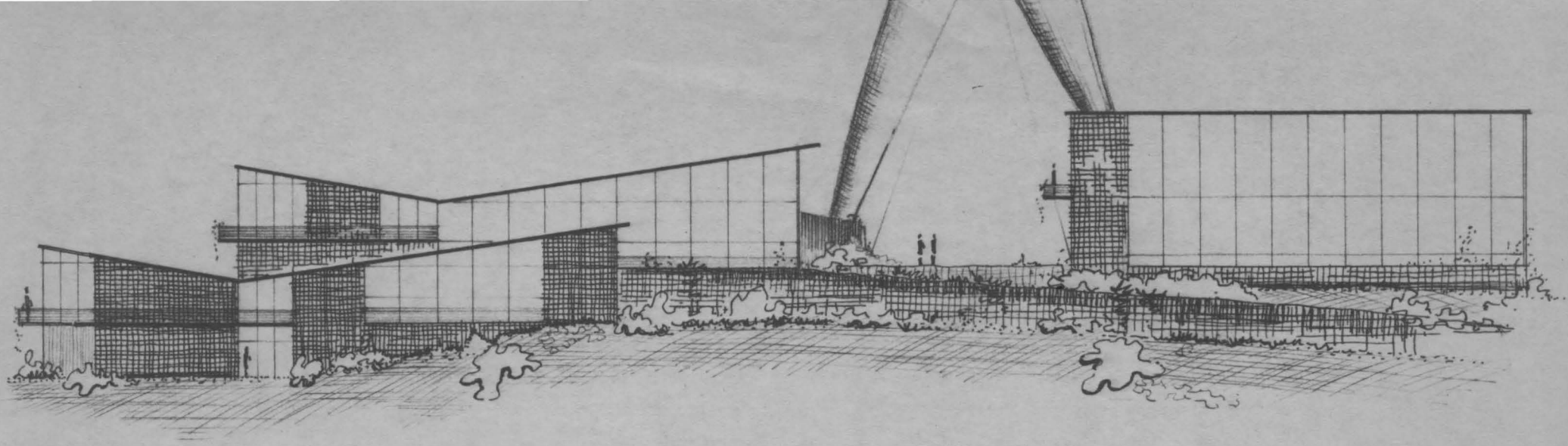
NORTH ELEVATION

SCALE : 1/32" = 1'-0"



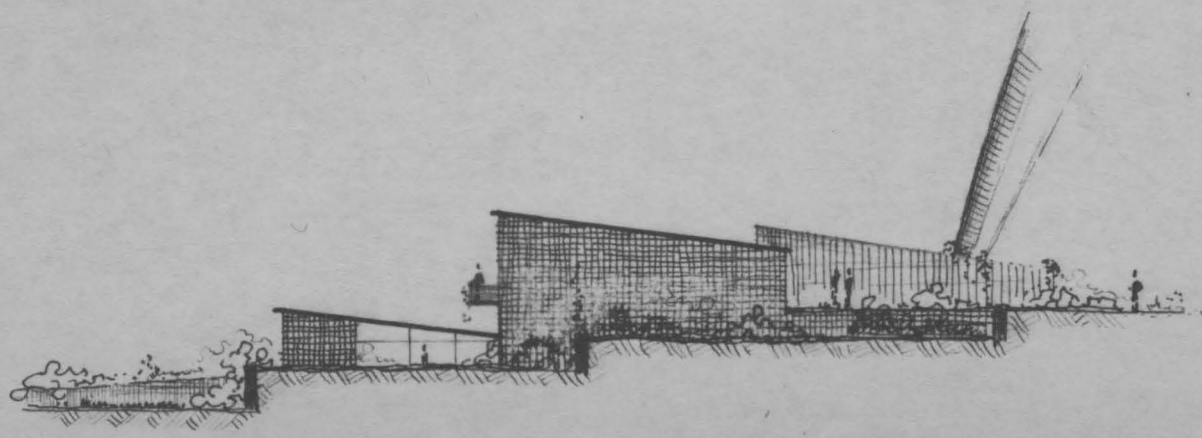
SOUTH ELEVATION

SCALE : 1/32" = 1' - 0"



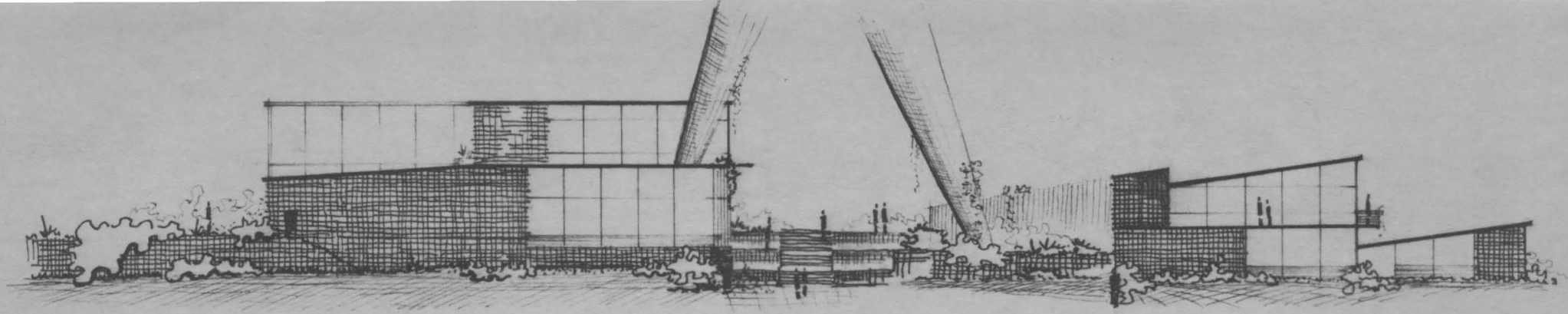
WEST ELEVATION

SCALE : 1/32" = 1'-0"



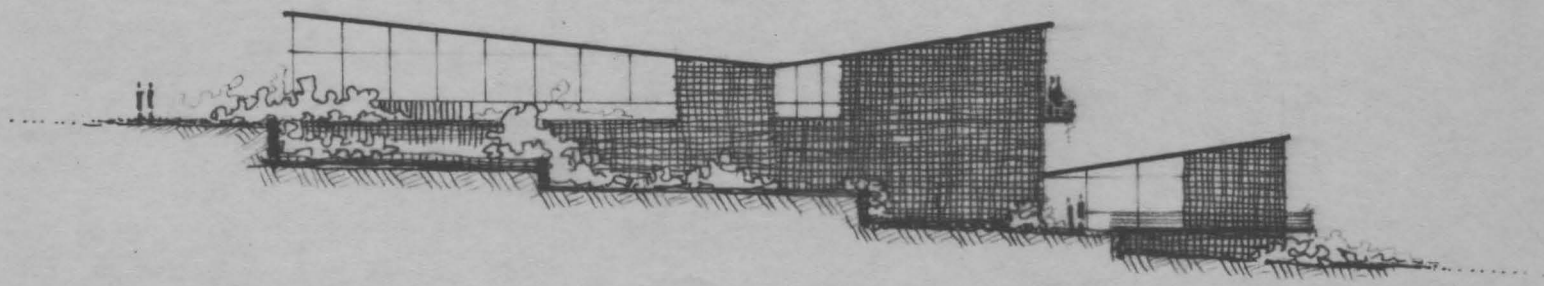
ELEVATION "1-1"

SCALE : 1/32" = 1'-0"



