

**THE UNIVERSITY OF  
TEXAS OF THE  
PERMIAN BASIN  
STUDENT UNION**

**ODESSA, TEXAS**

A Student Union  
For the University of Texas of the  
Permian Basin

by John Charles Jeffers

In Partial Fulfillment  
of the Requirements of the  
Bachelor of Architecture Degree

Presented to  
Professor George C. Peng and  
Professor William Lawrence Garvin  
DIVISION OF ARCHITECTURE  
TEXAS TECH UNIVERSITY

1986?

ARCH  
AC  
808.2  
T3  
1986  
no. 36  
pt. 2

#### ACKNOWLEDGMENTS

To Sam and Alice Jeffers  
for their total devotion and support.

## TABLE OF CONTENTS

Introduction . . . . .	1
Goals and Objectives . . . . .	3
Catchment Population . . . . .	5
Background . . . . .	7
Region. . . . .	7
Odessa. . . . .	16
University of Texas of the Permian Basin. . . . .	22
The College Union . . . . .	33
Viability of Project. . . . .	47
Activity Analysis. . . . .	51
Administrative, Service and Maintenance . . . . .	55
Commercial. . . . .	63
Food. . . . .	68
Passive . . . . .	72
Active. . . . .	78
Theater . . . . .	80
Site Analysis. . . . .	85
Environs. . . . .	86
The Site. . . . .	87
Climate . . . . .	96
Case Studies . . . . .	101
Cleveland State University. . . . .	103
San Francisco State University. . . . .	107
Trenton State College . . . . .	111
State University. . . . .	116
Space Summary. . . . .	121
Systems Performance. . . . .	131
Building Envelope and Structuring . . . . .	132
HVAC. . . . .	138
Lighting/Electrical . . . . .	142
Plumbing. . . . .	145
Cost Analysis. . . . .	148
Cost. . . . .	149

Detailed Space List. . . . .	153
Bibliography . . . . .	253

## LIST OF ILLUSTRATIONS AND TABLES

### Illustrations

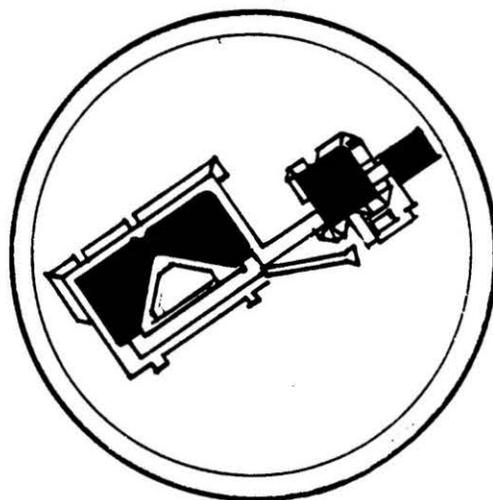
Texas Map . . . . .	10
Regional Map. . . . .	14
Odessa, Street Patterns . . . . .	19
Odessa Population Distribution. . . . .	20
Odessa Future Land Use. . . . .	21
UTPB Building Phases. . . . .	24
Activity Diagram. . . . .	83
UTPB Environs. . . . .	88
UTPB Master Plan. . . . .	91
Preferred Site. . . . .	93
Contours and Utilities. . . . .	94
Wind Velocity and Direction . . . . .	97
Temperature Chart . . . . .	98
Case Study	
Cleveland State University. . . . .	106
San Francisco State University . . . . .	110
Trenton State College . . . . .	115
State University of New York. . . . .	119
UTPB Concepts and Modules . . . . .	134
UTPB Sectional Concept. . . . .	134
UTPB Service Section. . . . .	136
Project Time Schedule . . . . .	148

### Tables

Population Comparison, Counties	
Surrounding the Permian Basin . . . . .	8
UTPB Role and Scope . . . . .	27
UTPB Enrollment . . . . .	28
UTPB 81 Enrollment by Origin and Sex. . . . .	28
Feeder College Headcount. . . . .	29
Distribution of Texas Resident Students . . . . .	30
Soil Properties . . . . .	95
Building Site Development . . . . .	95
Wind and Temperature. . . . .	99
HVAC Requirement. . . . .	140
Lighting Requirements . . . . .	143
Plumbing Requirements . . . . .	146

