A STUDENT HOUSING SYSTEM FOR CASE INSTITUTE OF TECHNOLOGY, CLEVELAND, OHIO

A thesis submitted in partial fulfillment of the requirements for the degree of Master in Architecture at the Massachusetts Institute of Technology

14 August, 1961

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THE ABSTRACT

Title: A STUDENT HOUSING SYSTEM FOR CASE INSTITUTE OF TECHNOLOGY, CLEVELAND, OHIO

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Submitted to the Department of Architecture on 14 August, 1961 in partial fulfillment of the requirements for the degree of Master in Architecture.

Abstract of Thesis:
Case Institute of Technology by 1977 will need housing and food service facilities for its total resident student enrollment of undergraduate, graduate and fraternity students. Lack of space on campus has made it necessary to place most of these facilities on an attractive new hill site off campus. It is the intention of this thesis to sensitively exploit the unique possibilities of this site, to solve the inherent problems of relationship to campus and to create a complete educational community.

The function of this community is to become a tool in the intellectual, social and moral development of the student. It must be achieved through a living environment organized around all vital internal and extra-academic aspects of life and by providing the student with areas of privacy and social possibilities.

The planning and architectural solution of the site has resulted in a system of hill-top high rise dormitories and foot-of-the-hill low rise residences relating to a focal point of major common space containing a community library. A logical hierarchy of spaces, intimate and public; interior and exterior, has been attempted.

To achieve the educational goal of a housing system, the design through space allocation hopefully will fulfill the individual student's needs for private study as well as his need for social intercourse.

This housing system is felt to be an adequate solution of the educational goals of a university housing program and effective use of the site.

Cambridge, Massachusetts
14 August, 1961

Pietro Belluschi, Dean
School of Architecture and Planning
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Dean Belluschi:

I hereby submit this thesis, entitled "A Student Housing System for Case Institute of Technology, Cleveland, Ohio", in partial fulfillment of the requirements for the degree of Master in Architecture.

Respectfully yours,

John P. Ruffing

TABLE OF CONENTS:

THE DEDICATION

To my wife, Eileen, and my two children,
Gregory and Kristin

ACKNOWLEDGEMENTS:

I wish to express my gratitude to the following people whose interest, encouragement, criticism and assistance have, either directly or indirectly, made presentation of this thesis possible:

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BRIEF STATEMENT OF PROBLEM

Various surveys have been made by and for Case Institute of Technology since 1947 to determine the number of students for whom housing and food services will be needed by the year 1977.[1] The enrollment projections, though gradually increasing between 1947 and 1959, have been reasonably consistent. Thus a more or less firm projection has been made as follows:[2]

a) Undergraduate[3] 1970 enrollment	2000	
Accommodations required for		1500
b) Graduate 1977 enrollment	800	
Accommodations required for		300
TOTAL TO BE ACCOMMODATED		1800

The aim of this thesis is to provide suitable housing and food service facilities for 1800 undergraduate and graduate students in a residential system designed to meet the very complex needs of the institute and the student. What these needs are and what attempts may be made architecturally to satisfy them will be covered separately in a later section. The resolution of this aim involves two major aspects: 1) the planning

of the available site with recommendations as to circulation and its relationship to the academic campus and its surroundings and 2) a more completely articulated architectural and planning solution of one element in the housing system---the graduate and undergraduate facilities---which will indicate the spirit of the space use for all parts of the complex.

UNIVERSAL CHARACTERISTICS OF AN EFFECTIVE COLLEGE HOUSING SYSTEM AND THEIR IMPLICATIONS TO CASE INSTITUTE OF TECHNOLOGY

Case Institute of Technology is didicated to the education of men who, in addition to gaining competence in the skills of their professions, are expected to help form the moral, social and intellectual fibre of the coming generations. The need for excellence has never been greater. In order to fulfill the prospect of the total education of the student and thus to achieve the goals of the institute, we will attempt to define the primary function which a university residential system must perform in order to be an important if not major factor in the educational process. What is the primary function of a university residential system? To achieve as complete an education of the student as possible. This complete education can be facilitated by:

1. providing an environment in which intellectual excellence can be attained by the student. The residence must work as a teaching tool of the institute. The activity necessary to obtain this end is study and the residence is the place of study. The spaces developed in

the residence must develop in the student independence, capability, and must help to establish intellectual interest so the student can continue his education effectively throughout his life. To obtain this there must be space for study alone in addition to the social advantages offered by group activities. Independence must be developed consciously especially in America where conformity is often the norm. The student must be able to thrive alone after his college years.

2. providing the opportunity to excell as a member of society. The student is a human being. His social behavior and growth must be directed to maturity. The student needs satisfying positive ties to school and other people. The residence must be permeated by values which the student absorbs. These social values are much the same as those in the world outside the campus, but they must differ from the values of society at large, too. A college community must develop. It does in fraternities but not so much in dormitory life, especially in engineering schools. "One study shows that even when an engineering curriculum is located on a campus where there is a strong student culture, the engineering students do not participate in it."[4] Individual and group friendship must form for a socially healthy student body.

3. providing adequate living conditions. The

> residential system should provide good housing for the students, satisfactory and convenient. The quality of the surroundings should have simplicity, strength, order, comfort, convenience, and adequate services.

Merely to provide space for sleeping and eating obviously is not the answer. A university has three alternatives. It may provide no housing, poor housing, and it may provide effective housing. Of these alternatives poor housing is obviously the least desirable. If the university due to false economics and lack of wisdom does not build educationally effective dormitories, no housing far better will serve the total education of the student. There are two seemingly opposite necessities in a student's life which demand consideration. One is the need for privacy. A better word might be solitude. It is probably true that all really productive and creative work accomplished by man is done alone as suggested in the philosophy of Thoreau.

A housing scheme must afford the student the opportunity to study or think alone when he wants.

> "Each dormitory needs some special rooms in which some students may study outside their rooms. For dormitories with single and double rooms, probably space to house ten to twenty percent of the residents will be adequate. Variability of need will be related to smoking regulations, hours the library remains open, hours at which sizable numbers want to go to sleep."[5]

The other necessity which must be considered is that of the student to talk. The "bull session" is part of the education of the college student. When both these needs have the opportunity to be satisfied then the <u>individual</u> person and the <u>social</u> person may be respected.

A justified criticism of the typical American dormitory system is that it overprotects the student, isolates and insulates him from the reality of the life he is preparing to enter. In this respect the European university which has no housing is a superior system. The student must not if he is ever to mature, be so controlled by an institution's housing system (or rules) that a major emotional adjustment to life is necessary after the diploma. The dormitory through proper location of control points should reinforce in the student's mind the will to come to grips with life's sobering facts as well as experience its exhilarating aspects. In short, he should be able to grow up to mature as early as possible. The earliest possible development of a capability is a principle of growth as valid for college students as it is for babies. The educational system, of which a college residential system is an important part, has tended in America to postpone for many years (sometimes for good) the time when a person can take an adult grasp on life's problems. A housing system in many ways can allow the student to temper his education as it were with the "salt of life".

It has been stated that a university housing system must be more than buildings in which to sleep and eat while the student pursues studies at the institute. Adequate housing must also satisfy the complex requirements of the social individual. A balanced residential system offers to the architect and planner the challenge of creating a well integrated social <u>community</u> devoted to the achievement of intellectual excellence. The word community is used because of its connotation of social completeness within the framework of the interests of the institute and the student.

The unique character of these interests dictates a unique community with implications related specifically to them but none the less a community in the fuller sense of the word. What is a community? It is an area of common, though not identical, experience around which over a period of time, a body of beliefs, attitudes, and customs develop.

The architect cannot neglect to provide all parts of the educationally oriented community. The final result of such a total planning effort will doubtless fall short of the desired whole due to insurmountable economic limitations. Emphasis, however must be placed upon critical and meaningful elements.such as:

1. Common orientation to the central total educational purpose of the community
2. The inclusion of human beings of all levels of progress along the path to the common goal. This will enrich the experience, broaden the wisdom and judgment of all: give realistic goals to the young, indicate the level of excellence obtainable.
3. Relationship to the world outside, which one may never honestly detach himself from. The cloister community is not the ideal intellectual community.

This community should have generally higher standards. than almost any other community. At the same time no barrier should exist which will insulate it from the peculiarities and realities of human life. Wisdom and good judgment requires an understanding of the efforts, aspirations, idiosyncracies, abilities, social habits, living standards, economic and cultural levels of existence. The design of the educational community

should permit participation in the understanding of life's various faces. To do otherwise is to stifle the promise of the development of the total man.

Obviously a good residential system must satisfactorily resolve other functional relationships as:

1. Relationship to campus master plan
2. Relationship to education and athletic facilities
3. Relationship to public transportation
4. Accessibility by private car and ambulance
5. Satisfactory orientation for sunlight, prevailing winds and outlook
6. Relationship to power plant and
7. Accessibility for five department apparatus
8. Accessibility for maintenance dept. and service vehicles
9. Parking area, roads, walks, landscaping
10. Lighting
11. Relationship to existing and future residence halls
12. The internal functional relationship of the various components of the housing system.[6]

Case Institute of Technology has the opportunity to create this type of complete educational community due to unique and happy physical and environmental assets.