EAST ELEVATION

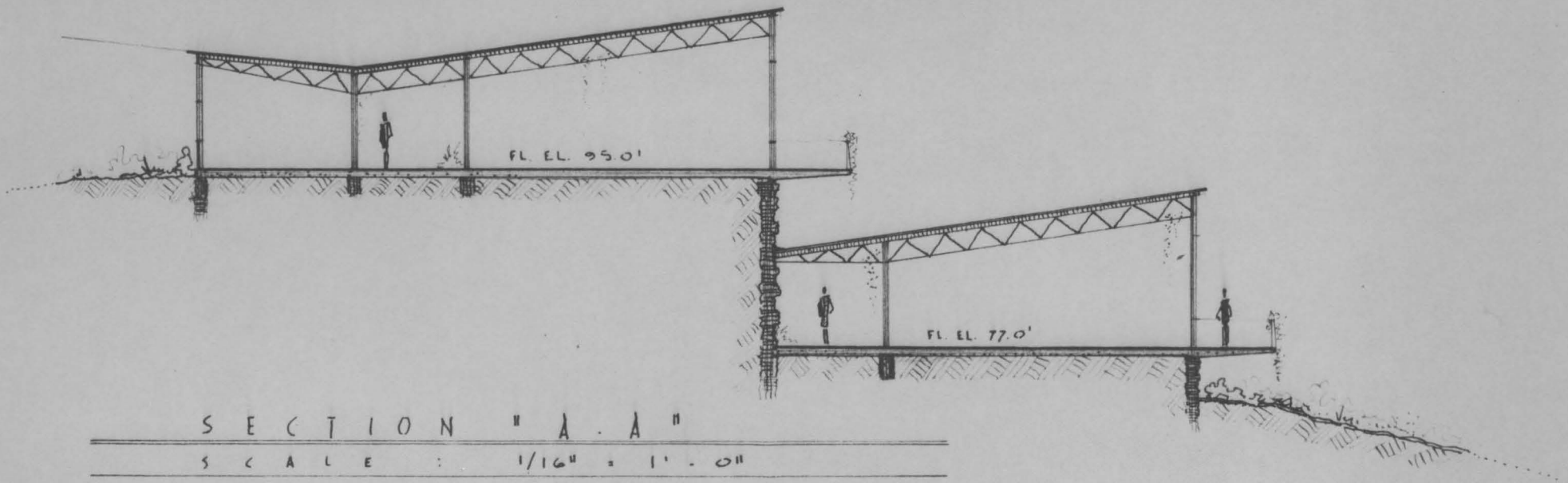
SCALE: 1/32" = 1'-0"



ELEVATION "2-2"

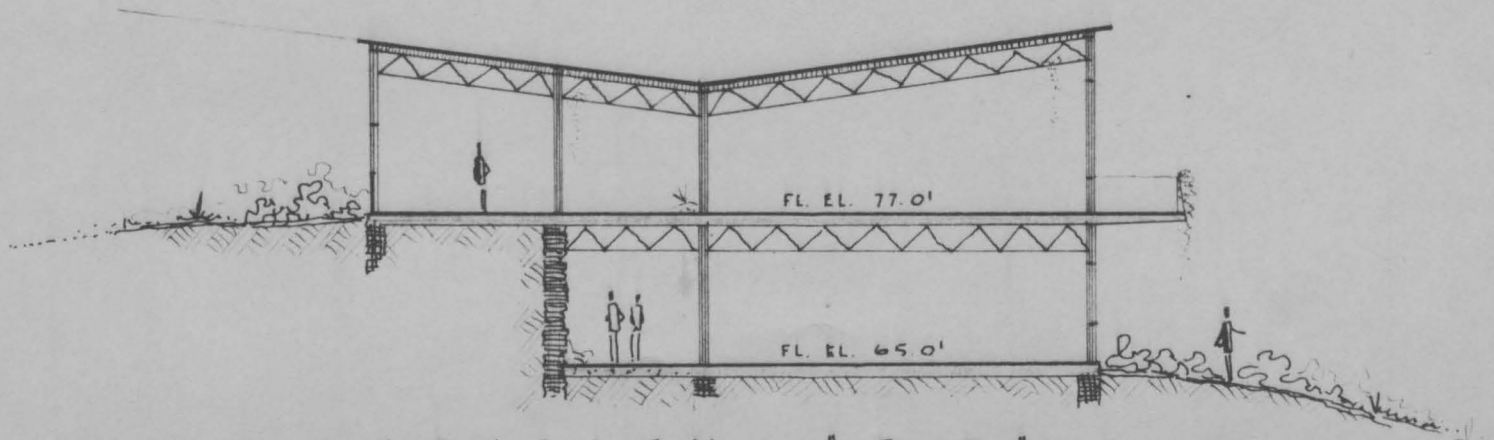
SCALE: 1/32" = 1'-0"

09



SECTION "A.A"

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



SECTION "B.B"

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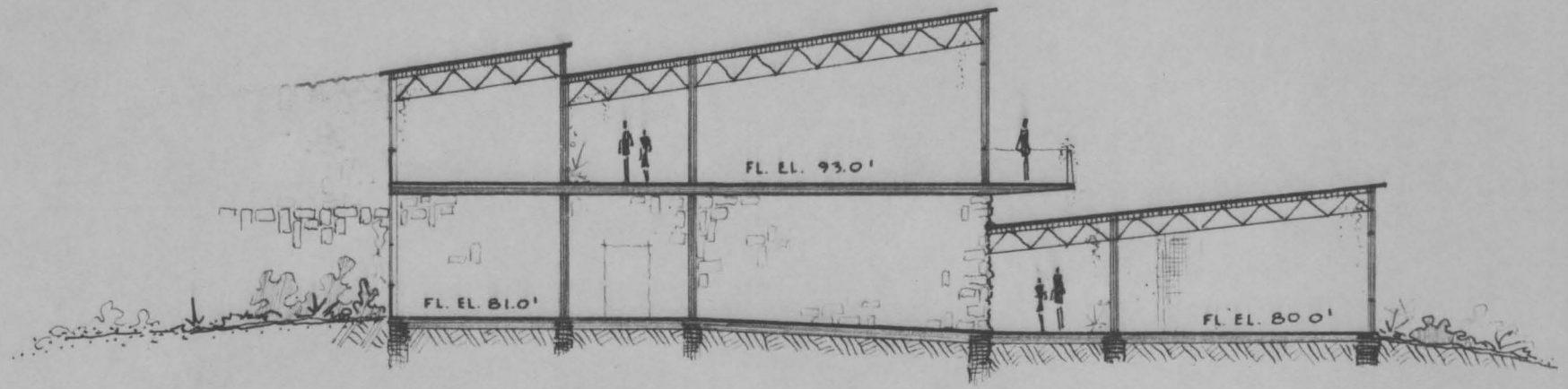

SECTION "C-C"

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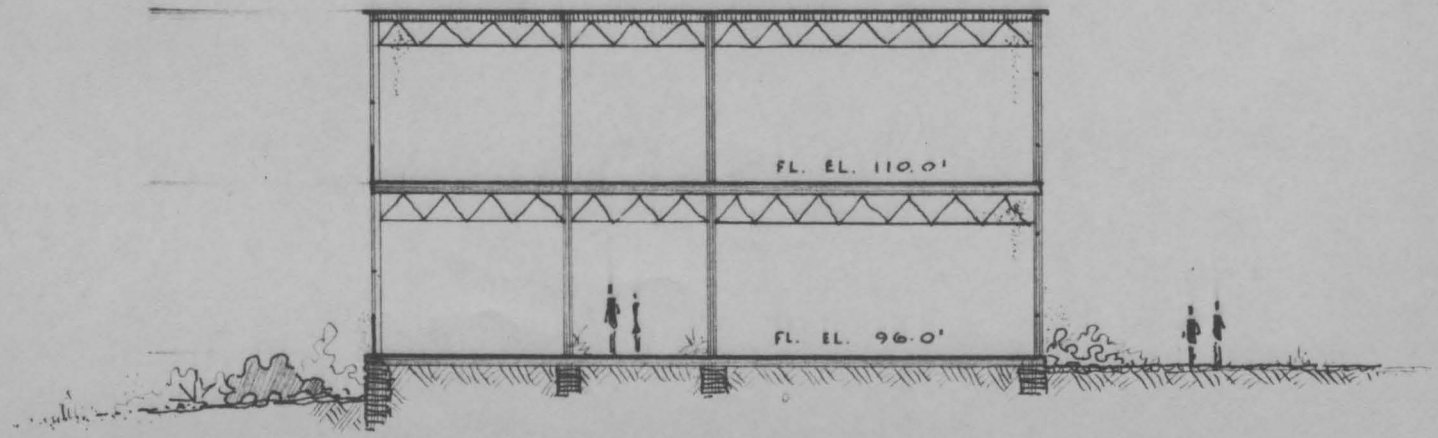