**UTPB**

**INTRODUCTION**



This publication is a formulation of research facts, and design analysis for a multifunctional student and community center for the campus of the University of Texas of the Permian basin in Odessa, Texas. The project originated to provide a facility for civic and University production with a dual function of a daily center for campus activities:

as a civic center the University center will provide a number of theater lecture halls and gallery to promote a wide range of culture events into the area. With the lack of any such facility in the city the student center will become a positive attraction for the University as well as to Odessa itself.

As a University Center the facility will embody facilities for student activities and daily needs. The Center will facilitate for students, recreation, service, conference, and social interaction. The center will be in effect the living room of the campus.

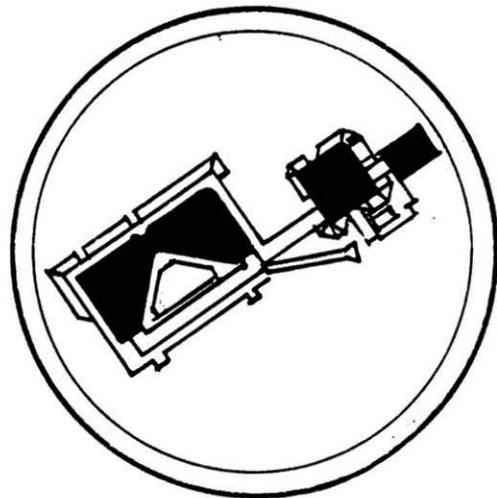
The dual function of the center has the distinct purpose of a community and regional attraction for the University. It is important at this stage in UT Permian Basin life to have an idealistic motivation that is expressant to all conceptual amenity that is inherent of the "University". The word university has preconceived notions of students, campus life, sports, educational

excellence and future.

This Center is conceived as a beginning for application of these concepts among what is now a sterile and some what lifeless campus. The University Center will stand as a pillar to the community and students alike bringing emphasis and recognition to the UT Permian Basin as a campus of diverse civic and social events.

**UTPB**

**GOALS & OBJECTIVES**



Goals

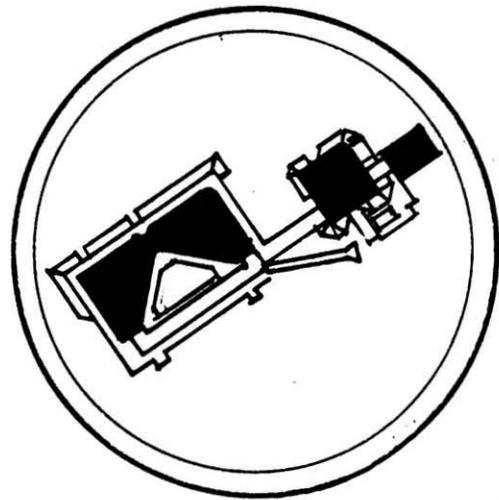
- \* to invite and encourage a community to participate in cultural and civic events.
- \* to promote a sense of University identity and unity within the students.
- \* to promote a sense of campus life to the University.
- \* to create a stimulus for the community and University's economy.
- \* to strengthen the University identity as an encouragement for increased enrollment.
- \* to encourage unity between the university and the community at large.
- \* to add to the site a sense of place and identity which reflects the University's ideals and values.

### Objectives

- \* to provide a facility which houses activities respondent to active needs of the students of UT Permian Basin.
- \* to provide a facility that encourages student involvement in University programs.
- \* to provide a structure that is harmonious with the existing buildings and the surrounding natural environment.
- \* to provide a theatric facility in promotion of community and regional involvement on the the University Campus.
- \* to provide a facility that reflects the optimistic future of the University.
- \* to provide a facility that stands as the focal point of the campus by reflecting its prestigious theme.
- \* to provide a facility which is efficient in use and functionality.

