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THE UNIVERSITY OF MICHIGAN  
COLLEGE OF ENGINEERING

*Site and Building Plans for an Engineering  
and Technology Center*

June 1967



ANN ARBOR

REPORT OF THE 1966-1967  
NORTH CAMPUS PLANNING COMMITTEE

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THE UNIVERSITY OF MICHIGAN

COLLEGE OF ENGINEERING

SITE AND BUILDING PLANS  
FOR AN  
ENGINEERING AND TECHNOLOGY CENTER

June, 1967

Report of the

1966-67 North Campus Planning Committee

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## PREFACE

The North Campus Planning Committee of the College of Engineering for the academic year 1966-67 was charged by Dean Van Wylen "to formulate some general plans for the construction of our Engineering buildings on the North Campus...which in turn will be passed on to the Architects at the time they begin the actual planning."

The Committee met regularly and formulated the recommendations contained in this report. A preliminary report was prepared and presented orally to the Standing and Executive Committees of the College in May of 1967. This final report carries the date June 1967 which marked the close of the Committee's deliberations. It has been put into finished form during September and October of 1967.

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SITE AND BUILDING PLANS FOR AN  
ENGINEERING AND TECHNOLOGY CENTER

The report entitled "Plans for Developing an Engineering and Technology Center on the North Campus" edited by Professor Donald L. Katz in June 1966 concluded with the statement:

"The next step is to plan a site to accommodate the total Engineering and Technology Center and grouping of needs into construction units."

The present committee has accepted this task and presents here the results of its deliberations.

PRIMARY OBJECTIVES

The objectives of the Katz report have been adopted as basic to the development of a satisfactory site plan and the grouping of the College's units into an effective center for learning and research. They bear a brief review here.

1. The Center must be truly an integrated unit in the physical sense, for it must provide new facilities that will foster greater interaction among the students and faculty of the various academic units than now exists.
2. Over the past decade the large heavy duty laboratories such as the Automotive Laboratory, the Fluids Laboratory, Aircraft Propulsion Laboratories, and the Ford Nuclear Reactor have provided this University with facilities of first quality for teaching and research. Their location on the North Campus, removed from the main Engineering facilities, is a deterring factor to the proper development of many educational and research activities. The present spatial arrangement makes it extremely difficult for teaching and research to support and complement each other. The Center must facilitate the accomplishment of this interaction.

3. As scientific and engineering knowledge continues to expand, the educational objectives and needs of the individual departments change. Since no one can predict precisely the curricula or subject matter to be taught or researched in the future, the new facilities must be able to meet these changes with a minimum of structural adjustment. Flexibility in arrangement is an essential objective for a dynamic college.
4. In order to attract and retain top-flight faculty members, the College of Engineering must be able to meet its competition by providing adequate and attractive facilities. These must include not only offices of adequate size but suitable laboratory space, a readily accessible library, an accessible computer, and a host of supporting services. The Center must make it possible for this College to maintain a superior faculty.
5. The College is mindful of the desire to retain as much of the natural beauty of the North Campus area as possible. The Center must be in keeping with the overall development of the North Campus and be a credit to the University as a whole.

#### SECONDARY OBJECTIVES

The generalized objectives above have been further detailed in the Katz report and have been taken as desirable guides for this study.

- (a) Relatively large buildings with effective interconnections between them should provide flexibility to expand or contract activities.
- (b) A mix of offices, classrooms, and small laboratories is seen as most desirable for meeting the educational objectives of the College.
- (c) Interaction and communication can best be fostered by designing the buildings so that movement throughout the Center is possible without going out of doors.
- (d) The building interiors should be flexible with regard to future use. Future conversions of space should be accomplished with ease and at low cost.



- (e) Faculty offices arranged in suites is desired. It is assumed that one secretary can serve from four to six faculty members and it is further recommended that in each of the professional departments, 30 percent of the offices have an area of 200 square feet, 50 percent have 150 square feet and, 20 percent have 120 square feet.
- (f) The entire Center should be air conditioned.

### PROJECTIONS

The detailed projections of the Katz report have been accepted as the basis for this study. Table 1 is the Summary of Projected Space Requirements for 1976 from that report and shows the net area proposed for this date. It is believed that by wise utilization of space in the structures, this net area can be obtained in buildings totaling approximately one million square feet.

It has become clear during the study that some departmental areas are rapidly approaching their projections while other demands for space are not increasing as rapidly, which suggests that revisions in these figures must be made regularly.

### SITE

The site for the Engineering and Technology Center was discussed with the members of the University Architect's Office and the area located generally west of the present Fluids Laboratory and the Automotive Laboratory is available for this development. A study of the present laboratory facilities on the North Campus indicates that the present center of gravity of these functions is about at the eastern end of these two structures and approximately midway between them. The building of additional classroom, office and laboratory structures will tend to shift this center of gravity to the west. This shift was carefully evaluated in light of the need of faculty members to be as close to the laboratories as is reasonably possible.

Students of Engineering who will be using the new Center will be housed in the dormitories to the north and west of this site or in the married student housing to the north. It is anticipated that there will be undergraduate housing to the south and east of the Center just east of the cemetery near the new Huron Parkway.\* This

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\* "Summary Report of the North Campus Planning Conference 1965,"  
I.D. Telfer.

TABLE 1

COLLEGE OF ENGINEERING  
SUMMARY OF PROJECTED SPACE REQUIREMENTS FOR 1976

	Total Staff			Students		Space Needed - Usable Square Feet			
	Teaching Faculty	Academic Research	Non-Academic	Under-graduate	Graduate	Office, Conference	Laboratory	Other	Total
1 Engineering Administration	8					25,080			25,080
2 Aerospace	43		24	340	225	13,610	7,800	5,250	26,660
3 Chem. & Met.	51	15	38	355	205	20,200	43,300	12,000	75,500
4 Civil	45		32	265	150	16,150	34,580	2,500	53,230
5 Electrical	93	90	156	680	535	55,410	58,700	29,635	143,745
6 Engrg. Mech.	51		19	50	80	13,111	7,360	2,250	22,721
7 Industrial	40	10	29	335	205	40,690	2,000	6,400	49,090
8 Mechanical	57		29	435	225	18,000	29,750	2,650	50,400
9 Met. & Ocean.	15	4	12	60	65	6,660	8,000	6,000	20,660
10 Naval Arch. & M.E.	16	6		170	40	6,240	6,800	1,000	14,040
11 Nuclear	27		11	195	155	8,820	21,000	4,350	34,170
12 Engrg. Graphics	10		2			2,540			2,540
13 Engrg. English	53		3			7,660			7,660
14 College Services								6,000	6,000
15 Bioengineering	5		3			3,000	15,000		18,000
16 Library								73,667	73,667
17 Classrooms all but first & second year 1st & 2nd yr.								51,480 24,400	51,480 24,400
18 Other Students				1,015*	215**				
TOTALS	506	125	358	3,900	2,100	237,171	234,290	227,582	699,043

\* Includes 950 freshmen

\*\*Includes Bioengineering, etc.

$$\frac{699,043}{.70} = 1,000,000 \text{ gross sq. ft.}$$

orientation of housing suggests that the eastern portion of the Center be devoted to those educational areas most used by the graduate student and the western portion devoted to the undergraduate.

In a recent report of the Office of the Vice President for Business and Finance,\* four buildings and an Engineering and Technology Library are projected. This projection is consistent with the Katz report's emphasis upon several relatively large structures. The arrangement of these several structures on the site would appear to focus attention on the Library and Administrative Building as the one structure to be located in the center of gravity area with the other buildings grouped around it.

#### BUILDING ORGANIZATION

There are a number of ways in which a college of engineering may be organized to effectively conduct an educational program and to carry out the related research. The University of Michigan College of Engineering is organized along departmental lines with a number of interdepartmental programs. While the educational objectives of the College are always under study,\*\* there does not seem to be any indication that this plan of organization will be drastically altered in the future.

Buildings constructed for departments are not thought to be entirely satisfactory since they tend to be rigid enclosures for these departments and stifle growth. There appears to be a strong tendency to duplicate many service functions in such structures and to create divisionary attitudes among the staff and students. Yet, at the same time there is an identification with the structure which can enhance the total growth and service potential of the college.