SECTION "D-D"

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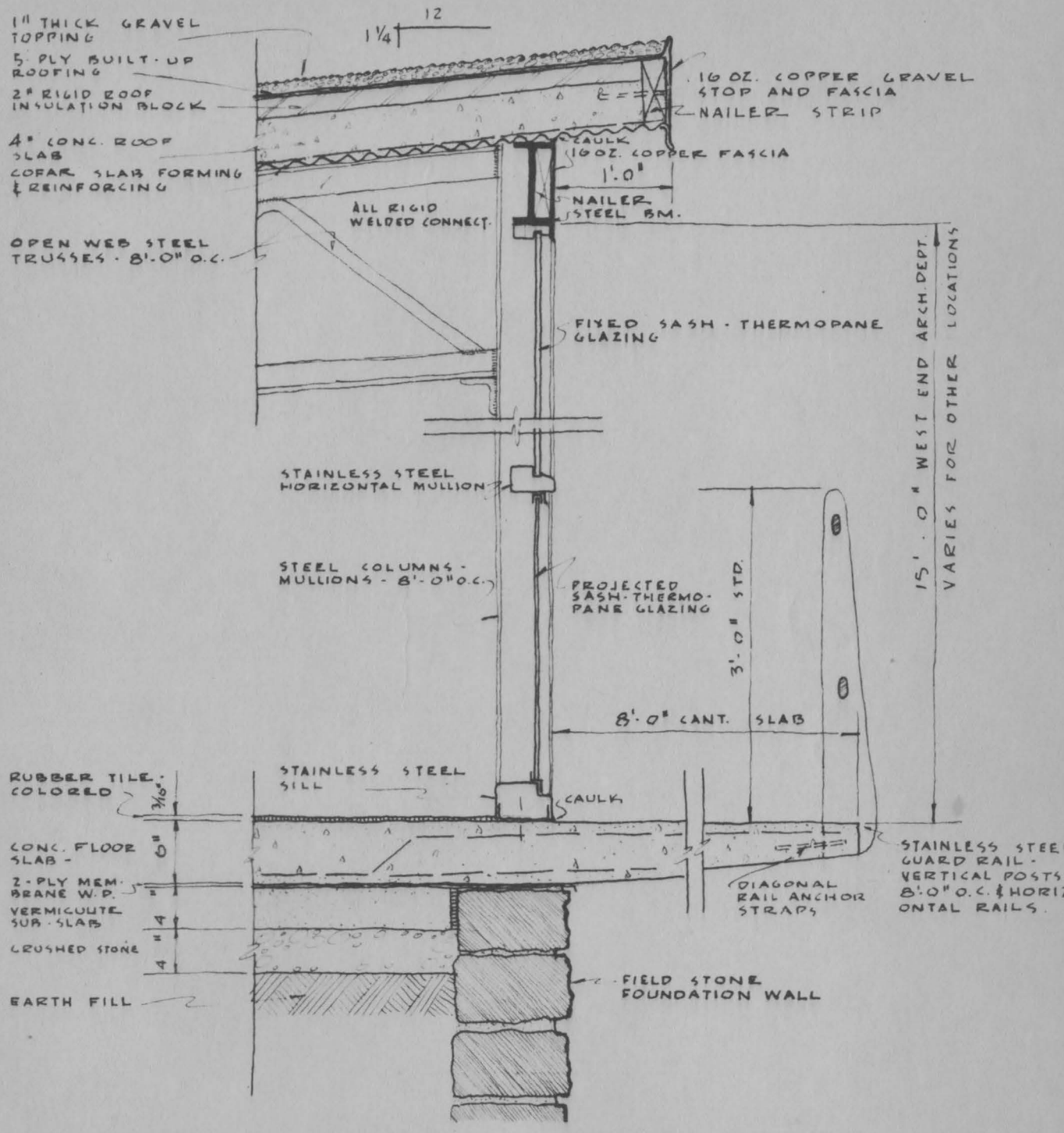
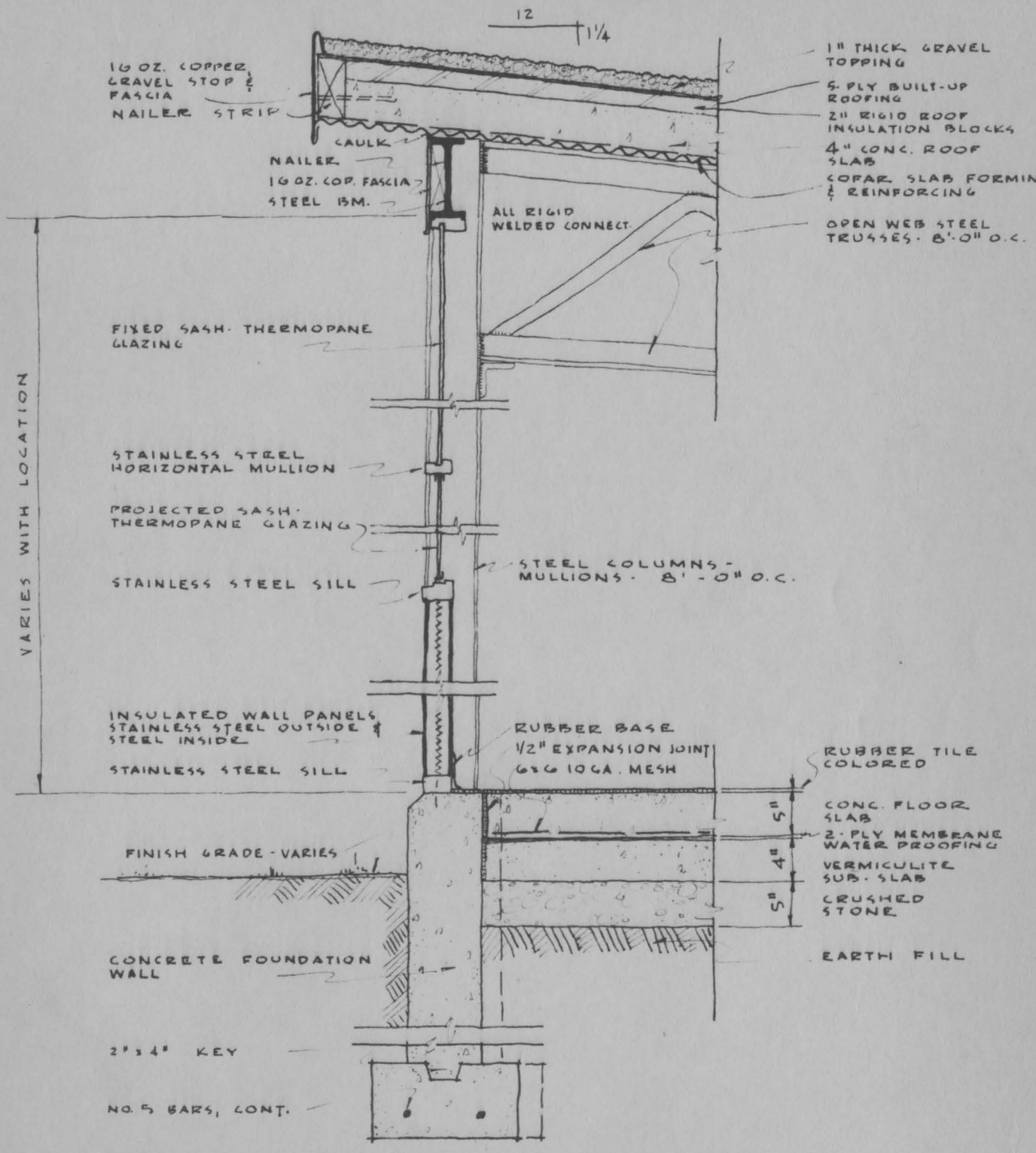