**UTPB**

**CATCHMENT  
POPULATION**



## CATCHMENT POPULATION

The activities chosen to be appropriate for the University Center are related to the interests and needs of the catchment population. The University of Texas of the Permian Basin is the primary client for the facility delegating the student and faculty member as the user group. Since the Center facilitates mainly for student use, this group will be the main persuadent in actual design. Presently the student population is confined to the commuter with no on campus residential facility. The commuter student of course has relatively different facilitative needs in conjunction to long stay on campus waiting for or between scheduled classes. Meeting the need of the future resident student will also be a criteria for design development.

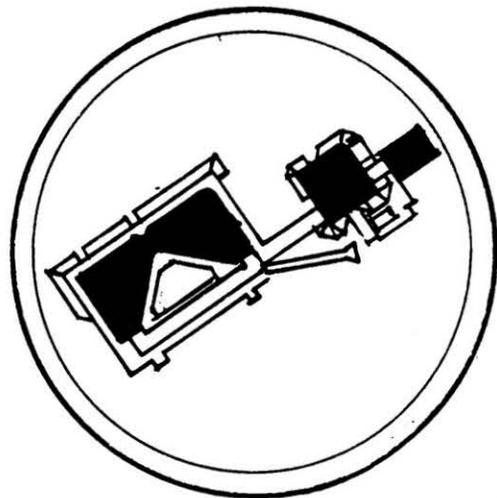
Facilitative structuring for faculty and administration is also a primary concern. This group, unlike the student, resides on the site for the entire work day and has certain needs for daily function. This group comprises the second primary user group.

Community Catchment: the residents of the Odessa/Midland region comprise the secondary catchment population.

Odessan's are mainly bluecollar labors with most offices

**UTPB**

**BACKGROUND**



and white collar positions located in Midland. Odessan's and Midlanders alike have recently faced a cultural transition with the increased wealth and population explosion finding the region culturally inept for their present needs. This Center will provide the basis for the arts revival broadening the cultural realm for community and students alike.

## **BACKGROUND**

### **PREFACE**

This section is a study to provide the designer with pertinent information in the evolution and future trends of the subject region of the Permian Basin and more directly Odessa, Texas and UTPB. Additionally information for the University will be assessed providing a working knowledge of the educational institution and subdivided in sequential categories including: Origin Academic Programs, Enrollment, Problematic Situation, and Future Potential. There will be a basic background study on the evolution of the student union from 1815 to present for the understanding of this unique and complex facility. Finally, based on the research the last subsection will outline relative criteria to substantiate the viability of the proposed project.

### **Region**

The Permian Basin was once covered by a shallow sea densely populated with life. This has proven to be the source of the oil wealth that has established the area Texas most productive energy producing region. Standing as an economic oil production grant, the Basin enjoys increased wealth and substantial population growth. Presently the Permian Basin encompasses a population of

nearly 340,000 people and by the year 2000, while Texas will have a population of approximately 22 million, the region will see some 390-400,000 residents.<sup>1</sup> Ector and Midland counties are accountable by large for the significant increase in the influx of residents to the region. Although the Permian Basin has experienced the economic fluctuations attendant to an energy driven economy. Since 1920 the long-range economic outlook has been good with a stable and promising population growth. (Table 1)

Population Comparison  
Counties Surrounding Permian Basin  
1920-1980

County	1920	1930	1940	1950	1960	1970	1980
Ector	760	3,958	15,051	42,102	90,995	91,805	
Midland	2,448	8,005	11,721	25,785	67,717	65,433	
Andrews	350	736	1,277	5,002	13,450	10,372	
Winkler	81	6,784	6,141	10,064	13,652	9,640	
Ward	2,615	4,599	9,575	13,346	14,917	13,019	
Crane	37	2,221	2,841	3,965	4,699	4,172	
Upton	253	5,968	4,297	5,307	6,239	4,697	
Martin	<u>1,146</u>	<u>5,785</u>	<u>5,556</u>	<u>5,541</u>	<u>5,068</u>	<u>4,774</u>	
<b>Total</b>	<b>7,690</b>	<b>38,056</b>	<b>56,459</b>	<b>111,112</b>	<b>216,737</b>	<b>203,912</b>	<b>235,912</b>