CASE INSTITUTE OF TECHNOLOGY

For a more adequate understanding of the thesis a brief orientation to and history of the institute is desirable.

In the late 19th century Leonard Case Jr., son of a wealthy realtor saw the need of a scientific institute in the "West". His generosity and interest in science gave birth through a large endowment in 1877 to the Case School of Applied Sciences. In 1881 the school opened on Cleveland's Public Square. 1882 saw Case move to its present campus in what is now the University Circle area. Case was the first technological college west of the Allaghenies. Its academic prestige and physical growth since its beginning have given it a national reputation. Having grown from a small school of applied science, it is now one of the leading technological institutes in the United States. Under the leadership of its fourth president, Dr. T. Keith Glennan, the academic and research programs have been extended and great financial gains have been made.[7]

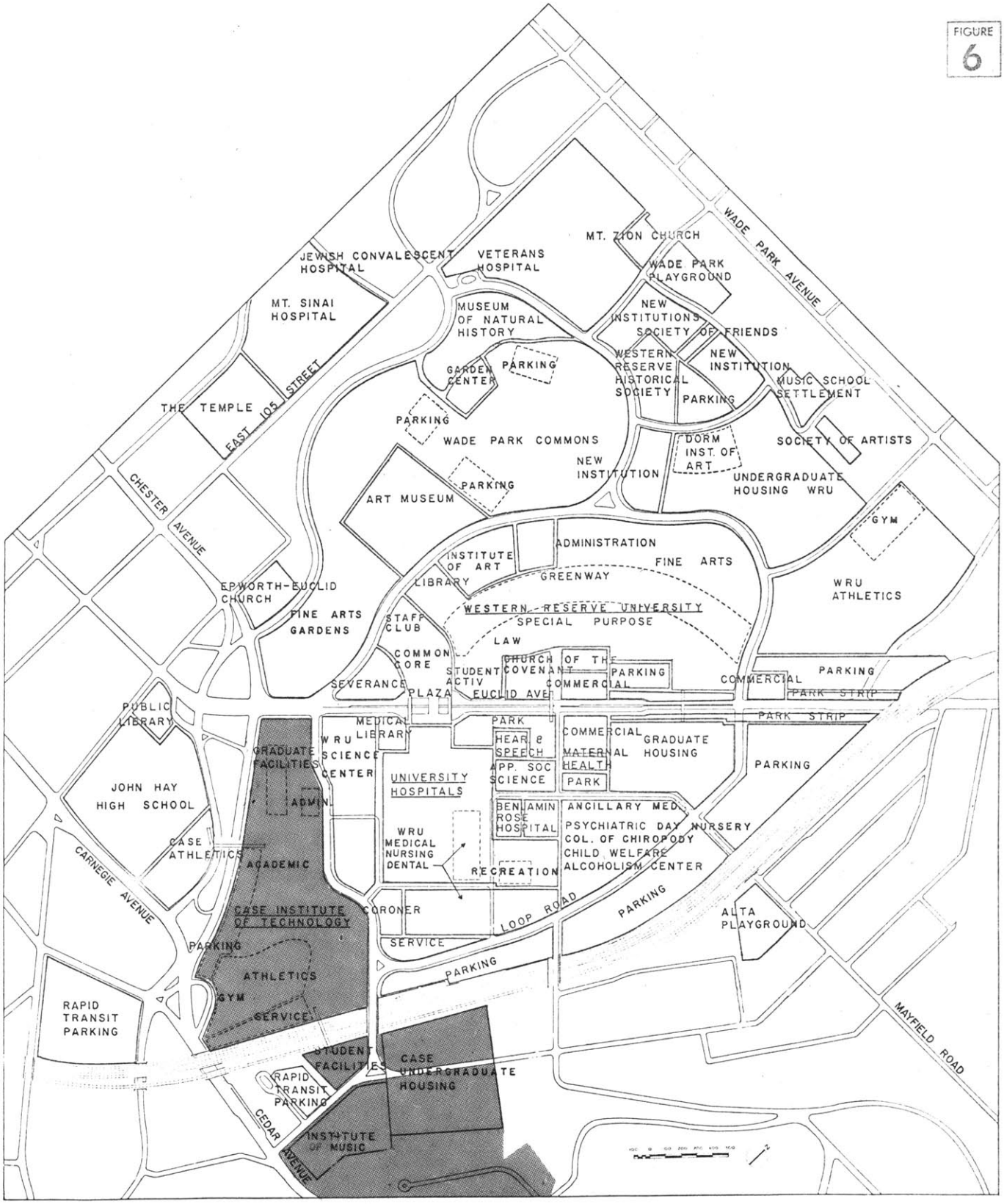
Since World War II Case has undergone some basic

changes indicative of the future direction of its growth. It has changed from a purely undergraduate school catering primarily to local students to a school which is able to atract talent from all parts of the United States and many foreign countries. This is a result the broadening perspective of its programs, such as the introduction of a graduate school, an ambitious humanities program and the increasing stature of its physics and chemistry departments. The institute has doubled its size since 1940, when there were no dormitory facilities whatever. The institute, as a result of growth and administration policy, has shifted from a commuter college to a residential college.[8]

In addition to Case's excellence in its own areas of human endeavor there are additional factors which suggest that the schools long range future is optimistic and will become increasingly effective as a well rounded institution devoted to the fulfillment of the "total man". The most obvious factor is Case's location in the University Circle area of Cleveland. "The University Circle area is the pre-eminent cultural, educational and medical center of metropolitan Cleveland, comprising some 34 important institutions..., with a total staff and student population (1956) of over 18,000 persons."[9]

The educational and cultural values to be gained through the proximity of the institute to this area suggest an obligation on the part of Case to provide its housing program with an architectural solution of distinction and worth which will contribute to the overall enrichment and development of the area. Case has recognized its obligation in this respect by its

FIGURE 6



LAND ALLOCATION

U N I V E R S I T Y C I R C L E

AREA PLANNING PROJECT

CLEVELAND OHIO AUGUST 1957

ADAMS HOWARD & GREELEY
AND ANDERSON BECKWITH
& HAIBLE CONSULTANTS

choice of site which concurs substantially with the recommendation of the University Circle Development Foundation. (see Land Allocation diagram.)

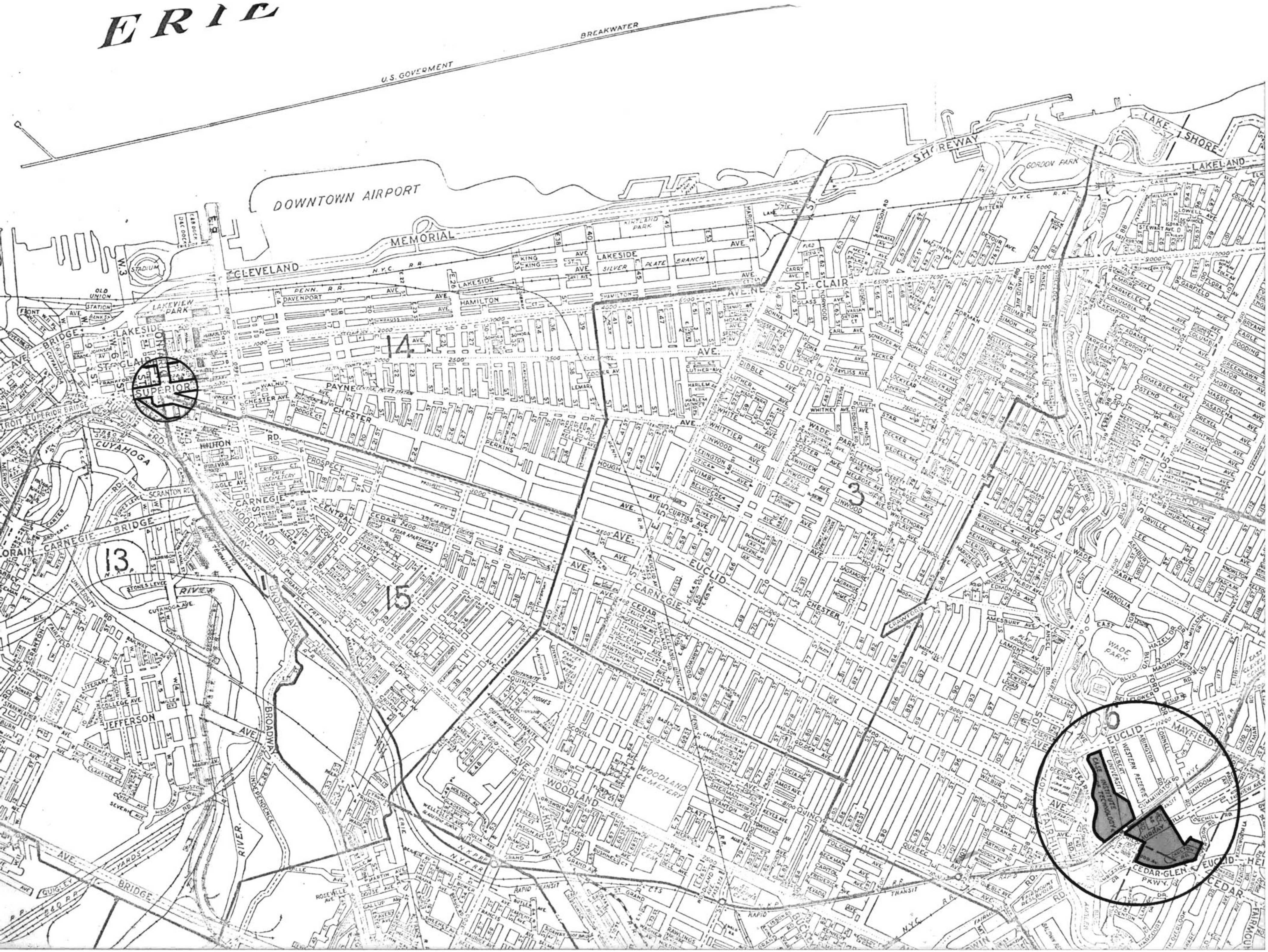
THE EXISTING HOUSING SITUATION AT CASE. In 1959, 377 Case undergraduate and graduate students lived in predominantly sub-standard rooming houses and apartments in the nearby transient areas; 258 students lived in fraternity houses in similar areas or on land earmarked for other developments. Case now provides good accommodations in two dormitories on campus (see Land Allocation diagram). However, according to the May 1960 Student Housing Planning report, with land for future expansion of academic facilities at a premium, these buildings ultimately should be converted to classrooms or some other academic or administrative function. The long range academic growth and future space requirements of the institute point to a new student housing site off the existing campus. While this new site is in keeping with University Circle Development Foundation recommendations, at the same time it presents the problem of proper relationship to the academic campus, a problem which must adequately be solved in the proposal.