TYPICAL SECTION THRU EXTERIOR DRAFTING RM. WALL

SCALE : 3/4" = 1' - 0"



TYPICAL SECTION THRU EXTERIOR OFFICE WALL

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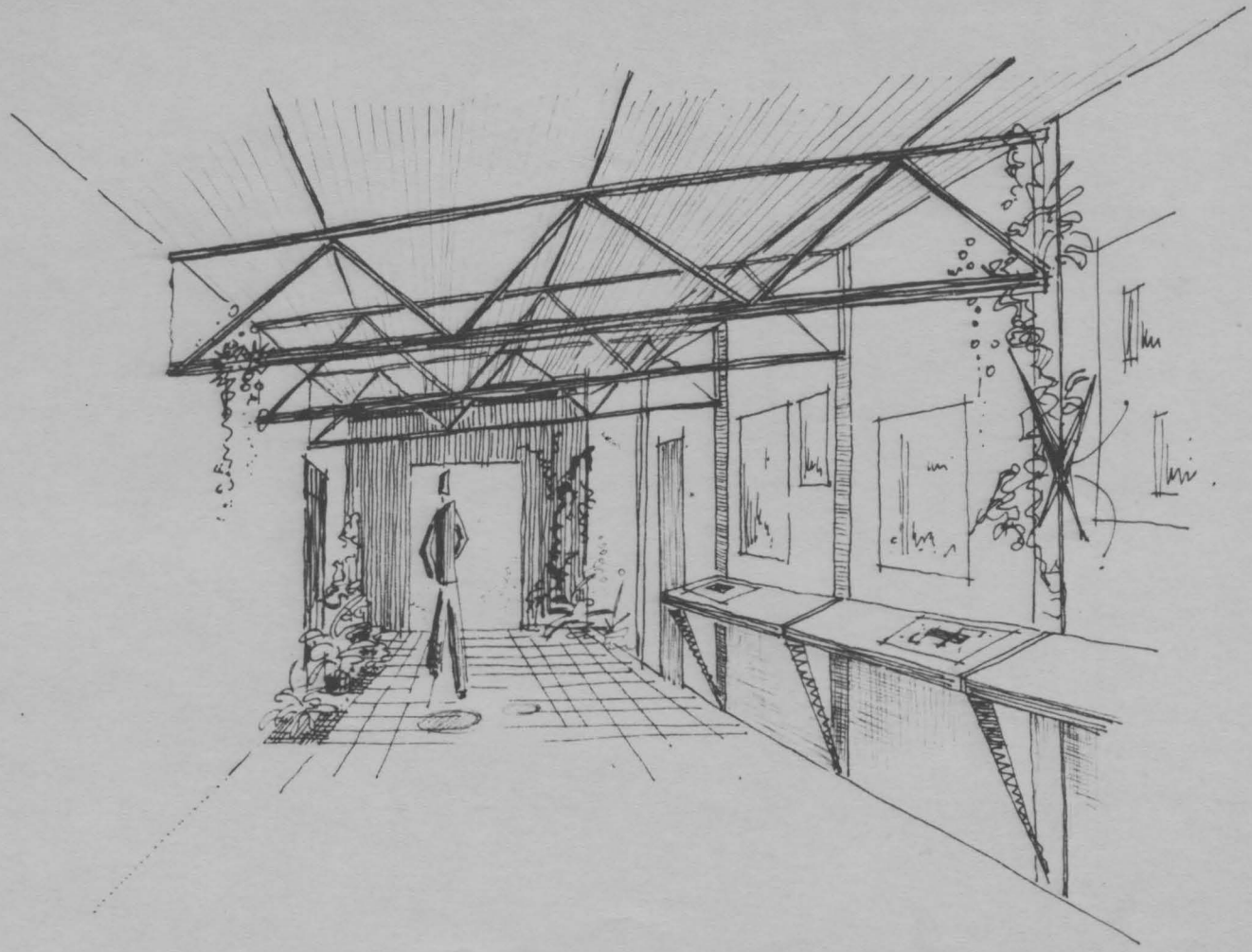
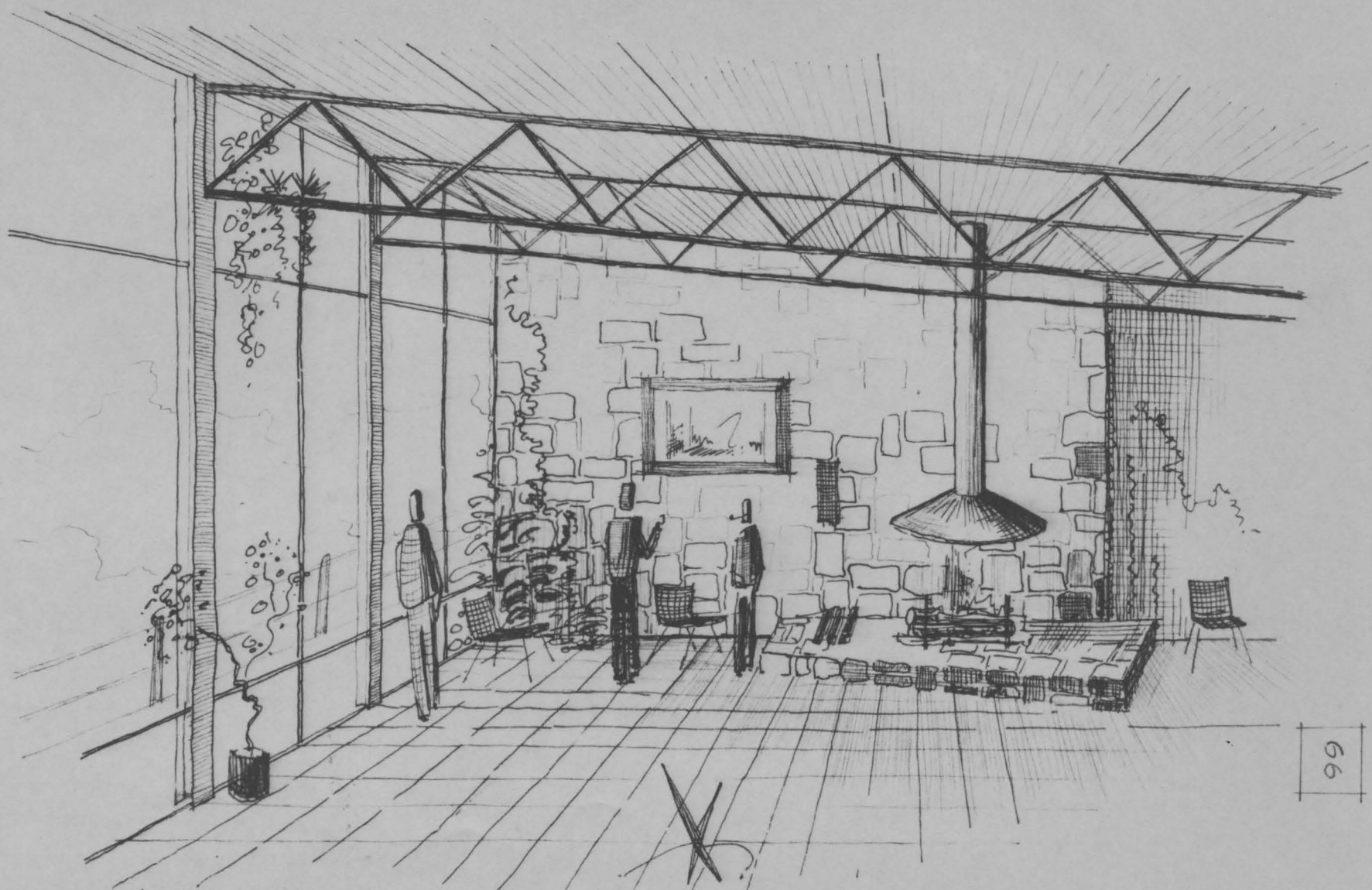