Buildings constructed for functional purposes, such as classroom buildings, office structures, and the like, are efficient in that the structural system for these structures may be clearly defined and they are simple in plan. While such buildings do not preclude departmental organization, they do not enhance the identification of the student with his program nor with his faculty, and the staff tends to become aloof and mechanistic in its relationships with

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\* "Buildings Under Study 1967," Office of the Vice President for Business and Finance, January, 1967.

\*\*"Report of the Core Studies Committee," J. G. Easley, Chairman, March 29, 1967.

the students. In a large university where there are many pressures tending to separate the faculty and the students, this does not seem to be a desirable plan for building.

Economy of first cost alone may be used as a basis for planning the individual building. This results simply in the construction of space, as in a factory, with related functions grouped together so that the maximum serviceability may be achieved. In this instance educational organization is totally ignored and the responsibility for the use of the space must be centralized. Such a plan seems best suited to a small college with a few programs and does not appear feasible for the proposed Center.

The building organization proposed by this report groups several related disciplines in the same structure. Two factors influenced the grouping, the common interests existing between several departments and their nearness to the existing laboratories. It is anticipated that this arrangement will allow for flexibility of department programs, permitting combined curricula and changes in departmental size as required in the future.

#### PLANNING UNIT

In order that the buildings being proposed might be feasible structures some basic structural dimensions are required. A width of building of 142 feet has been selected to allow for two ten-foot corridors. Offices and classrooms can be arranged along the exterior and laboratories can occupy the interior space between the corridors.

The longitudinal dimension of the building has been divided into eleven-foot modules. Offices fit conveniently in one module while two or three may be used for classrooms or other purposes.

Figure 2 represents these features and suggests a number of ways that the space may be broken up to serve different purposes. Many additional possibilities exist and many dimensional adjustments will undoubtedly be made as future planning takes place.

Figure 3 shows a typical cross section of the planning unit. It may be noticed that no basement is planned but that there is a utility tunnel beneath the ground floor at the corridor locations. Riser space for air conditioning and exhaust ducts, and other utilities is provided next to the corridor and connects with this tunnel. Since laboratory uses cannot be anticipated, this arrangement will allow utilities to be installed as initially required and will permit additional services to be added at minimum cost when needed.

## ORGANIZATION OF THE CENTER

The Engineering and Technology Center as proposed here will be comprised of five buildings. Three of these will be grouped around the Engineering Library and Administrative Unit and the fifth will be located near the Aerospace Laboratories. All of these structures will be interconnected with bridges at all possible levels above the ground. The importance of this interconnection cannot be overestimated in that it is considered a major uniting element from both the physical and the intangible points of view.

The entrance to the Center will be via Herbert Drive from the west. As a visitor approaches he will face a six story tower rising above a four story base. This structure will be visually the focus of the complex.

Figure 1 shows the plan of the total complex including the present laboratories and the new structures. By providing the interconnecting bridges above ground level the flow of foot traffic through the open areas is facilitated.

Automobile access and parking has been an element of consideration. While no parking structures are planned as a part of this complex, it is anticipated that there will need to be provided a minimum of 1200 spaces for the Center. This will provide for the Teaching Faculty, Academic Research Personnel, and Non-academic Employees. The plan suggests a parking garage north of the Fluids Laboratory accessible from Hayward Avenue. Another garage is anticipated near the west end of Herbert Drive north of the North Campus Commons. Here, attention should be given to keeping such a structure below ground level and to maintain an open mall-like approach to the Center. A third location suggested for parking would be to the east along Beal Avenue where a garage might be constructed above a proposed future towing tank for the Department of Naval Architecture and Marine Engineering.

While these suggestions appear to be feasible to this committee, they are not the only possibilities. Underground parking would have much merit in preserving the open space of the complex and could be provided beneath most of the proposed structures. A more detailed study of parking appears to be needed as further planning progresses.

## BUILDING DETAILS

Instruction and Research are the two major functions of most of the departments of the College. Instruction involves large numbers of students who change classes at specified times and research requires

Note: For your convenience a fold-out of this figure is in the back.