DESCRIPTION OF THE HOUSING SITE AT CASE

In addition to the more universal requirements to be fulfilled in any college residential system Case Institute of Technology must further consider the assets and liabilities of its available housing site. The assets need to be exploited and the liabilities eliminated or minimized.

ASSETS On the Cleveland area map may be seen the relationship of the University Circle area to the city. It is situated approximately 4 miles from downtown Cleveland.

Case is located on the low lying land about 3/8 mile from an abrupt rise in the topography which signals to any Clevelander an abrupt change from a rather old and worn, now transient area to what is known as the "Heights". The boundry line between the city of Cleveland and the cities of Cleveland Heights and Shaker Heights lie generally along the edge of this prominent topographical feature. From this quasi-plateau in a generally easterly direction one finds the earmarks of a very stable suburb ever since its beginnings in 19th century, till the present time.


ERIE
U.S. GOVERMENT
BREAKWATER
DOWNTOWN AIRPORT
SHOREWAY
LAKE SHORE
LAKELAND
GORDON PARK
MEMORIAL
CLEVELAND
STADIUM
OLD UNION STATION
LAKEVIEW PARK
LAKESIDE
ST. CLAIR
SUPERIOR
PAYNE
CHESTER
PROSPECT
CARNEGIE
HOUGH
EUCLID
CEDAR
WOODLAND
WOODLAND CEMETERY
KINSMAN
QUINCY
BROADWAY
JEFFERSON
CUYAHOGA
RIVER
DETROIT SUPERIOR BRIDGE
LORAIN CARNEGIE BRIDGE
ROCKEFELLER GARDENS
WADE PARK
MAYFIELD
CASE INSTITUTE OF TECHNOLOGY
WESTERN RESERVE UNIVERSITY
CEDAR GLEN PKWY.
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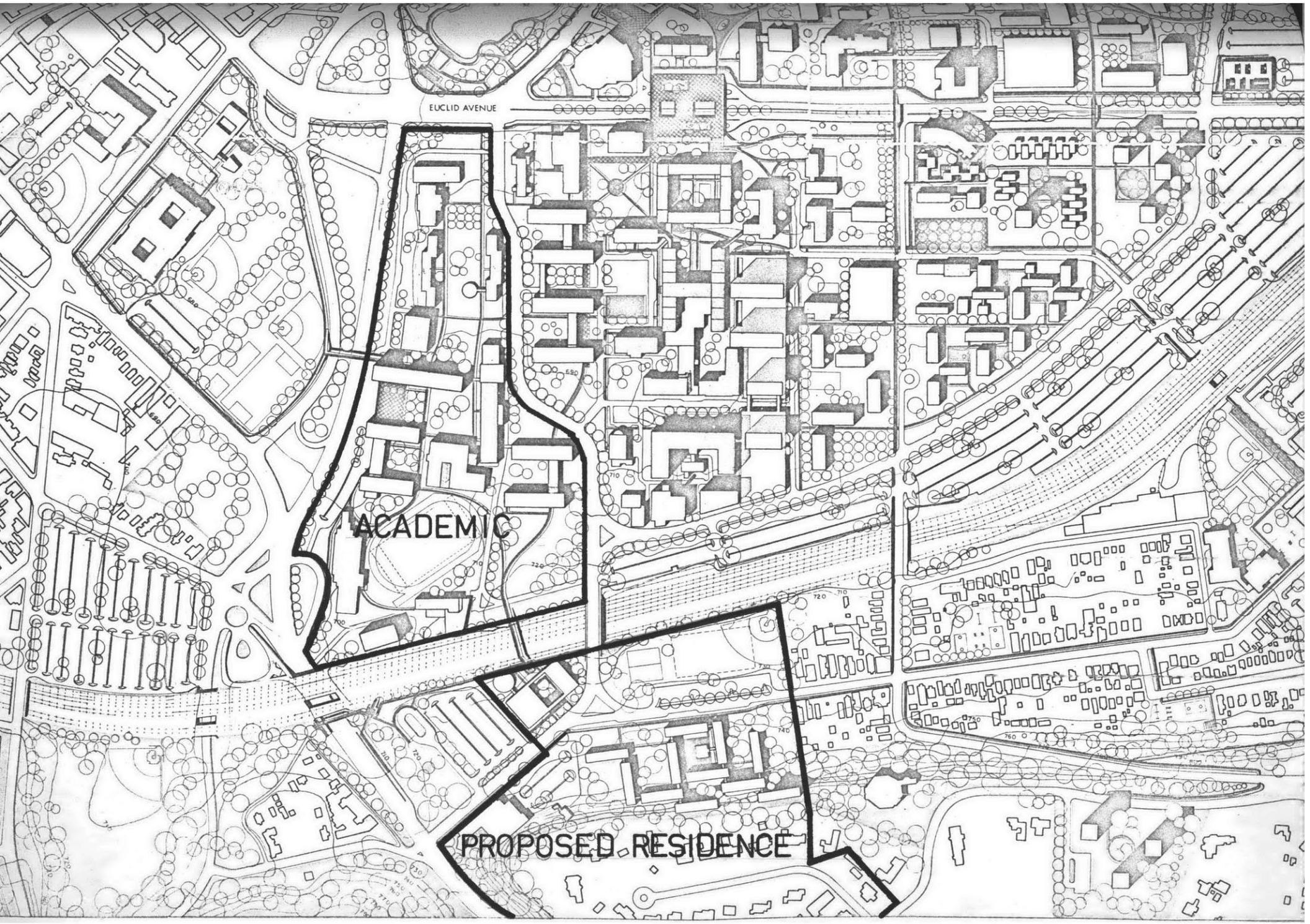

CASE INSTITUTE OF TECHNOLOGY

Here are the homes of conservative quite often well-to-do members of the educated professional leaders of the greater Cleveland area. The homes are well built, landscaped, maintained and of a general appearance that indicates good taste. The average age of these homes is perhaps 40 - 50 years. Prime land at the edge of this hill is now taken up by the typical very large estate-like home often with carriage house and servants' quarters, now too elaborate and expensive for most owners to maintain. The acquisition of these properties in the Carleton Road area by Case is progressing, making availabe for university housing a commanding and attractive site.

Some of the advantages of this 60 - 90 ft. high plateau site are its visual relationship to the academic campus and to the whole University Circle cultural center below; its spectacular (if exploited) views to the west of the Downtown Cleveland's sky-line, to the north the view of Lake Erie two miles distant, and to the south and east of the continued rise of well-treed suburban terrain. At the foot of this hill and about ½ mile distant lies an area of considerable visual and gustatorial interest. This is the densely inhabited ethnically homogeneous Italian community known as "Little Italy" which though densely populated and aging, has embarked with determination on plans to re-study and renew its weaknesses and remain an enriching element both to its residents and to the University Circle area. Also at the foot of the hill is the University-Cedar rapid transit stop which provides ten minute service to downtown Cleveland. It seems unnecessary to elaborate on the advantages of this relationship to

VIEW OF SITE FROM CASE ACADEMIC CAMPUS

a university housing system. Generally applicable is the fact that the line of this plateau now separates an urban ratio of land use below from a suburban ratio above.