EXHIBITION AREA - HALL - THE ARTS

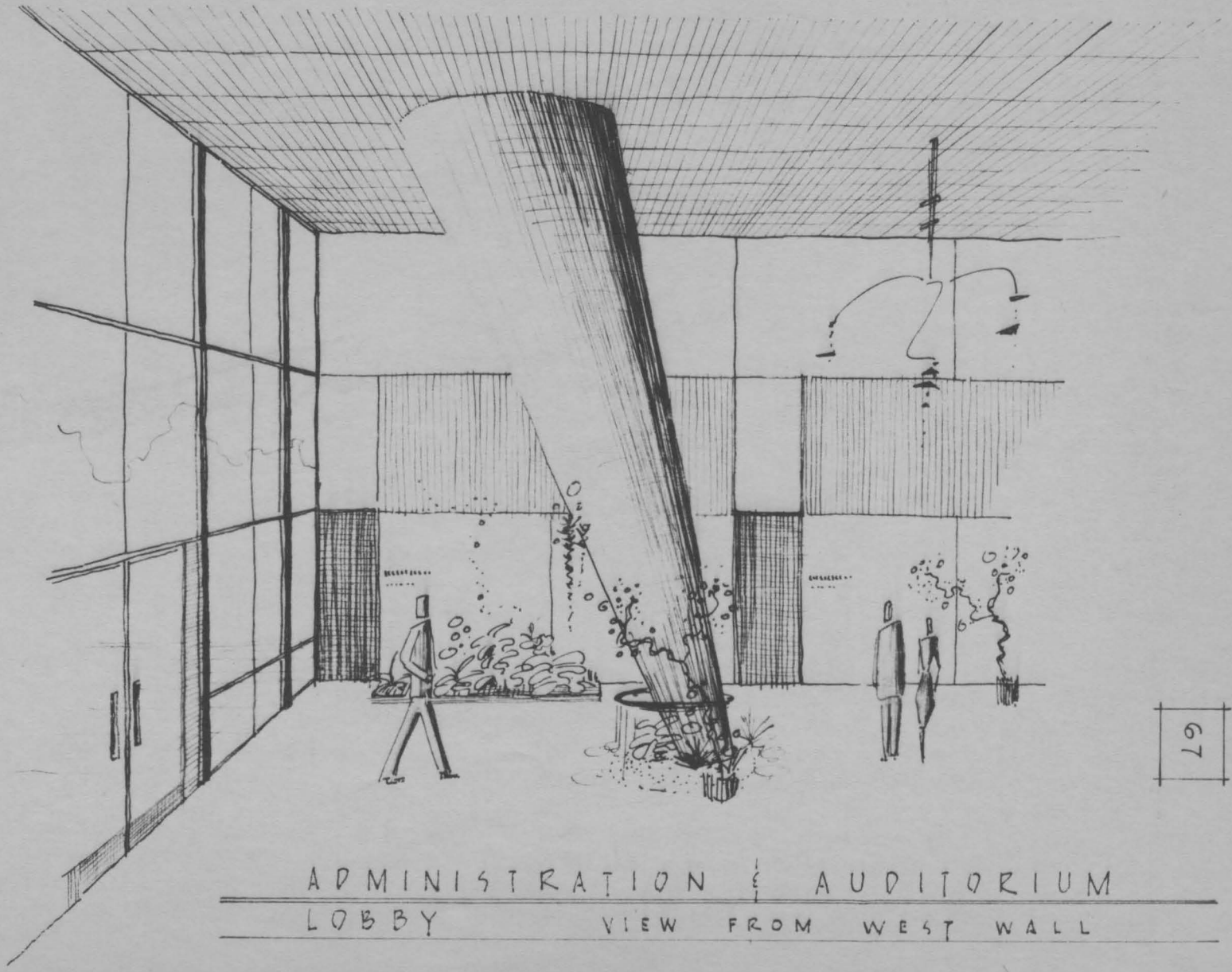
VIEW OF TYPICAL EXHIBITION AREA



66

LOUNGE · THE ARCHITECTURAL DEPT.

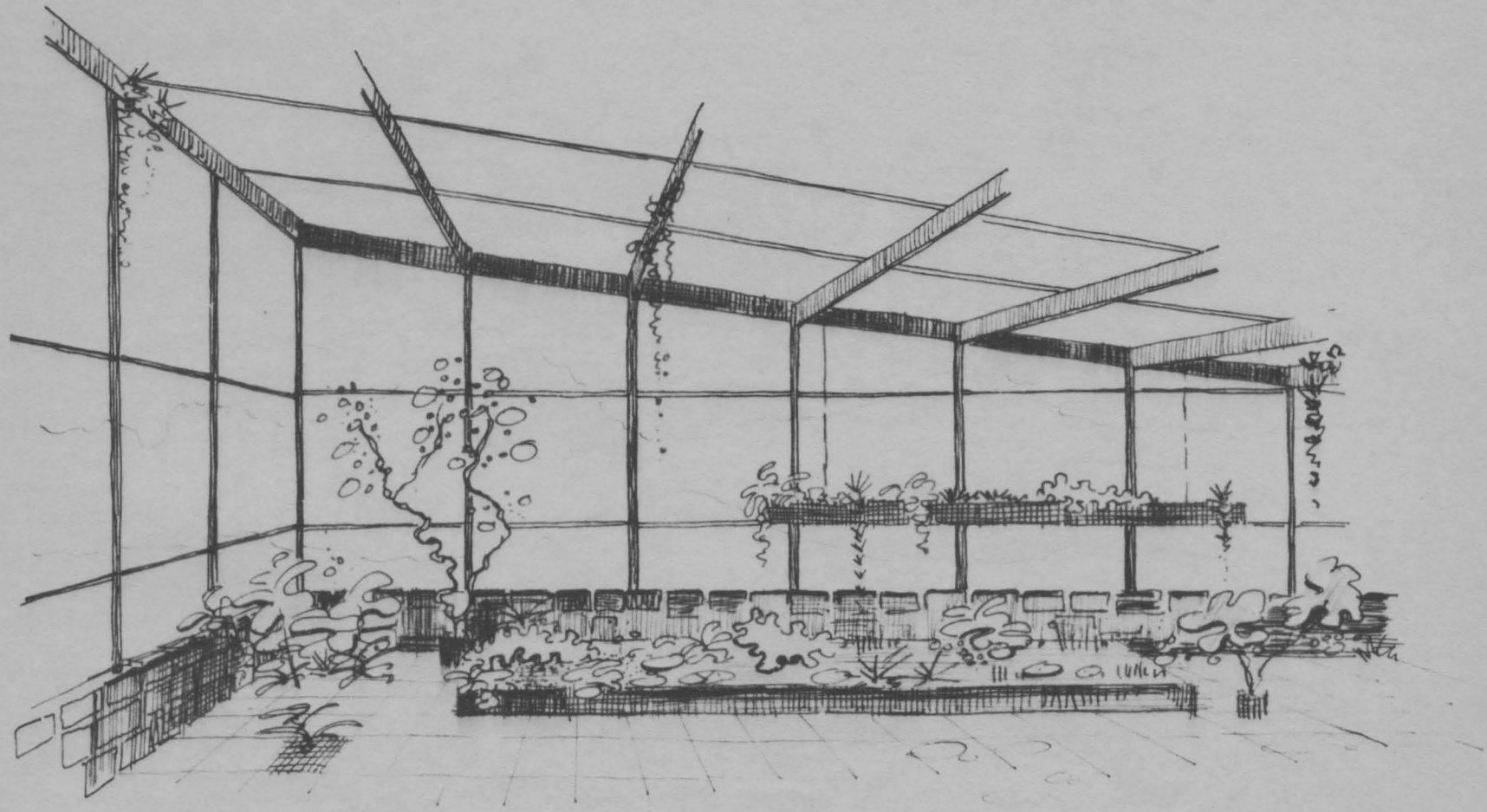
VIEW OF LOUNGE · TYPICAL FOR ALL DEPARTMENTS