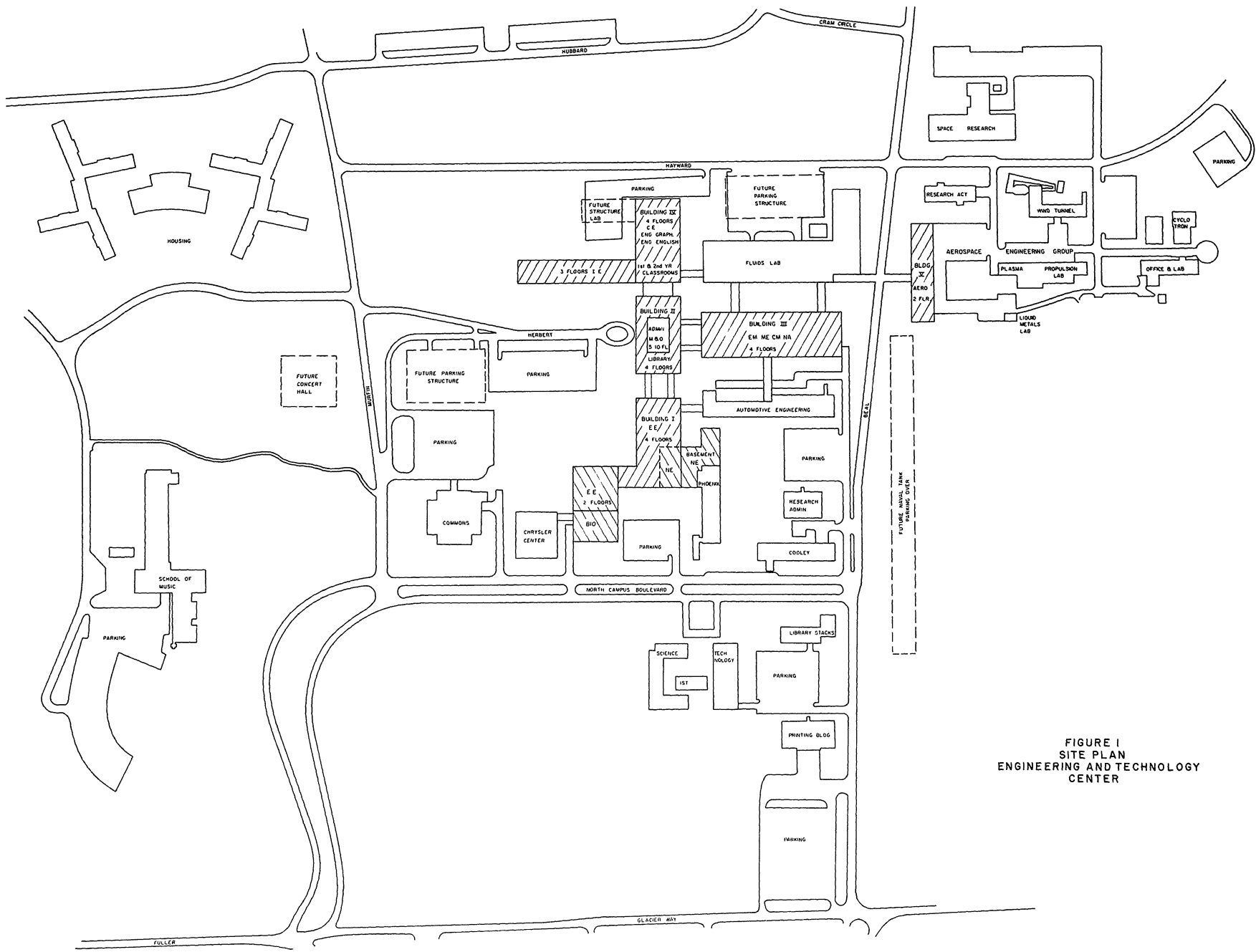


FIGURE 1  
SITE PLAN  
ENGINEERING AND TECHNOLOGY  
CENTER

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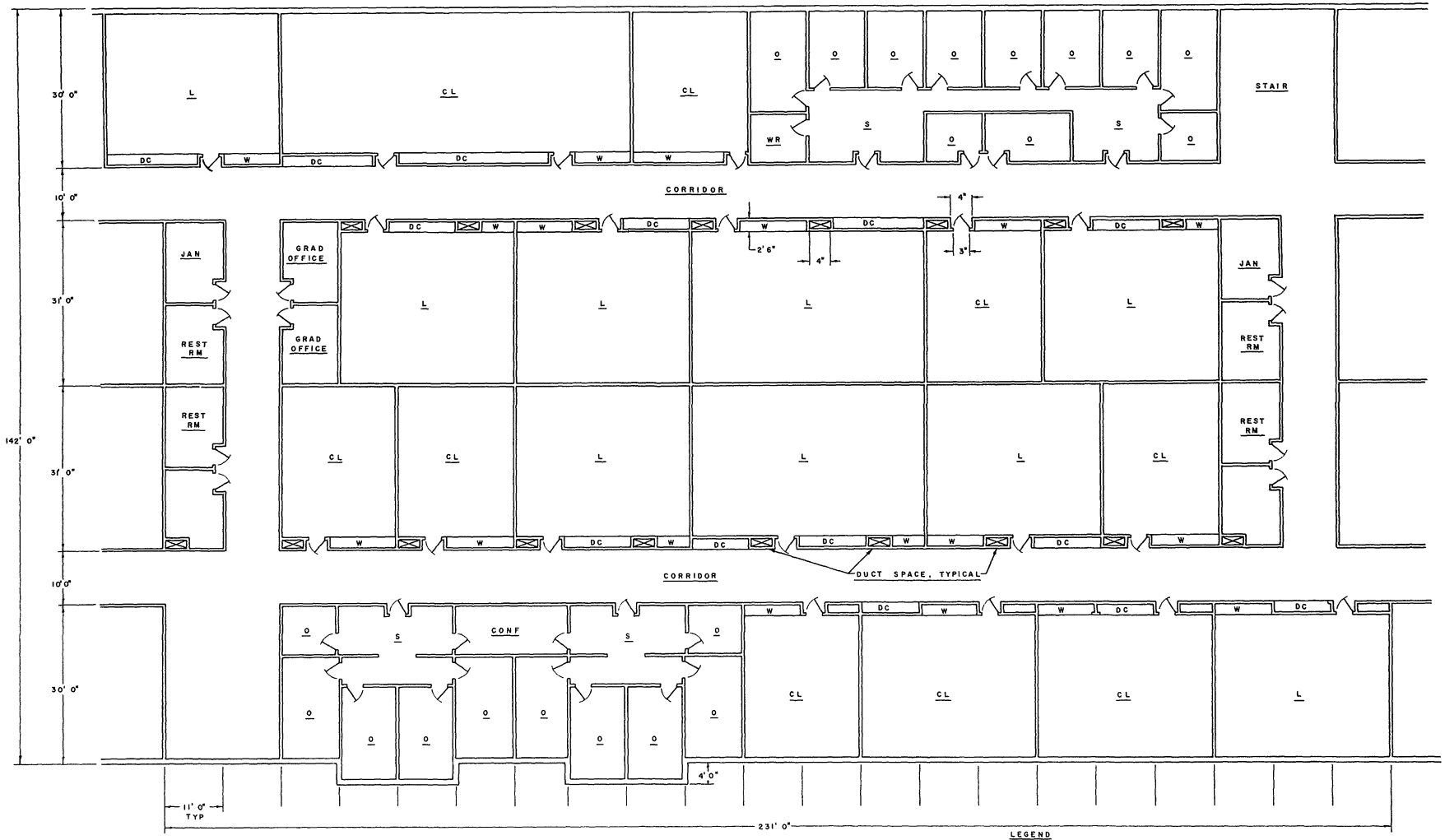


FIGURE 2  
 A TYPICAL PLANNING UNIT  
 ENGINEERING AND TECHNOLOGY CENTER  
 THE UNIVERSITY OF MICHIGAN

- LEGEND
- CL- CLASSROOM
  - CONF-CONFERENCE ROOM
  - DC- DISPLAY CASE
  - JAN- JANITOR CLOSET
  - L- LABORATORY
  - O- OFFICE
  - W- WARDROBE CLOSET
  - WR- WORK ROOM
  - S- SECRETARY

Note: For your convenience a fold-out of this figure is in the back.

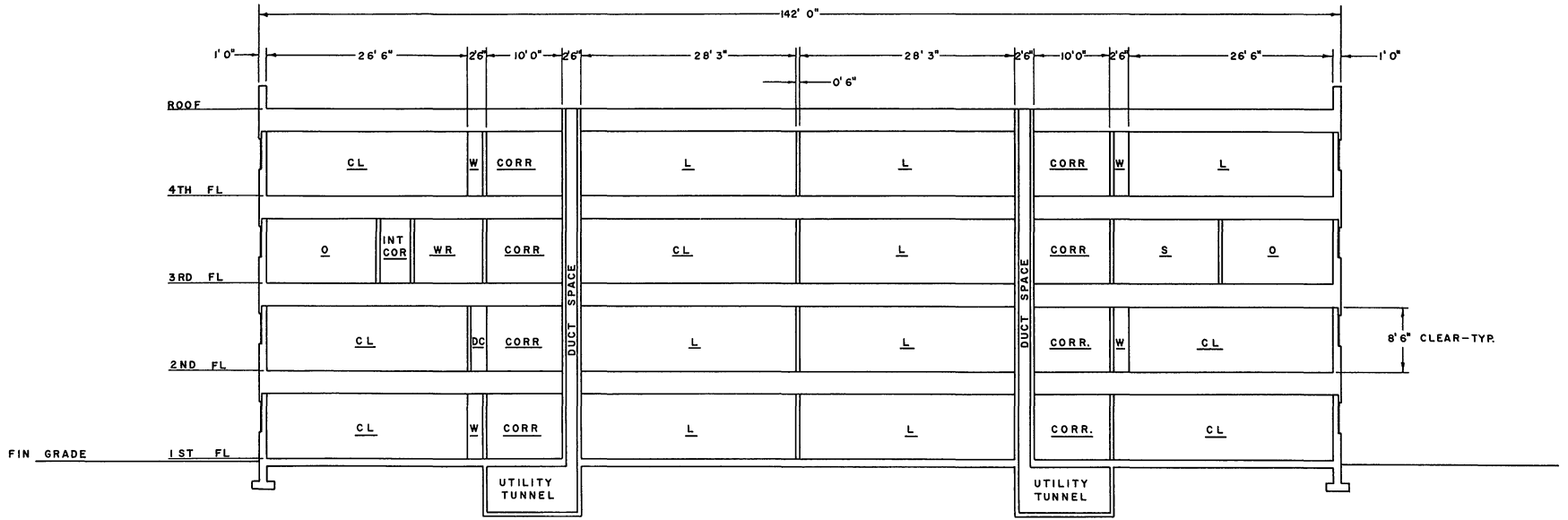


FIGURE 3  
 A TYPICAL PLANNING UNIT CROSS SECTION  
 ENGINEERING AND TECHNOLOGY CENTER  
 THE UNIVERSITY OF MICHIGAN



the frequent attendance of the faculty man to his laboratory. In order that these conditions may be satisfied with a minimum of movement on the part of both the student and faculty man and with the resulting relief in congestion, each of the buildings of the complex has been arranged so that the classroom space is on the lower floors and laboratory space and offices on the upper floors. Some laboratories require heavy floor loads and large open spaces and these naturally would be located on the ground floor.

Classroom space other than the first and second year courses, appears as a total figure of 51,480 sq. ft. in Table 1. Most of this space is required by the departments in the form of small classrooms which are near the laboratory that the student uses following a lecture or demonstration. This space must therefore be allocated to the several buildings according to some measure of a department's size and must be included in the building housing the department and its laboratories. It has been assumed that this classroom space will vary with the number of students to be served by the department.

Because of instructional requirements, there is a variation in the ratio of students to faculty from department to department and it has also been assumed that this classroom space will vary with the number of faculty attached to the department.