The site is attractive in its own natural assets. The 60 - 90 foot rise of the hill is achieved in a run of about 150 feet. The slopes are thickly treed with rising forest becoming less dense and more controlled on both the upper and the lower levels. The slope reveals at various places its underlying composition of horizontally striated layers of native rock. Natural growth, undisturbed, has enriched the beauty of this slope.

LIABILITIES The less advantageous aspects of this site are its rather difficult relationship to the academic campus of Case. The distance generally from the housing site to the academic area is a ½ mile walking distance which in itself is not unreasonable. The beauty and visual qualities of the site will adequately justify this distance as well as the climb of the hill by the student. There are remaining, however, the physical and psychological barriers of Murray Hill Road feeding University Circle area and the three railroads below both of which realistically must be accepted as they are. The planning of the campus-housing relationship must be carefully considered so that the psychological separation between the two areas of the university might be minimized.

There is also a questionable relationship of housing to the main library (a new building). Generally

SITE, BACKGROUND ACADEMIC, FOREGROUND RAILS BETWEEN

speaking this symbolically important focus of the campus should be more closely related to the new housing site. This psychologically can be adequately mollified through slight adjustments in land use on the academic campus and through proper design of the housing complex. The very properly articulated and planned housing system will be the more certain, albeit, subtle, tool which will effect this shift imperceptibly in time.

GENERAL PROGRAM

The program for the Case housing system evolved from the recommendations contained in the Student Housing Planning Report made by Case Institute of Technology on 2 May, 1960. It was kindly made available to the author by Mr. Joseph D. Pigott, Director of Physical Planning of the institute. Following is a brief summary of the program recommendations and considerations contained in this report.

I. ACCOMMODATIONS REQUIRED

Facilities for:	1500	Undergraduate Men Students and
	300	Graduate Men Students (1800 total)
Breakdown:	400	Freshman - Dormitory
	700	Upperclass - Dormitory
	400	Fraternity
	300	Graduate
TOTAL	1800	Men Students to be housed

A. Residence facilities:

1. Dormitories to house two living groups of 100 men total, grouped around dining and common facilities, 14 100 man Dormitory buildings.
2. Fraternities to house in individual buildings 50 men with their own social area and dining rooms. 8 50 man Fraternity houses.

B. Food Service facilities: All students required to eat on campus on a semester board contract.

Type of Service: Breakfast and lunch-cafeteria style.

Evening meal-table service

Three food service units are suggested to prepare food for all students:

a. Dormitory student dining to be in three dining halls around the three central kitchen units.

b. Fraternity student dining in eight dining rooms located in fraternity houses. Food to be prepared in the three central kitchens, placed in steam cabinets and truck-delivered to houses at meal times.

II. SITE FOR NEW CONSTRUCTION. CONSIDERATIONS:

1. Present Campus: 23 acres, 15 buildings (9 since 1947).

2. Future: Additional academic area needed on campus.

3. Following three courses of action must be realized.

a. Acquisition of 6 acres (now owned by Western Reserve University) adjoining the campus on the southeast.

b. Location of all student housing away from the present campus, thus freeing it for academic and administrative use.

c. Location of additional athletic fields away from present campus.

4. Housing Site requirements (based on 225 sq.ft. of floor space per student and 0.60 as much floor space as land, and including parking for ¼ of student residents plus athletic area).

Use	1500 Undergraduates	300 Graduates
Housing	562,500 sq.ft.	112,500 sq.ft.
Recreation	140,000 sq.ft.	
Parking	120,000 sq.ft.	24,000 sq.ft.
TOTALS	822,500 sq.ft.	136,500 sq.ft.
GRAND TOTAL	822,500 + 136,500 = 959,000 sq.ft.	

5. Relationship to campus. It is desirable that the student be able to walk to classes, library, indoor athletic activities, etc...

6. The site selected by the institute is the Murray Hill and Carleton Road area generally situated ½ mile from the main campus, making the bridging of the railroad necessary. The author's conception of the ideal housing system for this site, and his conviction that a superior educational community may result from a more powerfully organized scheme have required deviations from the recommendations suggested. It is hoped that the design will justify the liberties taken.

SITE DEVELOPMENT AND GENERAL CONCEPT OF PROPOSAL

The solution offered here for the housing requirements of Case is not a typical dormitory solution. The design proposed is a result of certain conclusions arrived at through research and study. These are essentially an elaboration and extension of the three primary functions which must be served by a good residential system cited in a previous section of this paper. They are:

1. The desire to create for Case a complete environment dedicated to assisting the institute in educating the total man twenty-four hours a day through a system which multiplies the number and variety of human contacts possible by adding actually and symbolically to the intellectual orientation of this community. The key elements are private study spaces and common social-contact spaces cutting through class lines.
2. Sensitive development of the site. The site available is spectacular and proper respect and appreciation for it calls for an architectural solution which, while retaining the site's existing natural assets, will accentuate its beauty and give to the residents all the

advantages possible. The proposed solution attempts to capitalize on the terrain:(a) by placing smaller buildings (in scale with existing structures in the area) at the foot of the hill;(b) by crowning the already noble site with a logical visual climax, a group of towers. (c) by relating these towers organically to the character of the plateau by a lower servant building and foundations of a visual quality in keeping with the ledge rock composition of the hill.

3. The cost of vertical transportation in the hi-rise dormitories may well be outweighed by the advantages it offers. More space of meaningful size and quality is reserved on the ground. Space in the University Circle area will become increasingly tight in time. The proposal offered by its very design sets aside sufficient space of generous quality which would otherwise be covered feebly with a multitude of three and four story buildings striving to make an organized statement yet lacking an organizing element of any great strength.

The development of the housing complex results in recommendations for the use of the available site in such a manner that the basic program is substantially followed but in a form which requires here an explanation of the concept.

The total housing system is oriented around a central major common space through which all pedestrian circulation passes, hopefully achieving increased

contact between all members of the community. This common space is given greater meaning and symbolically proper emphasis by placing a community library here which might contain all the basic literature of all fields of the institute's departments plus private carrels for study. This small library is felt to be a necessity because it fulfills the ideal of late-hour and off-hour accessibility to books. The major institute library in the academic complex fulfills its function and this small proposed library suppliments the institute library system. It is not uncommon that a dormitory is felt by university administrators to be incomplete without the house library. "A typical Harvard 'House' consists of dormitory facilities for 350 to 450 students, a large dining hall, a library for approximately 12000 volumes..."[10] The placement of a "house library" as the central focus of the educational community is easily justified. In addition to its educational function its use by the residents gives added vitality to the common core.

Related alongside this common space is also proposed an institute guest house,providing adequate accommodations for distinguished visiting professors and lecturers as well rentable suites and rooms for faculty and student visitors. It is proposed also that this building contain the apartments and offices of the dean of men and his staff.

The eight fraternity houses are related also to the common space although somewhat less directly. Due to the desirability of maintaining their traditional privacy, they are set back into the wooded foot of

the hill in sufficient seclusion. The eight fraternity houses are divided into two groups. Four houses are placed around a lower level central kitchen which prepares the food and delivers it along short covered routes to the individual fraternity house dining halls. It is suggested in the Case planning report that each fraternity house dining hall have a dining room for 70 men, thus the kitchen can be placed in the efficient category by serving 280 men. It is a system superior in all respects to the system of trucking food from central kitchens to outlying individual dining halls.

The scale of the buildings at the foot of the hill is relatively small and in keeping with the scale of the surrounding two, three, and four story existing structures. The smaller buildings are "tucked" as it were into the foot of the hill. The contrast of this scale with the tower scale at the top of the hill seems to provide adequate expression to the character of the site.

At the top of the hill are placed the graduate and undergraduate accommodations as well as some accommodations for research assistants and single faculty personell (these last have been added to the program in order to achieve the author's goal of a complete cross-section of all the levels of the education picture). This group (as the fraternity group) maintains its own space hierarchy by being related to its own central space, which in turn is related by view and by major stair connection to the common core.

The non-fraternity accommodations include three

identical groups related to each other and to their common core. Each group contains three structures. One is the undergraduate housing tower of thirteen living floors and a private lounge floor, providing accommodations for 416 students in single and double study-bedrooms. the graduate house has accommodations for 104 graduate students and 27 faculty or research assistants. The other structure is a common dining hall for those living in this group. These three structures enclose a usable roof terrace overlooking the central housing court. The first level of the complex forms a continuous roof line defining the major court space and contains the facilities common to all the residents in the group. Each of the three groups has a common major entry in this first level to a space from which branch the access routes to the undergraduate tower, the graduate house,the dining hall and the rear terrace. The proposed grouping of members of all levels of academic achievement around spaces of common use will tend to provide the personal contacts so often lacking in the typical segregated dormitory system. The younger student in an environment of close daily contact with more experienced older students will hopefully gain more quickly a sense of mature responsibility.