Source: U.S. Census

The communities of Odessa/Midland serve as the economic, educational, medical, cultural, and political hub of this region with a combined population of a quarter of a million peoples. The two cities, traditional civil

rivals, but, forever linked by tradition, finance and family, have begun to seek to pool their talents in a cooperative effort to diversify the economy of the area and enhance growth.

#### Geographic Setting

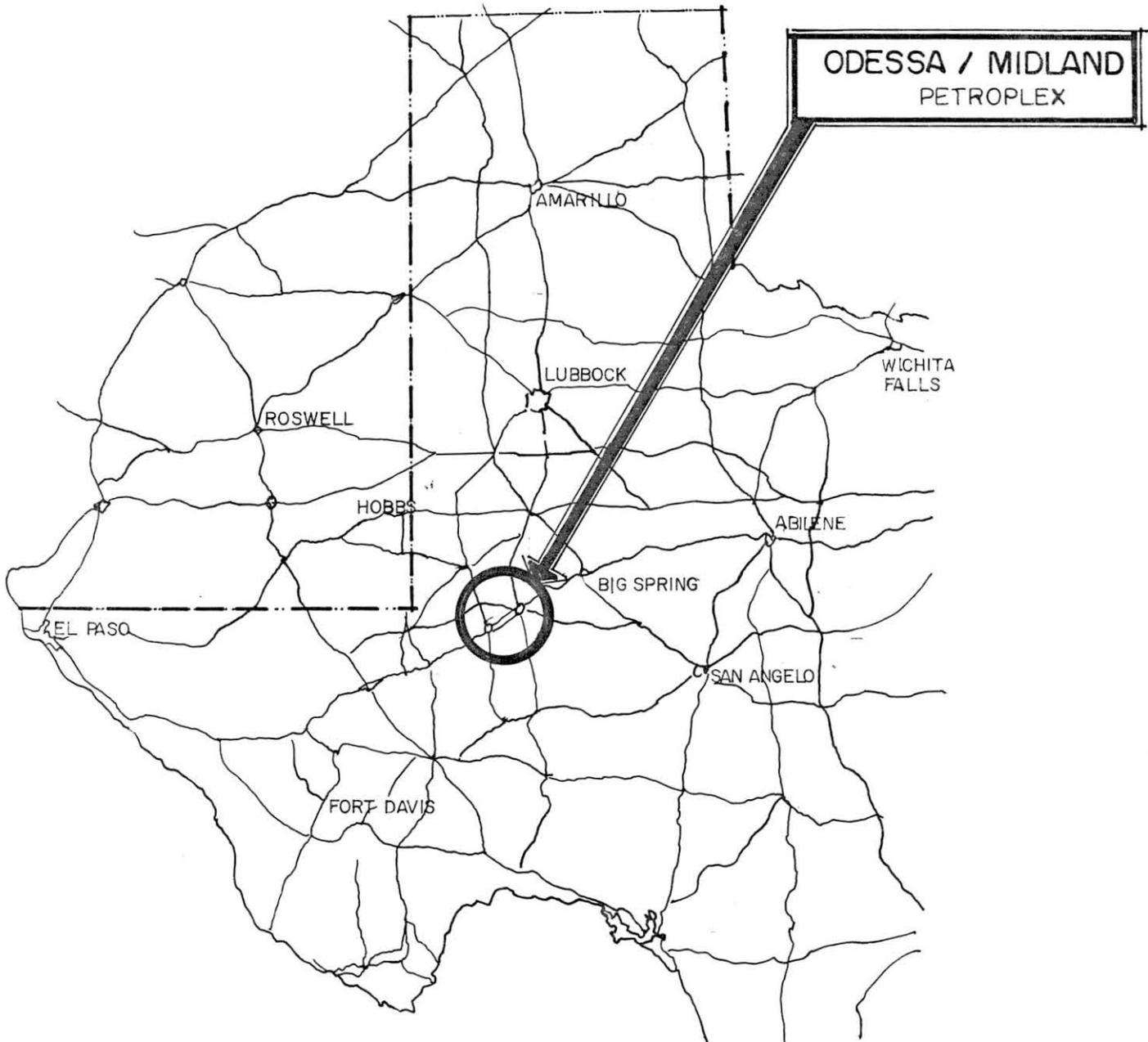
The city of Odessa, Texas is the county seat of Ector County covering an area of 18.3 square miles. It's located in the heart of the Permian Basin, in the southern Great Plains.<sup>2</sup> The City acts as a mid point between Dallas (340 miles to the east) and El Paso (285 miles to the west). Odessa and Midland were chartered in the same year, and at that time a days wagon trip apart along the rail line of approximately 30 miles. Today because of substantial growth the distance has been cut to 15 miles from the two cities outermost limits. The city is situated on the east west line of Interstate highway 20, constructed as one of the most important highways connecting the east and west coasts of the nation, and U.S. highway 385 a major north south route. (Plate 1)