Regardless of the number of students and the departmental staff, classroom space should be distributed throughout the departmental area to some degree. The following formula has been used to allocate the space for these classrooms and includes the effect of the three factors named above.

$$DCA_i = \frac{1}{2.25} \left[ \frac{S_i}{TS} + \frac{F_i}{TF} + 0.25 \frac{A_i}{TA} \right] TCA$$

where

- DCA<sub>i</sub> = Individual department classroom area
- S<sub>i</sub> = Students of department i
- F<sub>i</sub> = Faculty of department i
- A<sub>i</sub> = Area for department i other than for classrooms
- TS = Total students
- TF = Total faculty
- TA = Total area other than for classrooms
- TCA = Total classroom area to be allocated.

Each building has been arranged such that the major departments can have separate entrances which will serve to provide a sense of departmental identification while preserving the flexibility needed to meet future changes in departmental size.

### BUILDING I

Figures 4 and 5 indicate the manner in which space has been assigned for Electrical Engineering, Nuclear Engineering, and Bio-engineering.

Nuclear Engineering space is placed adjacent to the Ford Reactor and requires rather substantial amounts of electrical power for operation. Each of these three departments require similar utility services and laboratory spaces and have close interfaculty relationships. The building will enable Electrical Engineering to consolidate its facilities which are now scattered throughout the campus.

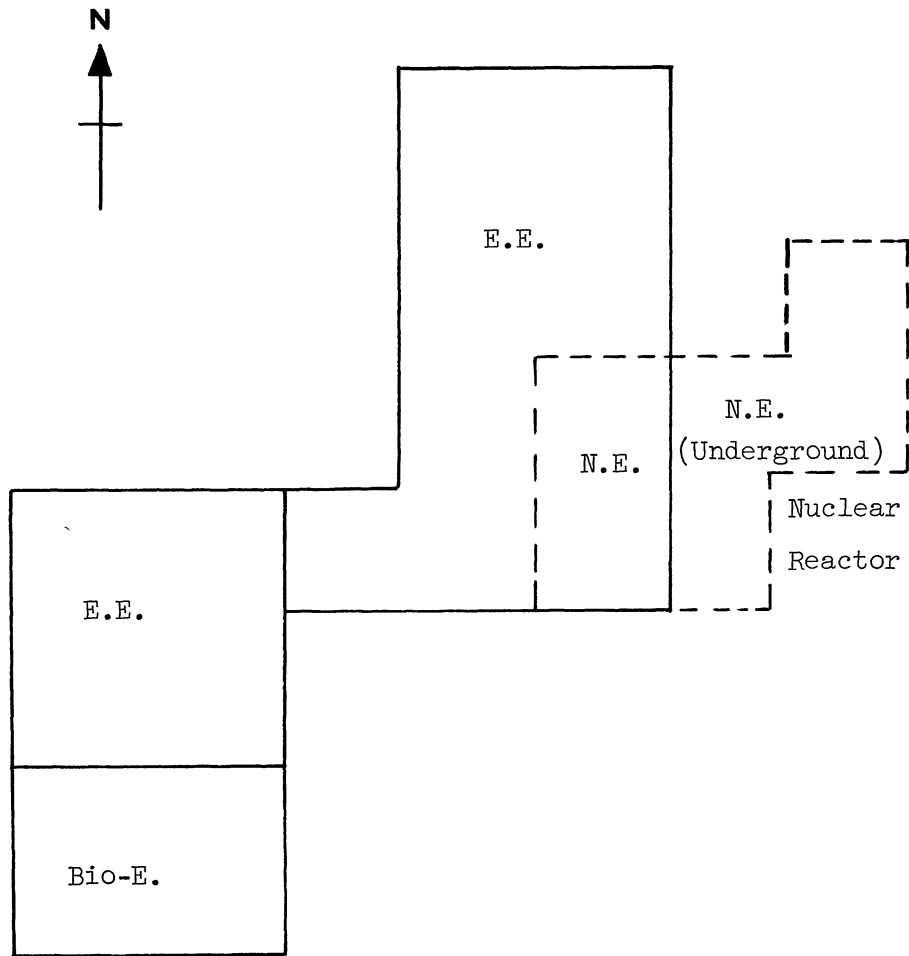
### BUILDING II

Building II provides for Administration, Library, College Services, and Meteorology and Oceanography and the space allocations are shown in Figures 6 and 7.

This building serves as the center of the entire complex and makes available within easy walking distance those functions common to all departments and divisions of the College. The library, located on floors 2, 3, and 4 requires no window space and can be surrounded by a corridor. Bridges to adjacent buildings will provide direct accessibility from all departments for both students and faculty.

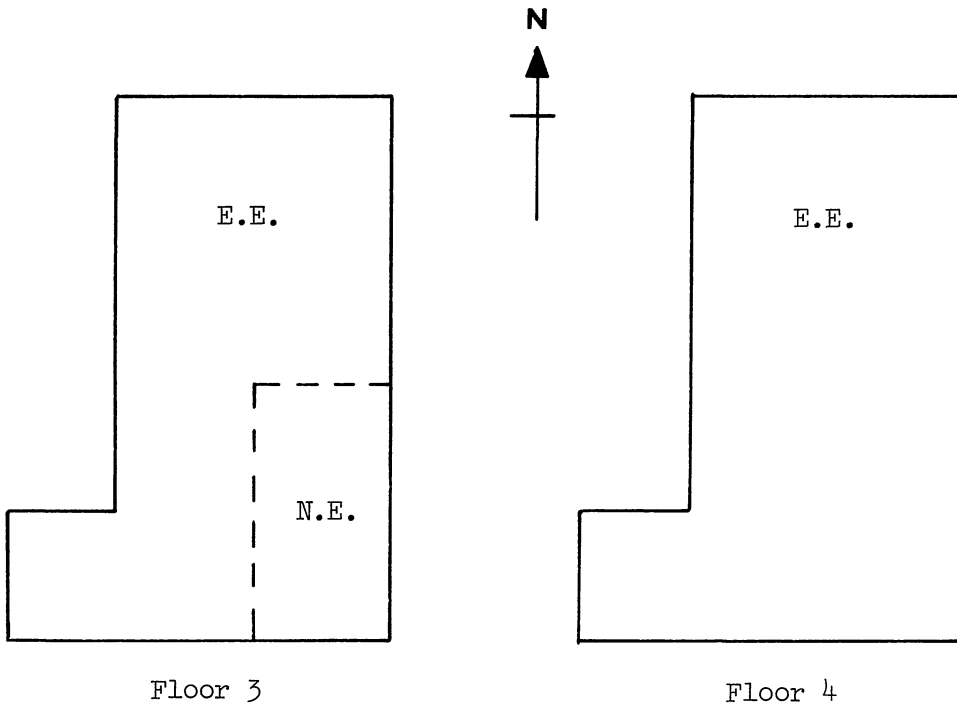
Floor 1 will house activities especially related to students, such as the placement office, the recorder's office, offices for student organizations, meeting rooms for student groups, and so forth. In addition certain services for both students and faculty will be located here, for example, reproduction facilities, photographic services, and so forth.

Floors 5 and 6 will house the major administrative functions including the deans' offices. The fifth floor will contain facilities for a faculty center such as faculty meeting rooms, committee rooms, reception facilities, lunch facilities and so forth. It is anticipated that the roof of the library will be used to provide an outdoor extension of this space.