The important psychological and physical relationship of the housing system to the academic campus of Case is solved by providing a pedestrian bridge of significant scale across the railroads. The connection is articulated by the inclusion of a student facilities building housing the manifold activities of the student body. It may contain a cafteria for commuting students,

offices for staff, lounges for meetings and relaxation, gane rooms, concession space under institute supervision for shops and a restaurant, and check-out space for smaller athletic equipment for use on the new athletic field. The additional athletic space is available by pedestrian underpass beneath Adelbert Road.

Pedestrian Circulation progresses from the academic campus by bridge arriving at the student facilities building from which branches a direct path to the rapid transit stop. Pedestrians proceed across Murray Hill Road and arrive in the major distribution square with its central community library as a focus. Routes feed from this space to fraternities and up the hill on a series of terraces and staircases to the hill-top housing.

Vehicular circulation for residents arriving by automobile is at two points; on the lower level by a one way street to parking under the common core; on the upper level by a two way street feeding surface parking lots. Service vehicles use the same roads until they arrive at their special system. The service system at the foot of the hill is surface and at the plateau level it goes underground where a circular one way tunnel gives access to kitchen and to general delivery areas as well as to underground parking for staff and residents. All vehicular access to the hill-top complex is on one side only preserving the remainder of the hill top in a state of natural usable lawn area, which is also flat enough to permit access to fire equipment should the occasion arise.

THE PROGRAM FOR THE UNDERGRADUATE AND GRADUATE HOUSING COMPLEX

Total accommodations:	for 1248	Undergraduate Students
	for 312	Graduate Students
	for 27	Staff & research scholars
Total to be housed	1587	

A. UNDERGRADUATE ACCOMMODATIONS. These students are to be housed in three towers, each having 13 living floors. Each floor has study-sleeping rooms for 32 students. It is felt that this size group is large enough to form a strong floor organization and small enough so that the relative importance of the individual is increased and "his voice is a larger part of the whole". In addition to the necessary facilities each floor contains a study-meeting lounge part of which is devoted to private study carrels.

Description	No.	Unit Area	Total Area	Remarks
1. Double Rooms	390	180	70,200	To accommodate 2 sofa-beds, 2 chairs (comb. study lounge), 2 clothing storage units w/drawers, mirror etc...book shelving, tack strip, outlets, desk lamps etc...
2. Double Rooms	156	216	33,600	Same accommodations as above.
3. Single Rooms	156	120	18,700	Same accommodations as above.
4. Bath Facilities		325	17,400	Common toilet-shower area @ 14 sq.ft./student (on floor.)
5. Study-Lounge	39	360	14,000	One part of this room to contain private study carrels; other part to serve as floor meeting and lounge.
6. Common use floor	3	2472	7,400	On second level of tower containing house lounge, game room with kitchenette, music listening room, library type study area.
7. Seminar room	3	240	720	Room where tutoring or special preparatory classes may be held, as well as seminars.
8. Storage room	3	410	930	On first level, readily accessible storage area. (Remaining storage in basement.
9. Public toilets	3	128	380	Men & women in private undergraduate area.
			163,430	TOTAL

B. GRADUATE, STAFF AND RESEARCH ASSISTANT ACCOMODATIONS

These student scholars are to be housed in three "graduate houses". Special attention has been given to house here scholars from many disciples and orientations. Invaluable stimulus would be given to the community by the intellectual interchange provided by capable executives from many industries, predoctoral students and some of the teaching staff of the institute. Mature and scholarly men will live here suggesting that their quarters be of a more comfortable and dignified character.

Description	No.	Unit Area	Total Area	Remarks
1. Double Rooms	144	180	25900	Same accommodations as undergraduate double rooms.
2. Single Rooms	24	120	2880	Same accommodations as double rooms.
3. Single Rooms	27	216	5800	For various advanced scholars and staff members. Same accommodations as other rooms with added generosity for more complex activities. Private bath provided.
4. Bath facilities	12	168	2100	On floors. Common room. 2 per floor.
5. Study-lib-seminar			4100	Distributed on all floors for typing, private study (carrels) seminar and meeting rooms.
6. Storage			2150	Trunk, excess personal items on all floors.

Description	No.	Unit Area	Total Area	Remarks
7. Major quiet Lounge	3	1250	3750	Skylighted 2nd floor lounge, accessible by major open stairs to 1st and 3rd floors.
8. 1st floor public area	3	1741	5200	Entry to outside terrace, lobby, game room with kitchenette, coat closets and public men's and women's toilets.
			51,880	TOTAL

C. COMMON FACILITIES ON FIRST LEVEL.

1. Kitchen Service & Related areas	3	3750	10250	Each kitchen unit to serve approx. 475 men at two sittings (90% of 529).
2. Dining Hall	3	4000	12000	Dining Hall for 240 men at two sittings for the evening meal (table-served) 16.5 sq.ft./student. Breakfast and lunch cafeteria style. Space may be used for social functions. Accessible to roof terrace.
3. Snack Shop	3	768	2300	Open for off-hour short orders. Related to common entry lounge.
4. Toilets	3	190	570	Related to common entry lounge and to Dining hall (men & women.)
5. Clothes Closet	3	190	570	Related to common entry lounge and to Dining Hall.
6. Game Room	3	330	990	For loud recreation related to common entry lounge.

Description	No.	Unit Area	Total Area	Remarks
7. Desk-Work Area	3	720	2160	Control point & student service. Has work area, records of residents, mail boxes, clothes clos, tel. booths (public). Linen Dispensing window is accessible from this area.
8. Linen Dispensing Room	3	275	550	For all students living in ea. complex. Related to entry lounge and office.
9. Offices	3	240	720	Head and assistant desk clerk related to office work area and to Undergraduate's minor entry.
10. Common Entry	3	380	1140	
11. Common Entry Lounge	3	1296	3800	The main public space with seating. All circulation is distributed from this point.
12. Central linen stor. &disp.rm.	1		1900	
13. Ground maintenance room	1		250	Access to exterior areas in court & areas surrounding court. Space for ground equip.
14. Custodians Office	1		150	Includes shower, locker & toilet room. Related to mechanical, main.& serv. areas.
15. Emp. toilets, lounge & dressing rm.	1		450	
16. Head Resident's Suite	3	500	1500	Ea. of 3 housing groups to have a desirable living unit on the ground level inc. LR, BD, kitchenette, bath, closet.
			39,300	TOTAL

D. OTHER MINOR SERVANT SPACES

plus spaces including duct, elevators, additional basement storage, loading docks, delivery, waste storage etc...

TOTAL 11,000

FINAL TABULATION NOT INCLUDING UNDERGROUND PARKING, AND WEHICLE TUNNELS.

NET AREA	265,000 sq. ft.
36% CIRCULATION	150,000 sq. ft.
TOTAL GROSS AREA	415,000 sq. ft.

$$\frac{415{,}000}{1587} = 260 \text{ sq. ft./student}$$

FOOTNOTES

1. Case Institute of Technology, Student Housing Planning Report, p.1.

2. Ibid., (abstracted from).

3. Dormitory and fraternity students, male only considered.

4. Ryer, Edwin D., Chairman, Report to the Committee on Student Housing, Massachusetts Institute of Technology.

5. Stoke, Stuart M., etal., Student Reactions to Study Facilities, p. 40.

6. Riker, Harold C., Planning Functional College Housing, p. 225.

7. Case Institute of Technology, Undergraduate and Graduate Catalogue, 1960/62, pp. 17-18.

8. Adams, Howard & Greeley, et al., University Circle, a plan for its development, pp. 24-26.

9. Ibid., p.1 "the list of institutions includes such major organizations as Western Reserve University; Case Institute of Technology; the University Hospitals; the Cleveland Museum of Art; the Musical Arts Association, the Cleveland Museum of Natural History, the Western Reserve Historical Society, the Cleveland Institute of Art, Benjamin Rose Hospital, the Academy of Medicine, Mount Sinai Hospital, and many others..."

10. "The Eighth House", Progressive Architecture, Sept., 1960, p. 138.

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1. Adams, Howard & Greeley and Anderson, Beckwith & Haible, Consultants, University Circle, a plan for its development, Cambridge, Mass, 1957.

2. American Institute of Architects, College Housing, Washington Institute, 1956.

3. Architectural Record, Apartments and Dormitories, New York, F. W. Dodge Corp., c1958.

4. Case Institute of Technology, Student Housing Planning Report, Cleveland, Ohio, 1960.

5. Case Institute of Technology, Undergraduate and Graduate Catalogue, 1960/62, Cleveland, Ohio, 1960.

6. M.I.T. Student Housing, Committee on, Report of the Committee on Student Housing..., Cambridge, Mass., 1956.

7. Riker, Harold C., Planning Functional College Housing, New York, Teachers College, Columbia University, 1956.

8. Ryer, edwin D., Chairman, Report to the Committee on Student Housing, Massachusetts Institute of Technology, Cambridge, Mass, 1956

9. Stoke, Stuart M., et al., Student Reactions to Study Facilities,(A report to the presidents of Amherst college, Mount Holyhoke college, Smith college, and the University of Mass) Amherst, 1960.