67

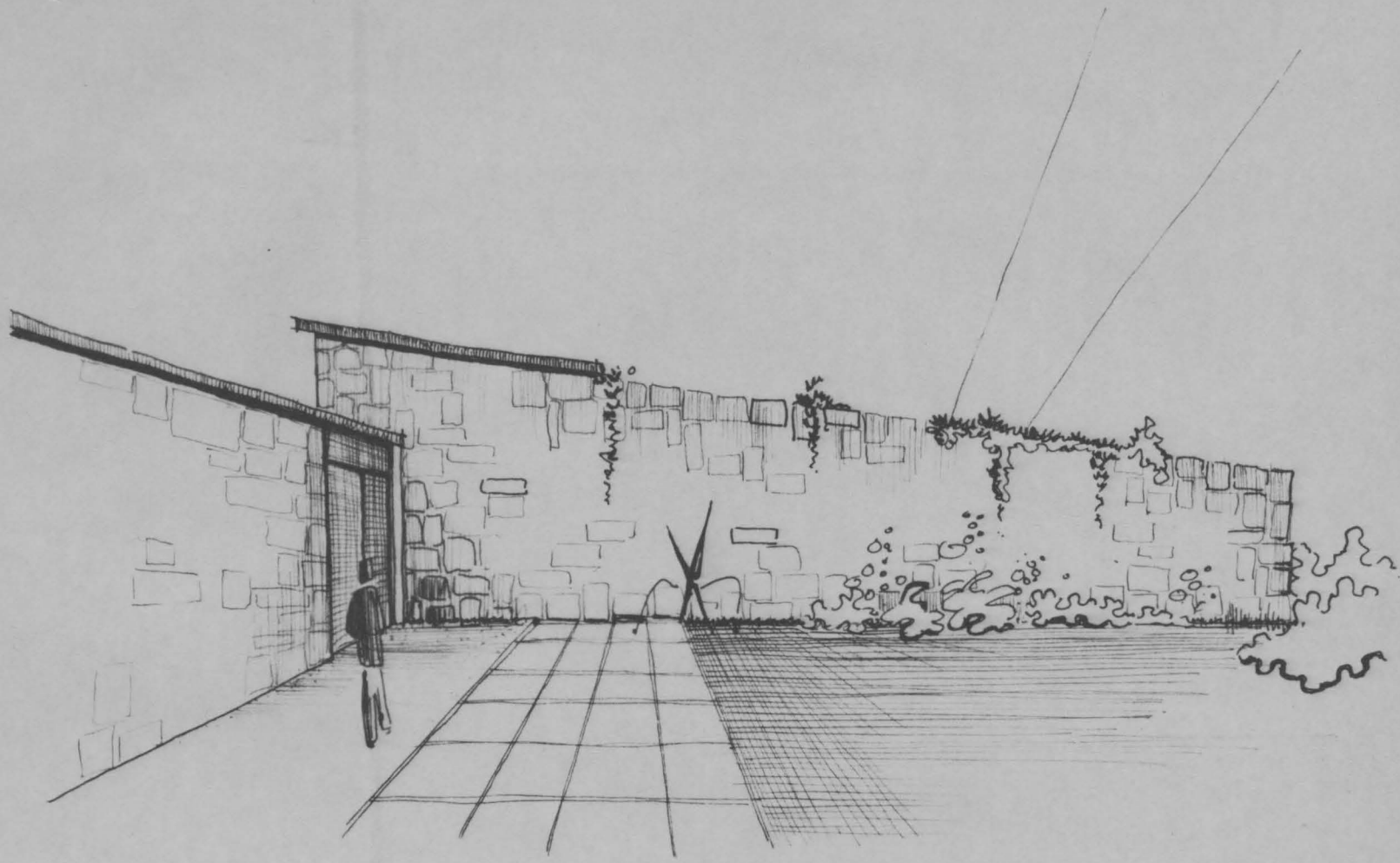
ADMINISTRATION & AUDITORIUM

LOBBY VIEW FROM WEST WALL



GREENHOUSE · LANDSCAPE DEPT.