#### Climatic Conditions

The area is typical of a semi-arid climate. Native vegetation includes indigenal grasses and mesquite shrub. There are a limited number of trees.<sup>3</sup>

Drought finds it common place among the region. Precipitation charts may indicate ample rainfall annually, but the rapid runoff rate leaves little moisture for the

PLATE 1



benefit of the terrain. The vast majority of the annual precipitation occurs in early summer. Spring brings a flurry of thunderstorms accompanied by high winds, often in excess of 40 m.p.h. and scattered sparatic rainfall with hail producing flood situations and property damage in concise areas.

Winter precipitation is minimal an snowfall occurs infrequently. Fog and drizzle occur on winter nights as a result of dramatic change in sea level to the southeast forming glaze at subfreezing temperatures.

Tornadoes are sighted occasionally, mostly aloft. Because of the population sparcity, those tornadoes which do touch the ground result in minimal injury or property damage.<sup>4</sup>

Duststorms occur very frequently during the late winter and early spring. They result from the flat terrain and excessive winds. Ground cover lacking coherence to the soil exposes the soil whipping it frantically across the plain, obstructing visibility for miles.

Day time temperatures are hot in the summer dropping to provide comfortable nights. Normal daily maximums are in the low to mid 90s: daily minimums fall in the upper 60s. Winter temperatures range from the upper 50's to the low and mid 30s. The temperature first drops below 32 degrees in mid November and the bad freeze

usually occurs in early April.<sup>5</sup>

Winters are characterized by frequent cold periods followed by rapid warming. Spring has violent thunderstorms. Summers are hot and dry with occasional convective showers. Fall provides variable weather conditions; there are frequent cold fronts followed by two or three days of chilly temperatures, then a rapid warming trend.

Prevailing winds are from the southeast. The wind and the upslope from the same direction causes low cloud formations.

Low humidity levels are very conducive to human comfort. Though the summer temperatures are often above 90 degrees the low humidity and the resulting cooling effect from evaporation provide a pleasant comfort zone.

#### Urban Development

The city of Odessa is the largest urban area in the region, having 90,000 according to 1980 census estimation. Odessa is the center for oil well supplies, retail goods, education and petro chemical production facilities.

Midland is the second largest urban area in the region with a estimated 75,500. Midland is known for its petro chemical, administrative and financial institutions.

#### Transportation Networks

While the automobile and highways comprise a large

part of the transportation system, the movement of goods and people on a regional scale is also conducted by coach lines motor freight services, rail and air routes.