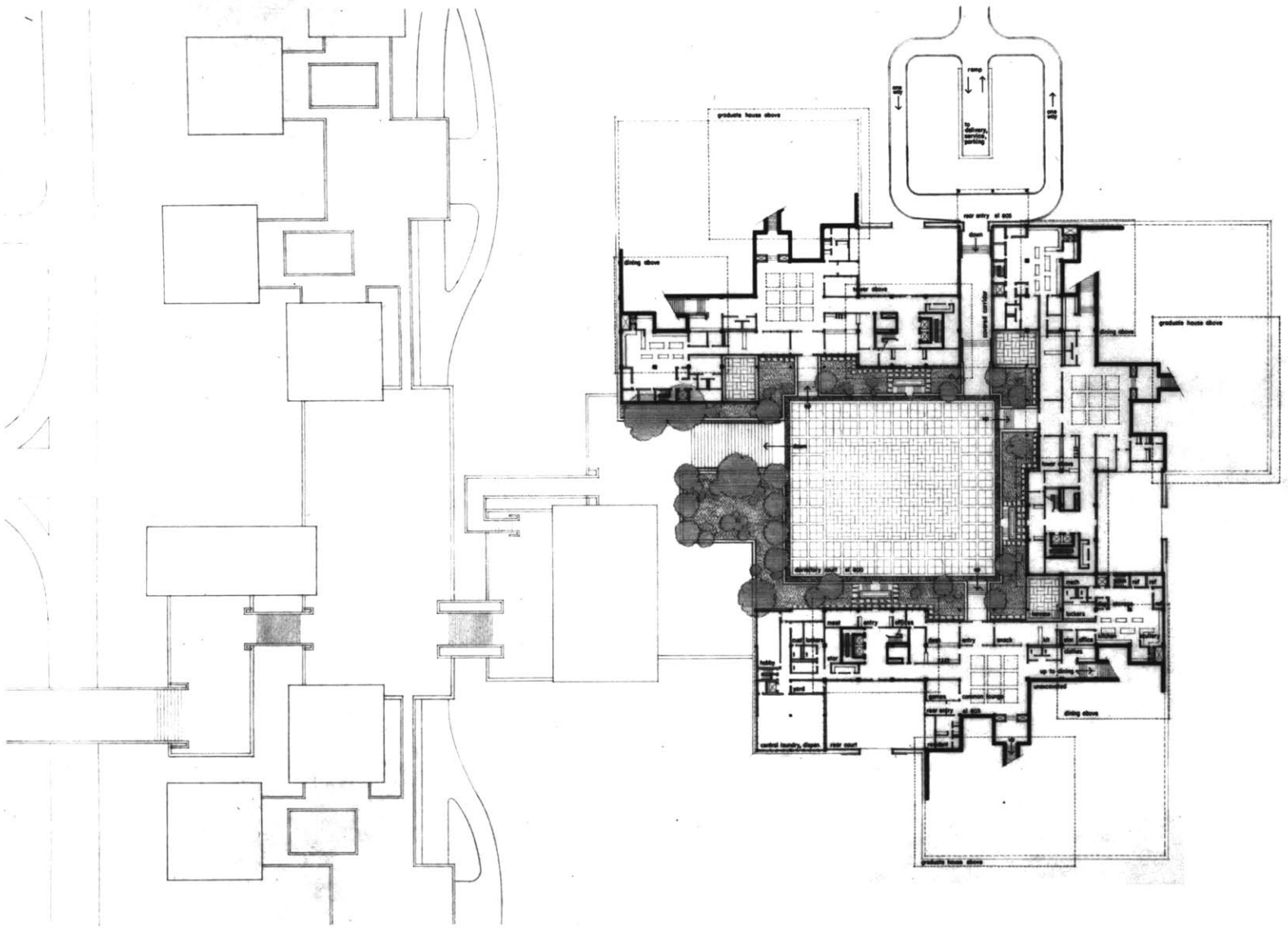
10. Weinstock, Ruth, Space and Dollars, Educational Facilities Laboratories, New York, c1961.

SITE

A STUDENT HOUSING SYSTEM
FOR CASE INSTITUTE OF TECHNOLOGY

JOHN RUFFING AUGUST 1961

0 100 200 300 400



FIRST LEVEL PLAN

A STUDENT HOUSING SYSTEM
FOR CASE INSTITUTE OF TECHNOLOGY

JOHN RUFFING AUGUST 1961

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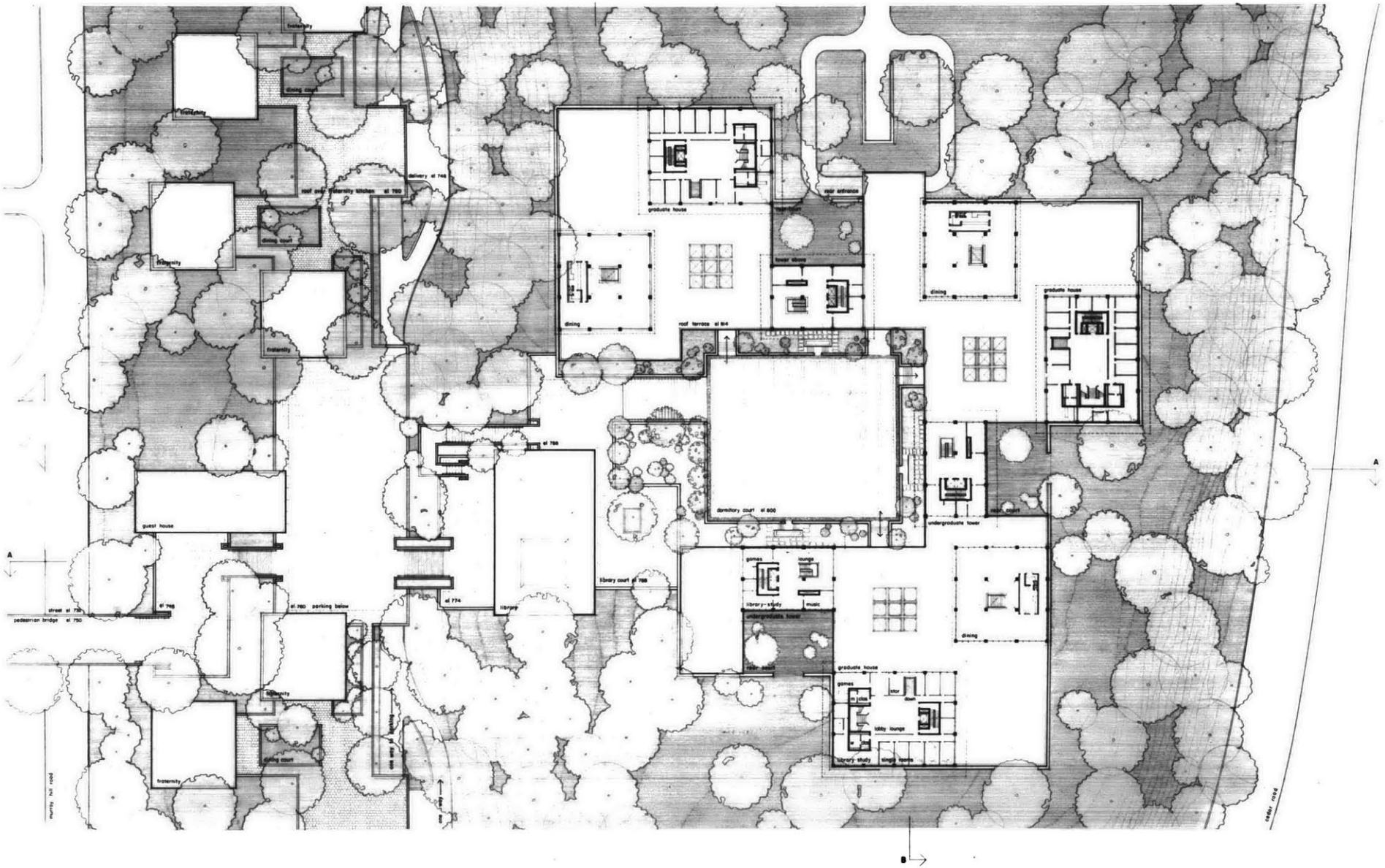