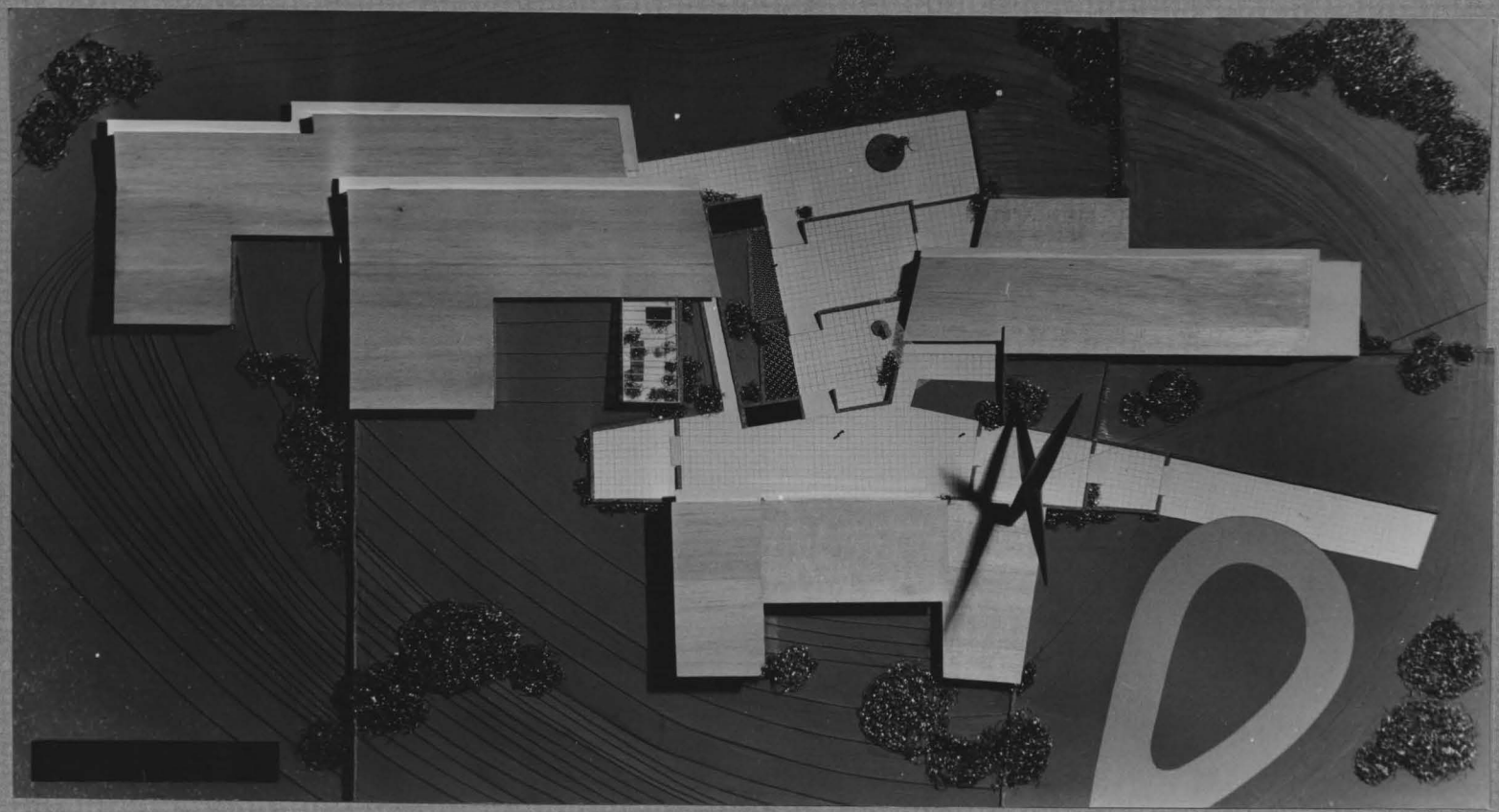
VIEW LOOKING WEST



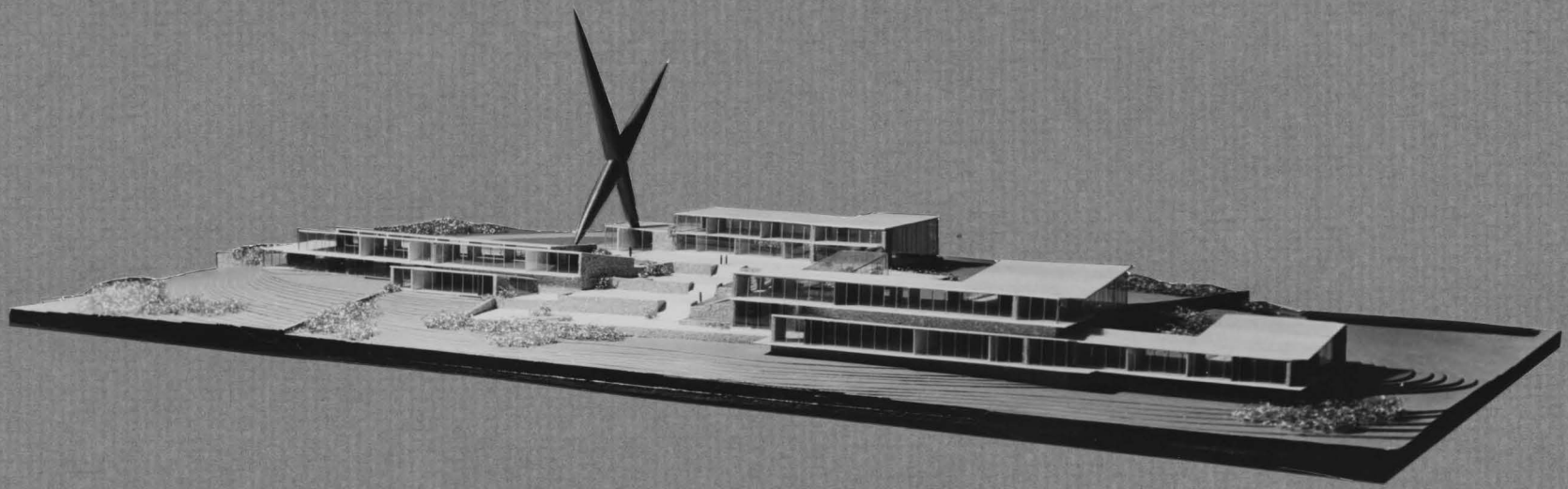
DETAIL - ENTRANCE TO THE ARTS

VIEW FROM WEST

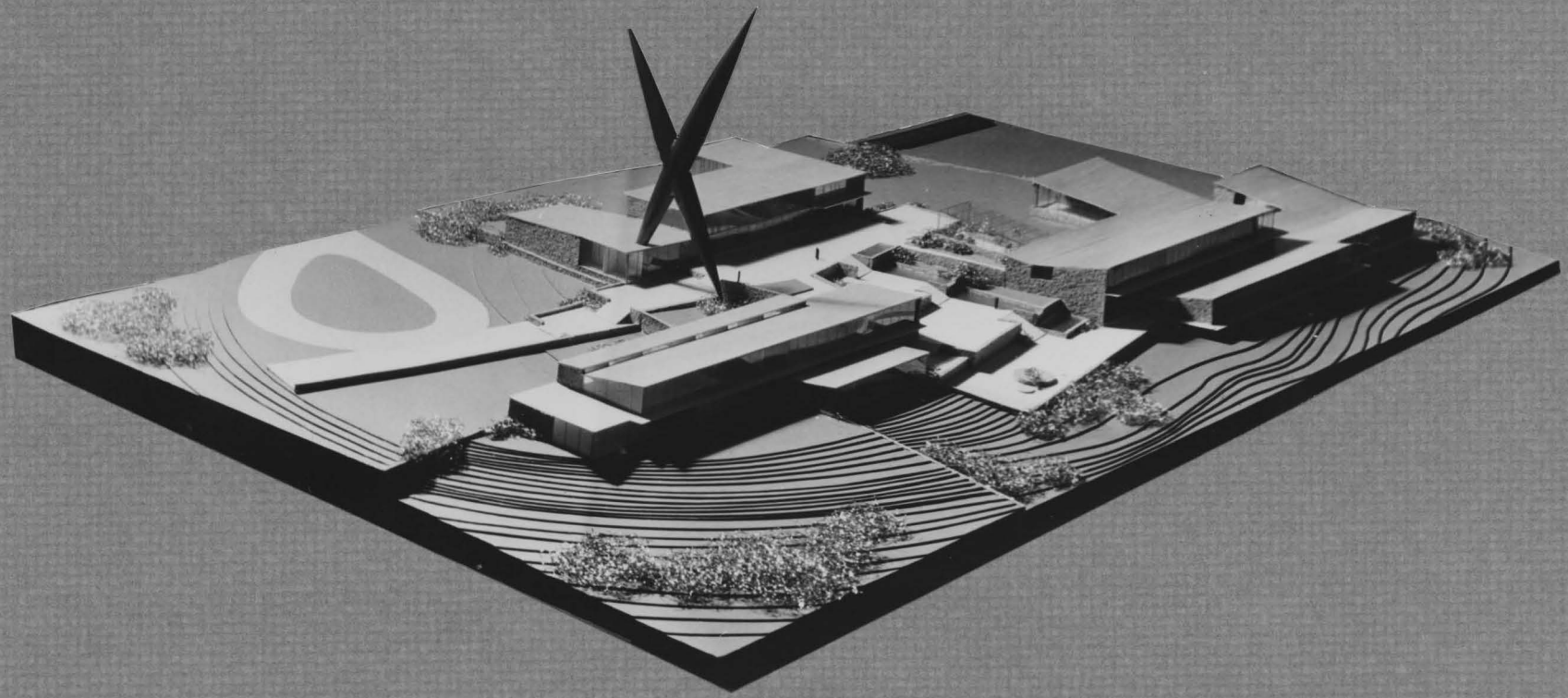
Photographs of the Model



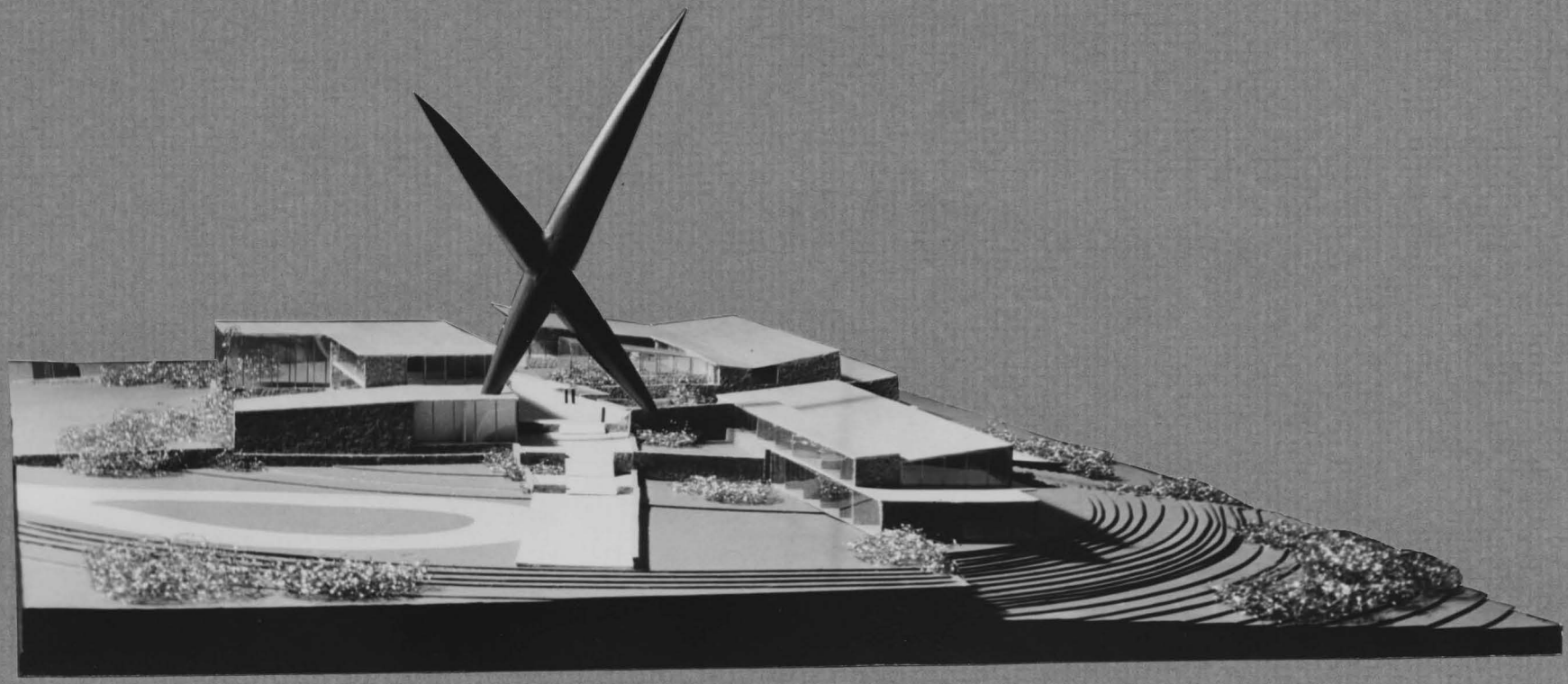
School of Design: Plan view from above



School of Design: View from Northeast

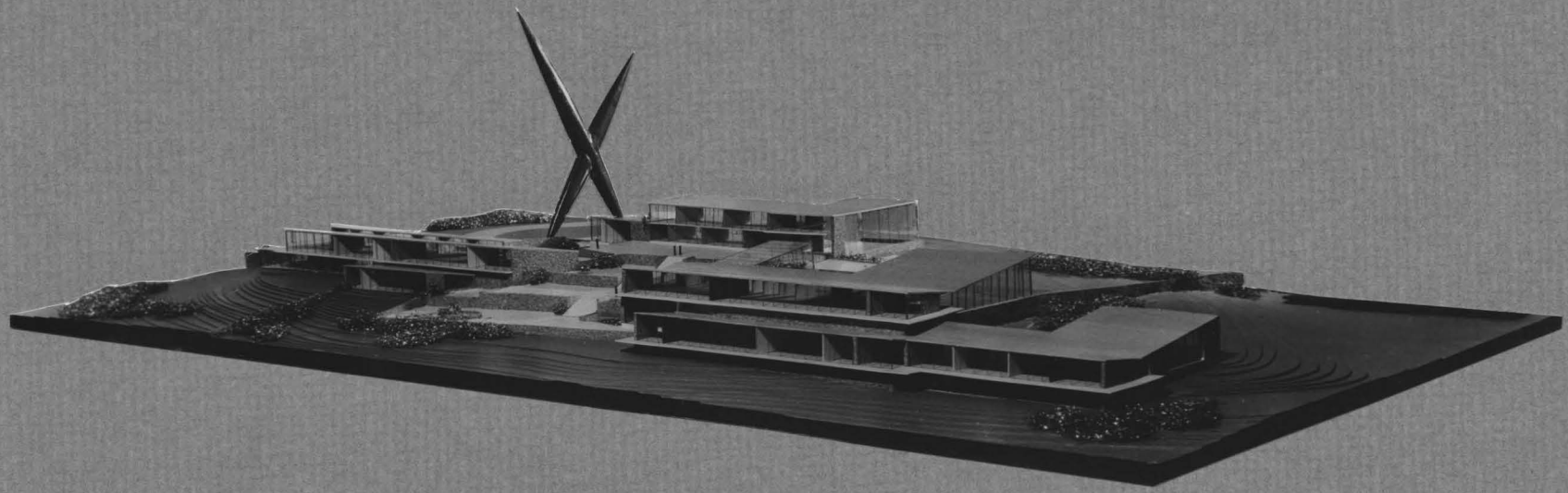


School of Design: View from East



School of Design: Entrance view from Southeast

School of Design: View from South and above.



School of Design: View from Northwest and above

PART FIVE

CONCLUSION

Conclusion

The writer's personal conclusions concerning the entire thesis project are threefold. First, it is felt that the thought, effort, and time exercised in the accomplishment of this thesis have been well spent. The research required to analyze the philosophical standards of many of the contemporary design leaders has made it possible to review and compare complementary as well as opposite noteworthy viewpoints. A more complete understanding of the purpose and obligations of the design has been realized.

Second, the inherent purpose of undertaking a thesis has been satisfied. That is, this work represents the logical culmination of scholastic activities at Virginia Polytechnic Institute, in that the various knowledge and experience gained in undergraduate years has been used in the solution of an extensive problem.

Third, and surely the most important conclusion is that the basic aims of the thesis solution appear to be worthy of future action. To elaborate on the third conclusion, it must be stated that this thesis project was not undertaken from primarily a theoretical standpoint. Also, as the research and planning developed, it became evident that such a school if eventually made a reality could do much to coordinate the art and technology of the Middle Appalachian Region, the Commonwealth of Virginia, and the Virginia Polytechnic Institute.

The School of Design is planned as a series of workshops and supplementary facilities integrated into the total working place for both students and faculty members. The individual and the development of the

individual's creativeness and independence are the factors considered in all design procedures.

To give meaning to the tangible elements of the building group, the spirit of the school must be independent, searching, and progressive. This spirit can be instigated and perpetuated only by the people of the school, the students and faculty.

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