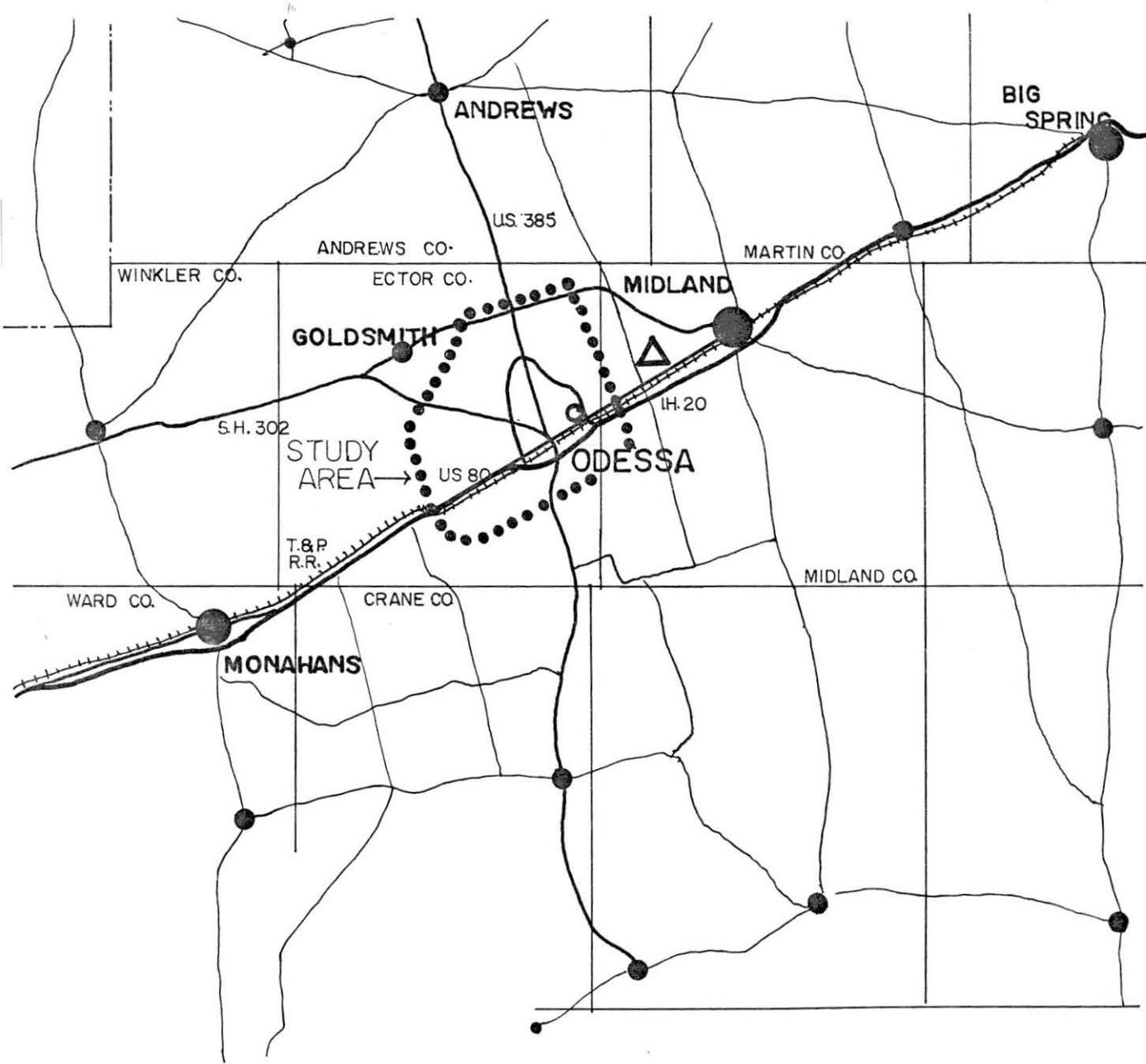
Midland/Odessa is serviced by two regional coach lines; Trailways in Odessa and Grayhound in Midland with numerous arrivals and departures daily not only for passenger carriage but for petroleum industrial supplies runs to the regional energy producing towns.

Odessa's motor freight system is created by seven operators which serve Odessa as well as Midland. Access and regress of vehicles is along the major U.S. Highways 80, 302, 385 and commuter hops to Midland by state highway 191 with Interstate 20 providing a viable link for national commerce routes. Locations of the freight terminals provide easy access to the transportation lines without constraint of traffic flow and congestion.