SECOND LEVEL PLAN

A STUDENT HOUSING SYSTEM
FOR CASE INSTITUTE OF TECHNOLOGY

JOHN RUFFING AUGUST 1961

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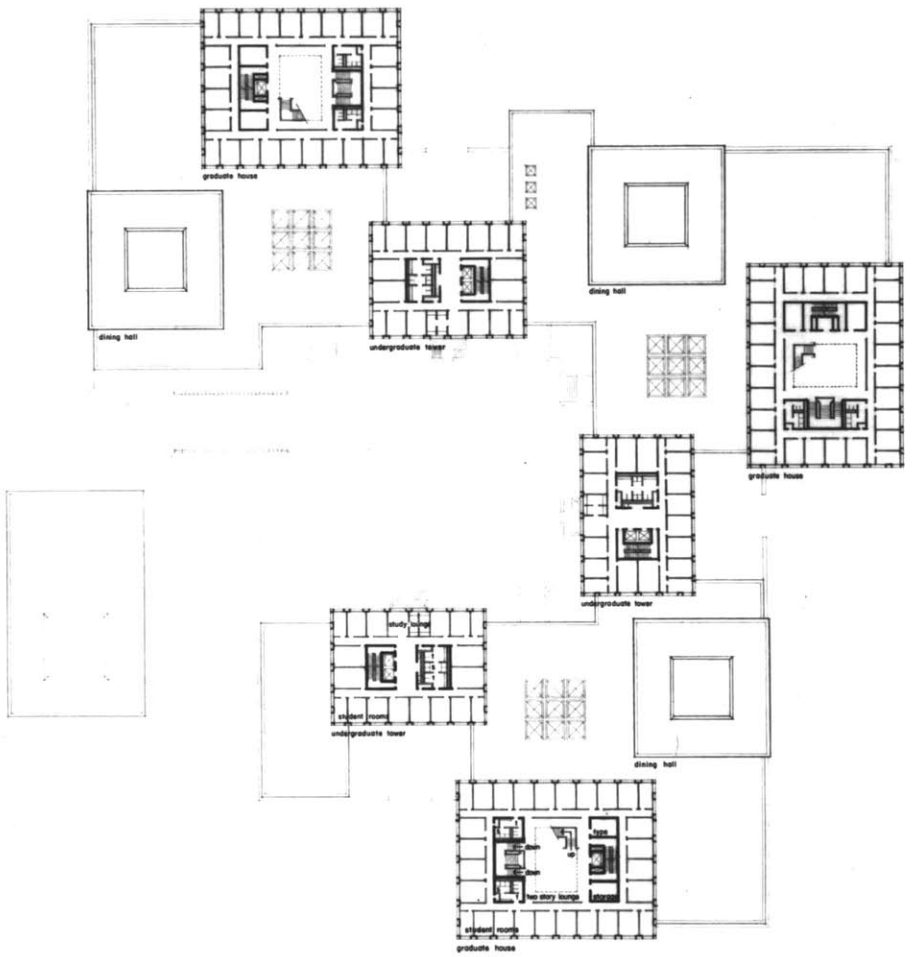

UPPER LEVEL PLANS

A STUDENT HOUSING SYSTEM
FOR CASE INSTITUTE OF TECHNOLOGY

JOHN RUFFING AUGUST 1961

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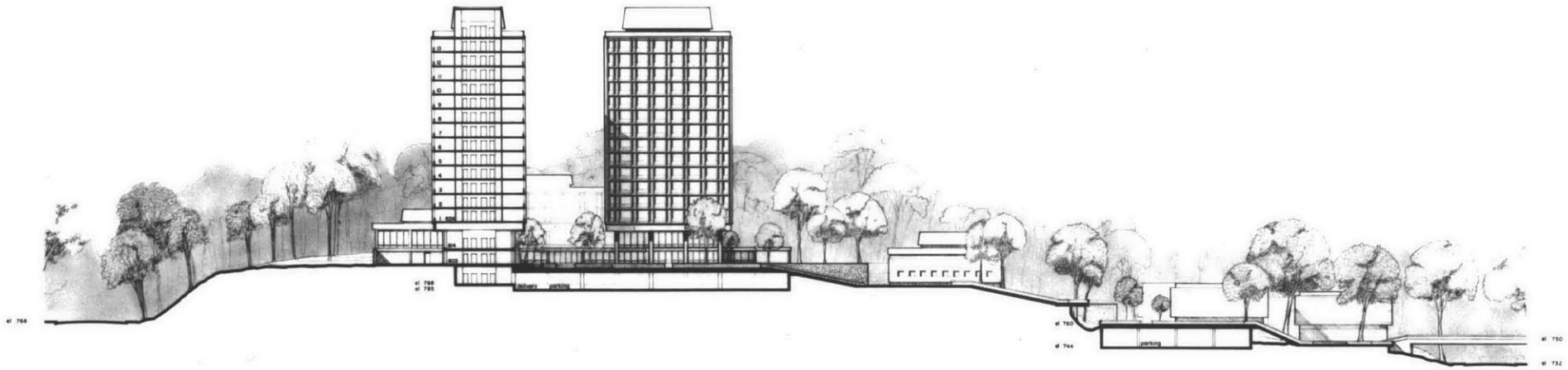

cedar road | section through tower | court | elevation of tower | library | common court | fraternity houses | pedestrian bridge | murray hill road

SECTION A·A

A STUDENT HOUSING SYSTEM
FOR CASE INSTITUTE OF TECHNOLOGY

JOHN RUFFING AUGUST 1961

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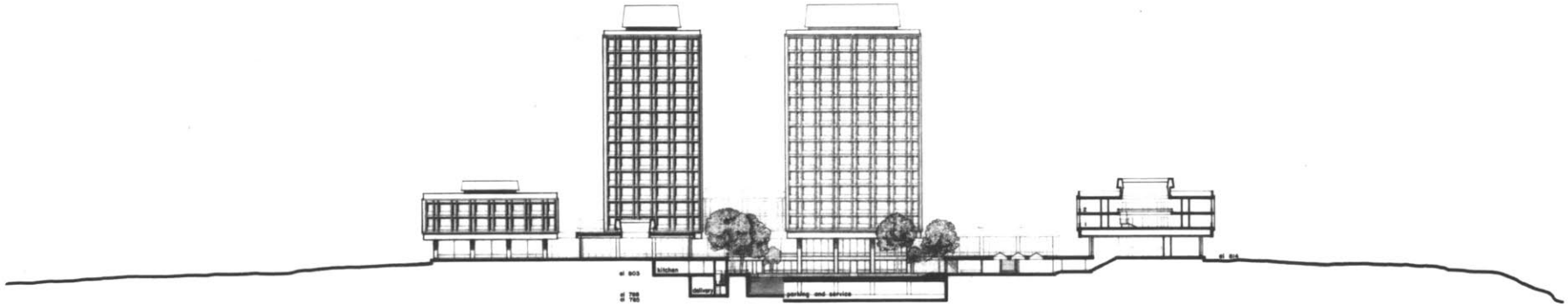

graduate house | section through dining hall | dormitory court | common entry lounge | section through graduate house

SECTION B-B

A STUDENT HOUSING SYSTEM
FOR CASE INSTITUTE OF TECHNOLOGY

JOHN RUFFING AUGUST 1961

0 25 50 75 100 125

SITE

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FOR CASE INSTITUTE OF TECHNOLOGY

JOHN RUFFING AUGUST 1961

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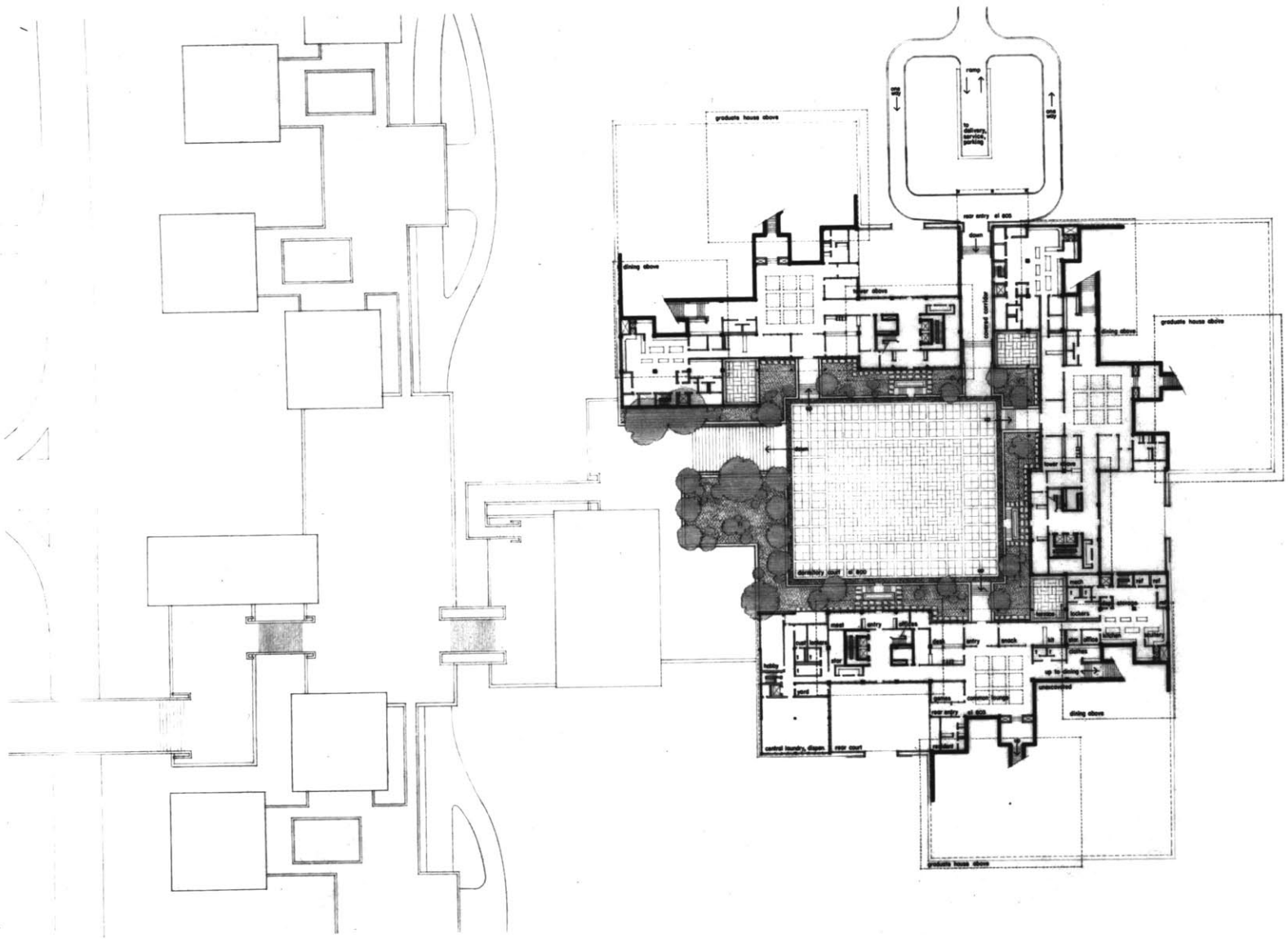