BUILDING I  
Floors 1 and 2

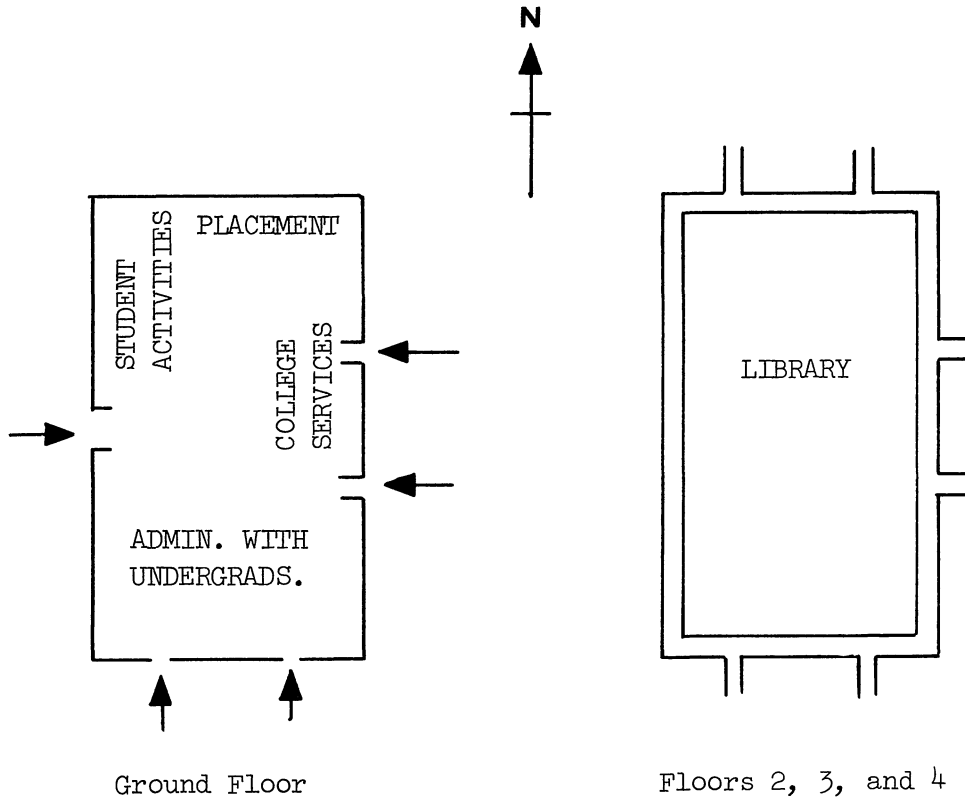
Figure 4



Electrical Engrg.	123,525 sq.ft.	176,464 sq.ft.
Nuclear Engrg.	34,170	48,814
Bio-Engrg.	18,000	25,715
Classrooms	<u>13,672</u>	<u>19,531</u>
TOTAL	189,367 sq.ft.	270,524 sq.ft.

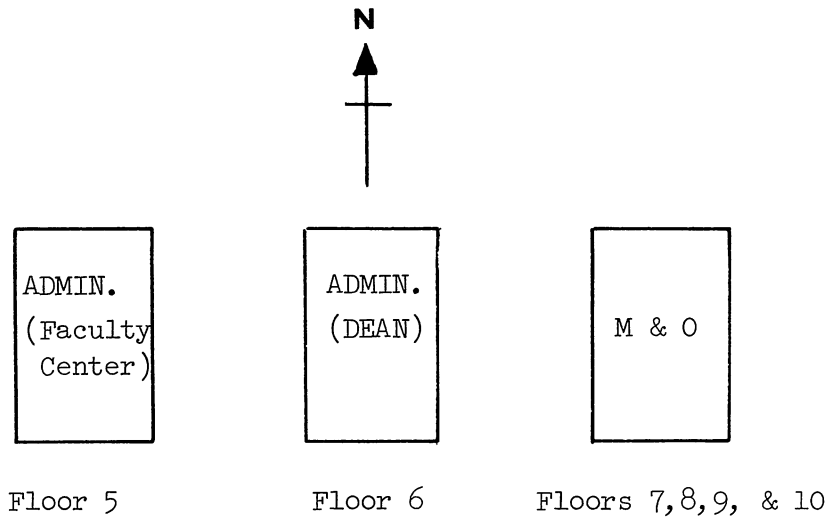
BUILDING I

Figure 5



BUILDING II

Figure 6



	<u>Net Area</u>	<u>Gross Area</u>
Administration	25,080 sq.ft.	35,829 sq.ft.
Library	73,667	105,239
Meter. & Ocean.	20,660	31,680
College Services	6,000	10,535
Classrooms	1,185	1,693
TOTAL	126,592 sq.ft.	184,976 sq.ft.

BUILDING II

Figure 7

The upper four floors have been designated for the Department of Meteorology and Oceanography. There is need for this department to be able to have weather instruments at an elevated site and it is anticipated that these instruments will be placed above the roof with the floor below serving for the laboratory in which the recording and evaluating instruments will be housed.

### BUILDING III

Engineering Mechanics, Mechanical Engineering, Chemical-Metallurgical Engineering, and Naval Architecture and Marine Engineering have been allocated space in Building III as indicated in Figure 8.

Engineering Mechanics is the Engineering department offering the largest number of courses to other departmental programs as seen from Table 2 which presents the results of the committee study of departmental interaction. By placing this department at the west end of the building, near the center of the complex, it becomes accessible to all departments with a minimum of movement on the part of the students.

Mechanical Engineering has established heavy laboratories in Fluids Laboratory and the Automotive Laboratory and their location midway between these existing facilities will tend to consolidate this department. Similarly, Chemical Engineering has major existing facilities in the Fluids Laboratory.

Naval Architecture has been assigned to a position at the east end of the building, permitting access to their maneuvering tank in the Fluids Laboratory and placing them in a favorable relationship to the proposed towing tank to the east of Beal Avenue.

### BUILDING IV

Figures 9 and 10 indicate the departmental relationships for Industrial Engineering, Civil Engineering, and First and Second Year Classrooms as well as for Engineering Graphics and English.

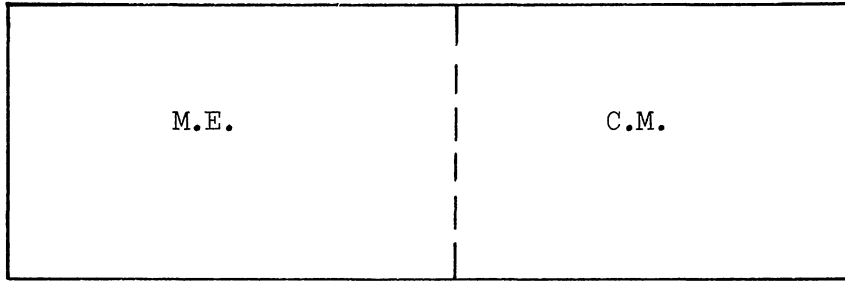
Civil Engineering currently has major hydraulic facilities in the Fluids Laboratory and its inclusion in this structure will facilitate the coordination of this department. The Sanitary Engineering division of Civil Engineering will require a two story laboratory which can be accommodated at the northern end. This position for this

TABLE 2

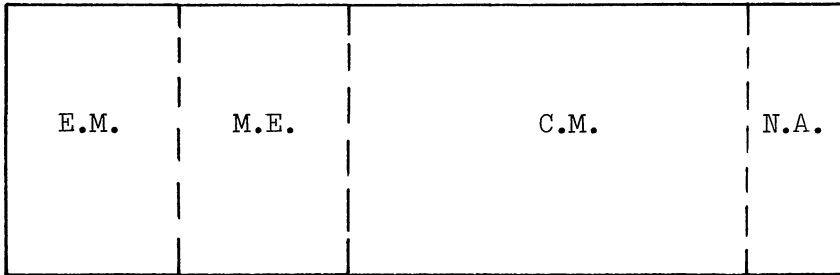
COLLEGE OF ENGINEERING  
DEPARTMENTAL INTERACTION AS SHOWN BY COURSES REQUIRED

DEGREE PROGRAMS	Courses Required													
	A.E.	C.M.	C.E.	E.E.	E.M.	I.E.	M.E.	M. & O.	N.A.	N.E.	Math.	Engrg. Encl.	Tech. Elect.	Non. Tech.
Aerospace Engineering	10			1	4		1				1	2	4	4
Chemical Engineering		12		1	3						3	2	4	5
Civil Engineering		1	12	1	5		1				2	2	5	4
Electrical Engineering		1		13	3		3				2	2	3	4
Engineering Mechanics		1		2	9		1				4	2	7	5
Industrial Engineering		1		1	2	9	5				3	2	4	5
Mechanical Engineering		1		2	4		10				1	2	6	5
Meteorology & Oceanography		1	1	1	3			14			1	2	5	4
Naval Architecture		1		1	6		2		14		2	2	1	4
Nuclear Engineering		1		2	4					7	3	2	4	6