FIRST LEVEL PLAN

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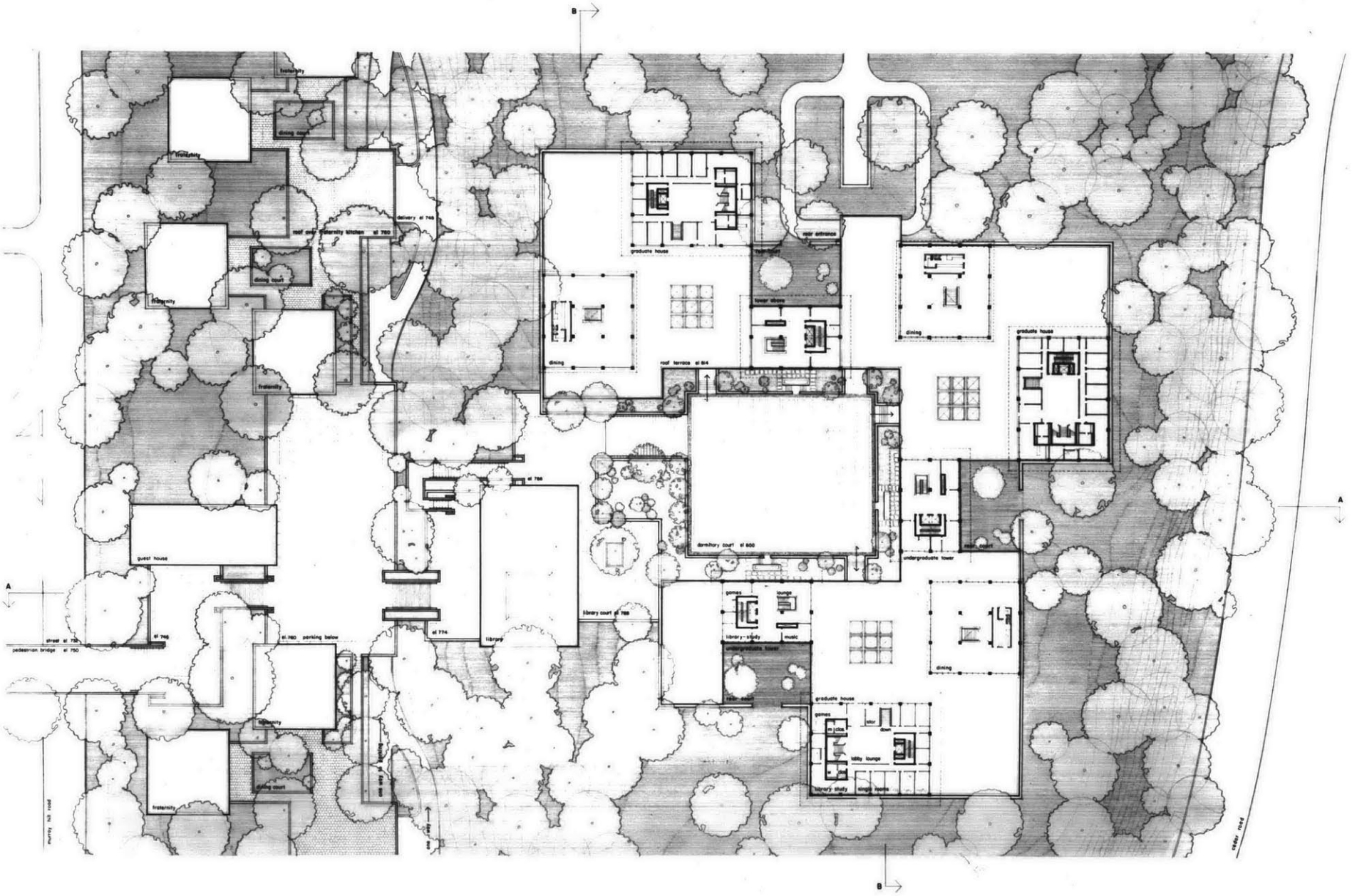

SECOND LEVEL PLAN

A STUDENT HOUSING SYSTEM
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JOHN RUFFING AUGUST 1961

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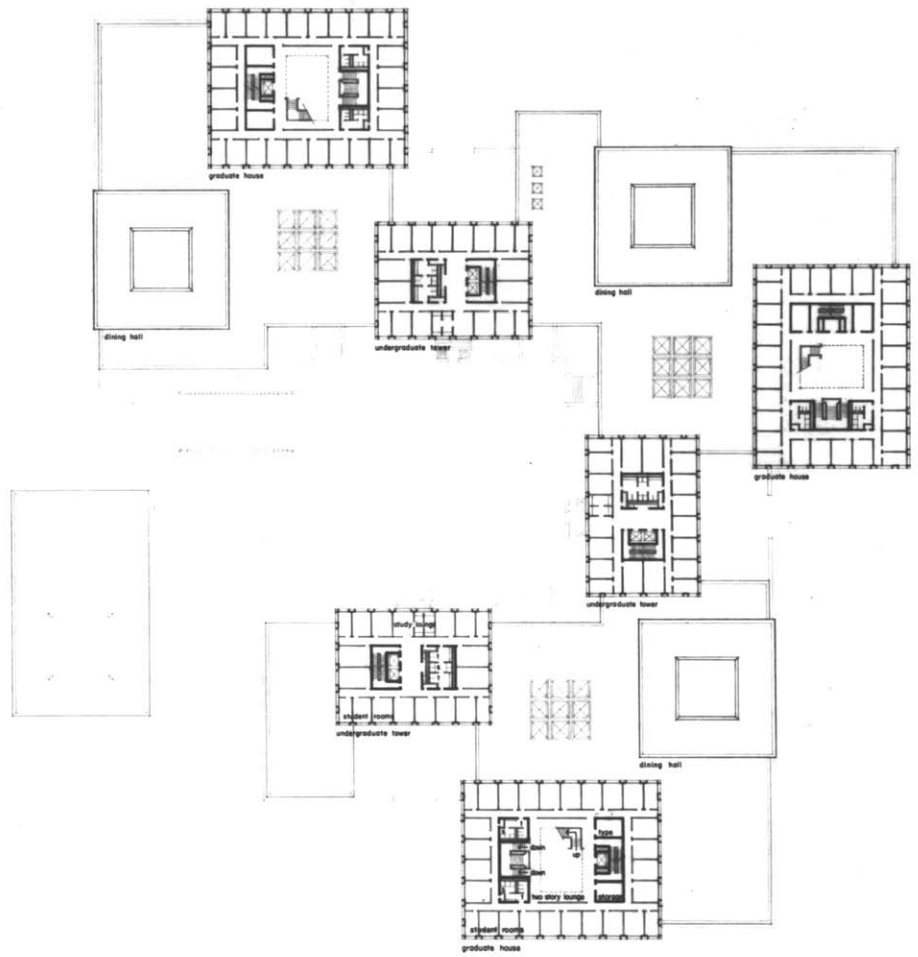

UPPER LEVEL PLANS

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0 25 50 75 100 125

cedar road | section through tower | court | elevation of tower | library | common court | fraternity houses | pedestrian bridge | murray hill road

SECTION A-A

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0 25 50 75 100 125

graduate house | section through dining hall | dormitory court | common entry lounge | section through graduate house

SECTION B-B

A STUDENT HOUSING SYSTEM
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