Floor 4



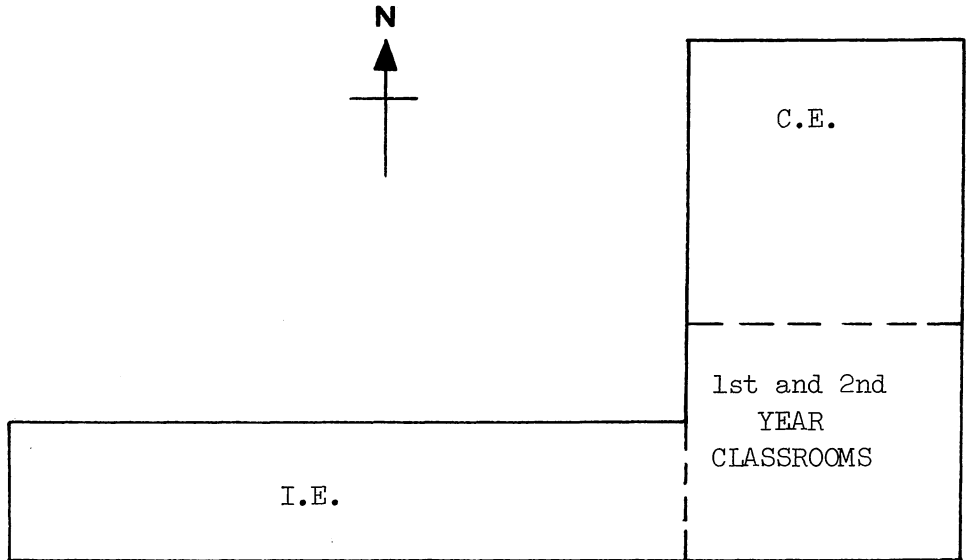
Floors 1, 2, and 3

	Net Area	Gross Area
Engrg. Mech.	22,721 sq.ft.	32,458 sq.ft.
Mech. Engrg.	40,857*	58,367
Chem-Met.	75,500	107,857
Naval Arch.	14,040	20,057
Classrooms	21,827	31,181
TOTAL	174,945 sq.ft.	249,920 sq.ft.

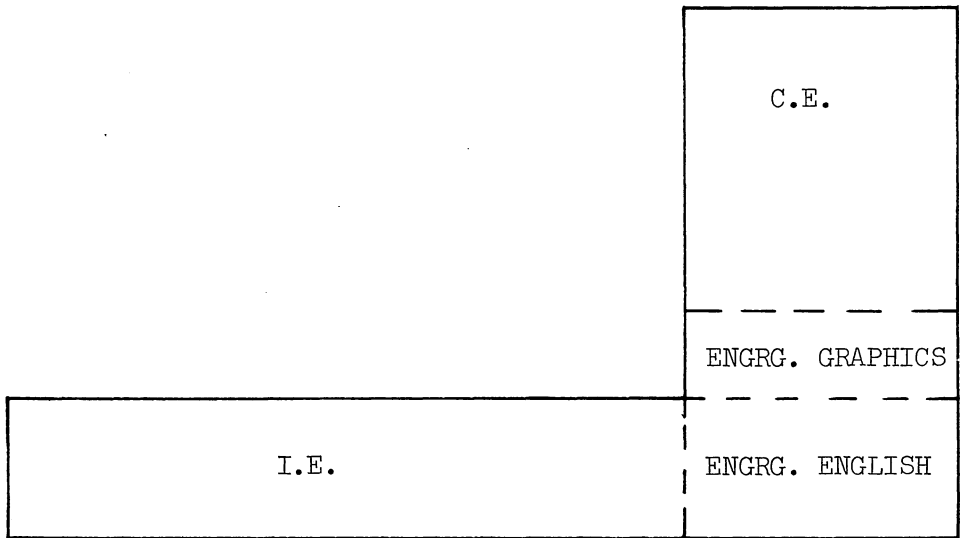
\*Mechanical Engineering to take 4,456 sq.ft. (net) in Auto Lab and 5,087 sq.ft. (net) in Fluids Lab.

BUILDING III

Figure 8



Floors 1 and 2

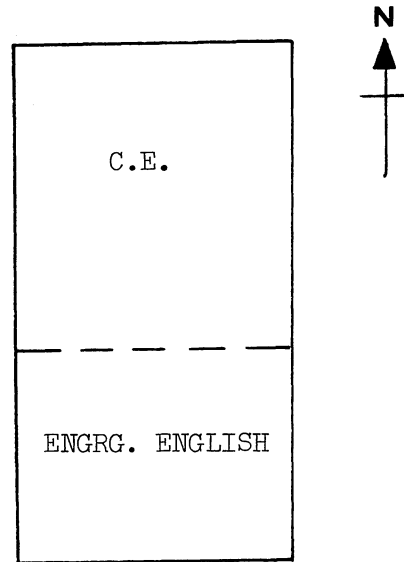


Floor 3

BUILDING IV

Figure 9

	<u>Net Area</u>	<u>Gross Area</u>
Civil Engrg.	53,230 sq.ft.	76,042 sq.ft.
Indust. Engrg.	49,090	70,129
Engrg. Graphics	2,540	3,629
Engrg. English	7,660	10,943
Classrooms		
1st & 2nd Yr.	24,400	34,857
Other	<u>17,112</u>	<u>24,446</u>
TOTAL	154,032 sq.ft.	220,046 sq.ft.



Floor 4

BUILDING IV

Figure 10

department will also allow for expansion to the west to meet the needs for a future structural laboratory, should the proposed Highway Laboratory, planned to the east of this complex, not become a reality.

Since Engineering Graphics and Engineering English must serve most of the students in the College, their space has been positioned near the center of the complex.

All first and second year classroom space has been placed in this building. This space will be planned for instruction in Mathematics and other frequently taken courses in fields outside those offered by the College. It is anticipated that instructors from throughout the University would come to the area to teach.

By placing this block of classrooms together in this more central location, special facilities for instruction can be provided. Some of these rooms might have special provisions for closed circuit television, telewriter, special projection equipment, and so forth. Room sizes would vary in this location and the terrain would facilitate the construction of some rather large rooms with seating in an auditorium mode.

#### BUILDING V

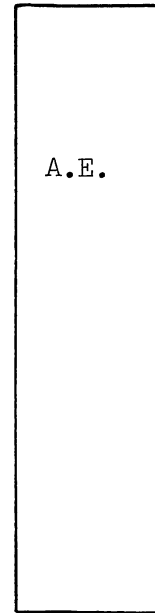
Building V is to be used to house the offices, small laboratories, and classrooms of the Aerospace Department. The location of the structure to the east of Beal Avenue puts it into close proximity with the present wind tunnel facilities and yet keeps it within the confines of the complex. It can be physically joined by means of a bridge across the Avenue to the Fluids Laboratory.

TABLE 3

BUILDING SUMMARY OF PROPOSED  
ENGINEERING AND TECHNOLOGY CENTER

Unit	Gross Area	Approx. Cost
Building I	299,000 sq. ft.	\$11,960,000
Building II	185,000	7,400,000
Building III	250,000	10,000,000
Building IV	220,000	8,800,000
Building V	46,000	1,840,000
TOTAL	1,000,000	\$40,000,000

	<u>Net Area</u>	<u>Gross Area</u>
Aerospace Engrg.	26,660 sq.ft.	38,086 sq.ft.
Classrooms	5,495	7,850
<b>TOTAL</b>	<b>32,155 sq.ft.</b>	<b>45,936 sq.ft.</b>



Floors 1 & 2

BUILDING V

Figure 11

## ANCILLARY FACILITIES

During the planning of these buildings it has become clear that the move of the Engineering College to the North Campus will require the development of related facilities to replace those now in the vicinity of the present College.

It is understood that some sort of hotel unit might be constructed north of the North Campus Commons and just to the west of the proposed Engineering Center. Such a structure would be of marked advantage to the College and its Chrysler Center for Continuing Engineering Education, and could contain many ancillary units of value to both students and faculty. It is recommended that as planning for this unit proceeds consideration be given to concession space for the following:

- A bank.
- A bookstore for Engineering, Architecture,  
and Music books and supplies.
- A barber shop.
- A beauty shop.
- A post office substation.
- A travel agency.
- A drug store.
- A shoe repair shop.
- A grocery store.
- A gift shop.
- A man's specialty shop.
- A woman's specialty shop.

The need for such commercial space will exist with the large numbers of people concentrated on the North Campus by this Center. Because of the size of North Campus, much faculty and student time would be wasted in travel if these facilities are allowed to develop to the north of Plymouth Road. Unrestricted development of a commercial nature would be detrimental to the entire North Campus area, hence, it appears that concessions on the ground level of the proposed hotel unit would be most appropriate.

The plans for the Engineering and Technology Center do not include a large auditorium. A facility that would seat 1500 persons might be needed in the future. It is understood that there is a proposal for a Concert Hall of approximately this size to be located west of Murfin Avenue for the School of Music. For those infrequent special functions requiring this type of space it is anticipated that the Concert Hall would be available and the College of Engineering recommends that the planning for the Hall recognize this potential use.

## PROPOSED SCHEDULE

It is recommended that every attempt should be made to obtain financing commitments for the entire Complex at one time, even though the total sum of forty million dollars is large. If one unit can be started each year for five years, and assuming it to take approximately four years to plan and construct a unit of the Complex, the forty million dollars is only required at an average rate of about four and one half million dollars per year, a figure which would seem to be within reason for the State of Michigan and this University.

Table 4 illustrates the proposed planning and construction schedule for the five units.

It will be observed that the first building to be completed in the schedule is to house Electrical Engineering and Nuclear Engineering. This building was chosen by the committee as the first to be occupied because the need for departmental consolidation was considered most severe for Electrical Engineering. As this building is occupied space will be released in Fluids Laboratory and will be used by another department on the Main Campus. As Main Campus space is released in East and West Engineering Buildings space will become available for other University departments.

Occupancy of the second building, the Library and Administrative Unit, will change the center of focus of the College from the Main Campus to the North Campus. Thus the College may be said to move in the 1972-73 year when the Dean's Office is shifted. This move will still leave a divided College centered at North Campus and with departments and courses still taught on the Main Campus.

## THE ARCH AND ARCHITECTURE

The Archway through the West Engineering Building has become the symbol for the College for nearly sixty years. It is hoped that as plans are developed for the Center on North Campus, this symbolism can be maintained.

The dimensions of the buildings discussed here are not to be considered as rigid requirements but as feasible solutions to form a basis for further planning. The architectural expression of the complex has not been a subject for this report. It is assumed that whatever that expression might be, it will be in taste and harmony with the rest of the North Campus and will be such that it will be a lasting contribution to beauty in combination with utility.

TABLE 4

PROPOSED SCHEDULE  
NORTH CAMPUS ENGINEERING CENTER

Period	Unit I	Unit II	Unit III	Unit IV	Unit V
1967-68	Prelim. Drawings				
1968-69	Work Drawings	Prelim. Drawings			
1969-70	Construction	Work Drawings	Prelim. Drawings		
1970-71	Construction	Construction	Work Drawings	Prelim. Drawings	
1971-72	Occupy	Construction	Construction	Work Drawings	Prelim. Drawings
1972-73		Occupy	Construction	Construction	Work Drawings
1973-74			Occupy	Construction	Construction
1974-75				Occupy	Construction
1975-76					Occupy
Space (gross area)	299,000 sq. ft.	185,000 sq. ft.	250,000 sq. ft.	220,000 sq. ft.	46,000 sq. ft.
Primary Disci- plines	Elect. Engrg. Nuclear Engrg. Bio.-Engrg.	Met. & Ocean. Administration Library Student Services	Engrg. Mech. Mech. Engrg. Chem-Met. Engrg. Naval Arch.	Civil Engrg. Indust. Engrg. Engrg. Graphics Engrg. English	Aerospace Engrg.



FUTURE PLANNING

As the Winter Term of 1966-67 drew to a close the College of Engineering Faculty accepted the recommendations of the Core Studies Committee. The impact of these changes on the educational requirements presented in the Katz Report and subsequently upon the planning presented in this report has not been assessed. The Katz Report is nearly two years old and some of the projections contained within it have altered to a degree. Future planning should recognize these changes in the educational specifications in order that the final planning shall proceed from the latest information and the soundest base.

It should be emphasized that the proposed schedule of Table 4 sets forth an order for departmental occupancy which represents the current thinking of the committee and which the committee considers a feasible plan. As studies progress, the order for construction and occupancy may be altered.

The effect of this Center upon the total North Campus development has only been dealt with in a minor way by this report. The remoteness of the area from student living quarters, the parking problem, the need for commercial facilities, and other interactive elements should be studied as future plans are made.

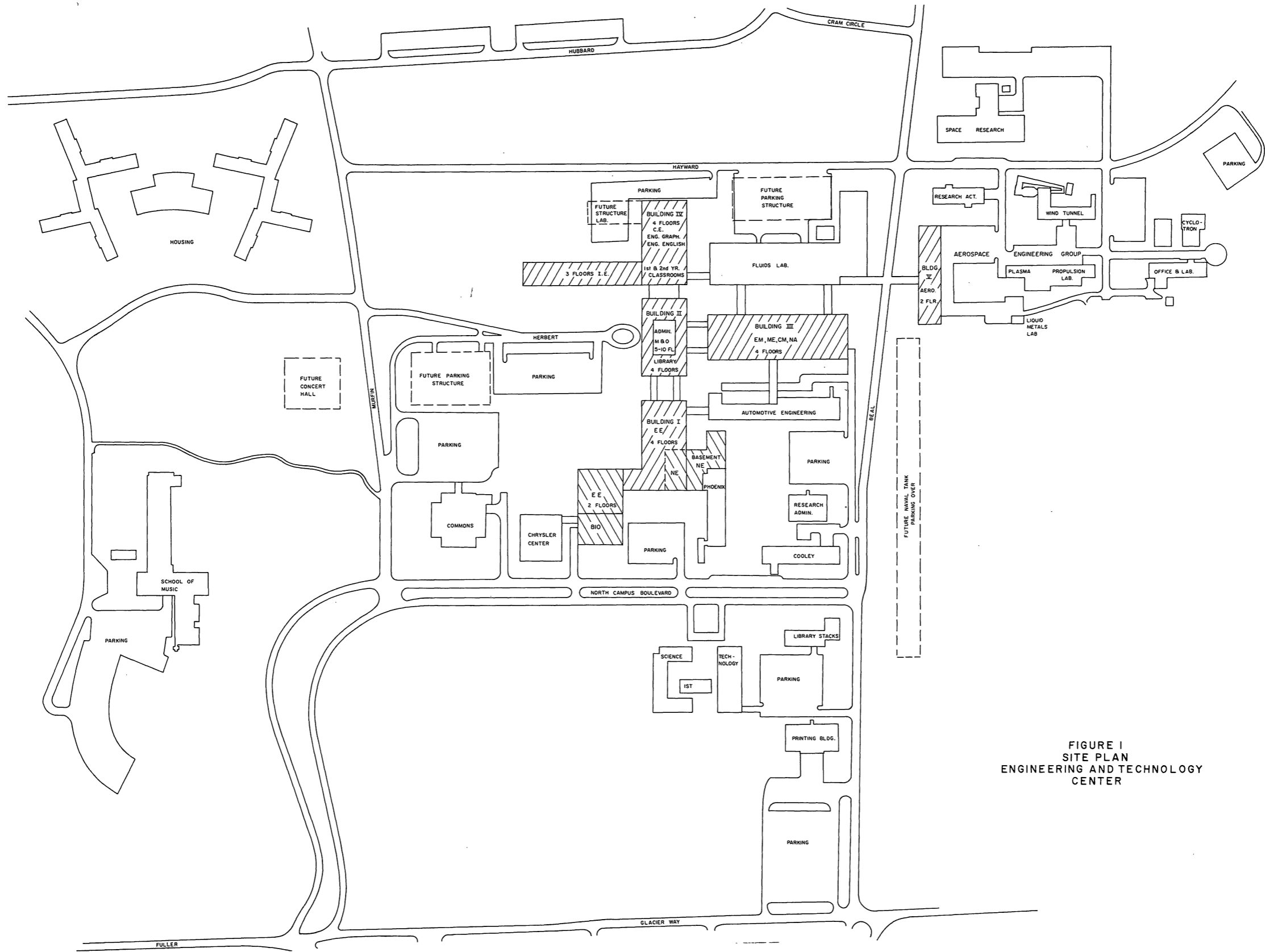


FIGURE I  
SITE PLAN  
ENGINEERING AND TECHNOLOGY  
CENTER

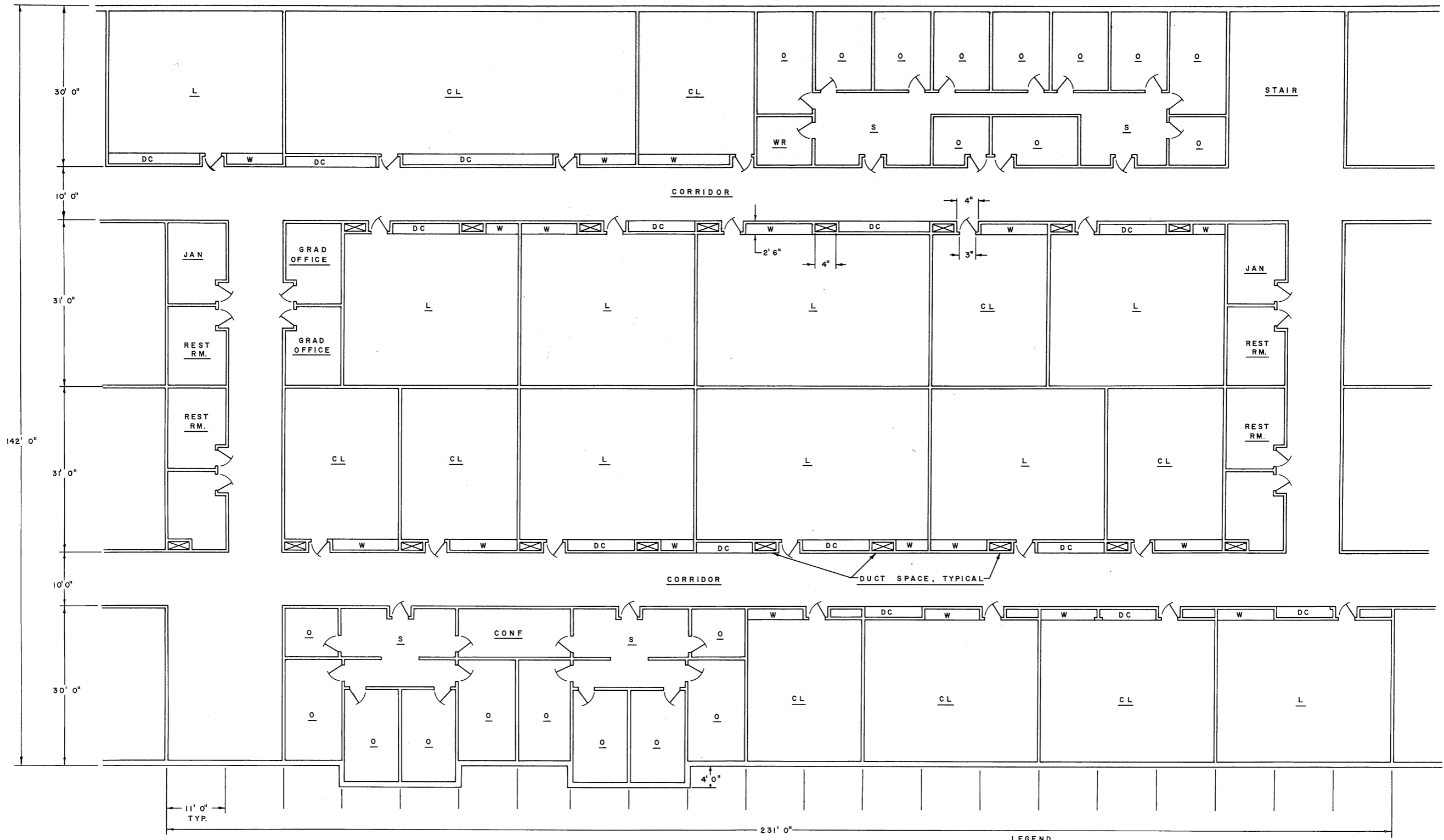


FIGURE 2  
 A TYPICAL PLANNING UNIT  
 ENGINEERING AND TECHNOLOGY CENTER  
 THE UNIVERSITY OF MICHIGAN

- LEGEND
- CL- CLASSROOM
  - CONF-CONFERENCE ROOM
  - DC- DISPLAY CASE
  - JAN- JANITOR CLOSET
  - L- LABORATORY
  - O- OFFICE
  - W- WARDROBE CLOSET
  - WR- WORK ROOM
  - S- SECRETARY

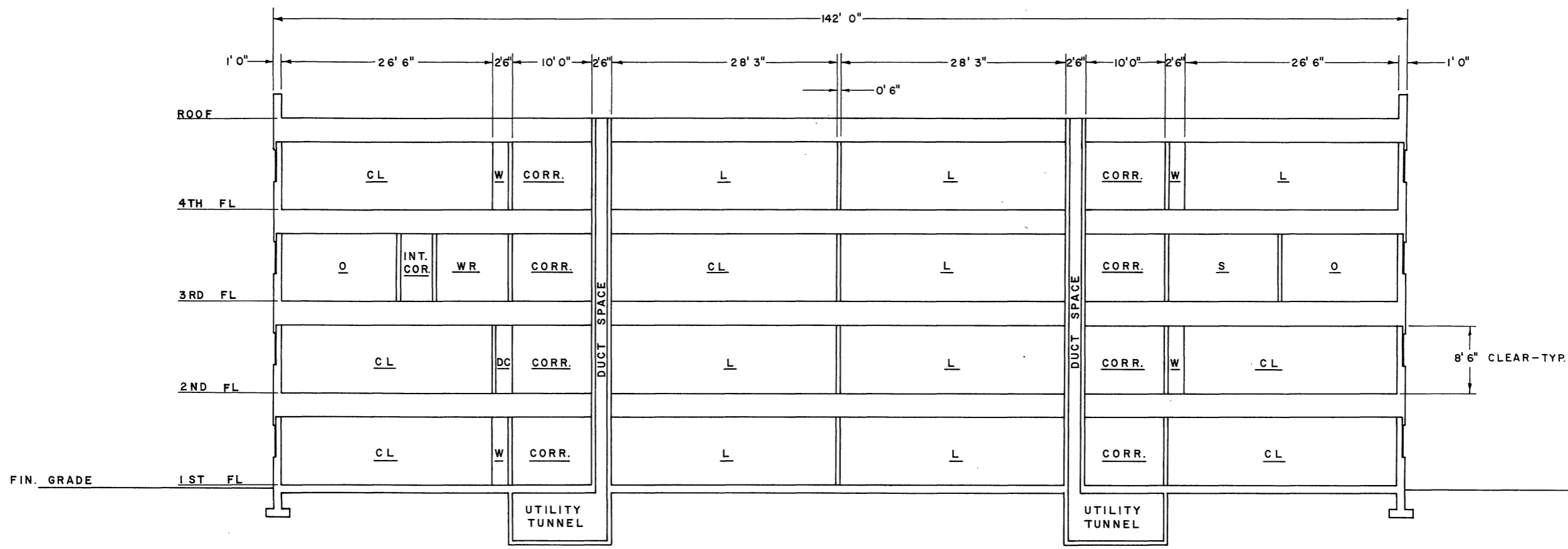


FIGURE 3  
 A TYPICAL PLANNING UNIT CROSS SECTION  
 ENGINEERING AND TECHNOLOGY CENTER  
 THE UNIVERSITY OF MICHIGAN

UNIVERSITY OF MICHIGAN



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