The Texas and Pacific Railway Company provides the only rail service to Odessa from the region with four east bound and four west bound freight routes daily. The company provides only rail freight and no passenger train service.

Air services for the region are provided by two county line (Ector County Airport, Midland Airport) and a regional line (Midland Regional Airport). Midland regional is operated and serviced by Midland but is situated between the two city providing ample passenger and freight service to the region. (Plate 2)

PLATE 2



-  road of highway
-  railroad
-  city
-  UTPB
-  Midland regional airport

### Socio-Economic Outlook

With the discovery of oil in the Permian Basin in 1926 a new outlook for the area resulted. Within a quarter of a century oil and gas production replaced agriculture and ranching as the obvious economic base, and the region boasted assets which would propel it, economically, into the next century. The region became the primary petroleum producer in Texas with 42% of the state's production occurring in Ector County. Growth was monumental as evidenced by population increases of 172% during the 1950's.<sup>6</sup>

During the 1960s and early '70s foreign crude oil could be purchased more economically than the Permian Basin could supply. During this time Odessa's growth rate and petroleum production tapered off. With the energy crisis of the mid 70s and a renewed interest in oil exploration, plus demands for higher efficiency from producing fields, attention has once again been directed to the Permian Basin. The increased demands for petroleum and petroleum products places Odessa and the Permian Basin in a strong economic position. This trend is expected to continue through the 1990's, expanding with increases in exploration and new secondary recovery techniques. As a result the area has shown increases in job opportunities, and consequently, an inflow of persons to fill these jobs.

From 1970 to 78 the city's population increased

37.1%. Growth projection for Odessa indicates a 60% increase from 1970 to 1980, and the two decade periods 1970 to 1990 should indicate a gain of 127%. From 1970 into the next century a growth rate of 193% is projected. The petroleum and associated service industries provide great employment opportunities. This is demonstrated by a low unemployment rate shared equally by all ethnic groups. The employment demand has persisted in spite of increases in the work force and total employment. This condition is expected to continue for many years.

In addition to the oil reserves, development of the sulfur industry is expected in the future. Although this is a long term development it is a very real economic source and should lead to an increase in employment potential over the next quarter century.

The solar energy field is another area of economic growth. Odessa, located near the geographical center of the Sun Belt, can take advantage of another resource, an average 316 sun filled days annually.

Future economic growth can be expected in the field of electronics, apparel, and manufacturing, as well.

## **ODESSA**

### Historical Sketch

Viewing the wide rolling plain an official of the

newly built Texas and Pacific Railroad gave Odessa its name because the land was resemblance to the Steppes of Russia (founded in 1881). Shortly there after Odessa made the transition from a stop on the rail line to a typical Texas cowtown. Because of the good quality of grazing grasses in the area, Ector County gained some reknown for good live stock, particularly Hereford cattle.

The discovery of oil in 1926 by U.S. Goden Inc. began the huge Permian Basin Oil industry. The following year as oil drilling began in Ector County Odessa was incorporated as a city. Drilling companies brought economic growth and population to Odessa.<sup>7</sup> By 1944 over 2,000 wells produced more than 27 million barrels of oil per year Ector County now produces up to 80 million barrels of oil per year.

Since the oil boom Odessa has matured exponentially to the present population of some 100 thousand plus. Odessa's corporate limits has expanded to 20,000 acres with its existing land use of about 15,000 acres.

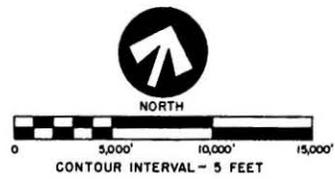
Odessa growth trend is mainly east toward its sister city of Midland. Commercial development is penetrating the loop with following both U.S. 80 and 191 to Midland. Recent residential development is mainly in the form of multi family units in and around the UTPB campus bordering the Loop 338.

Present

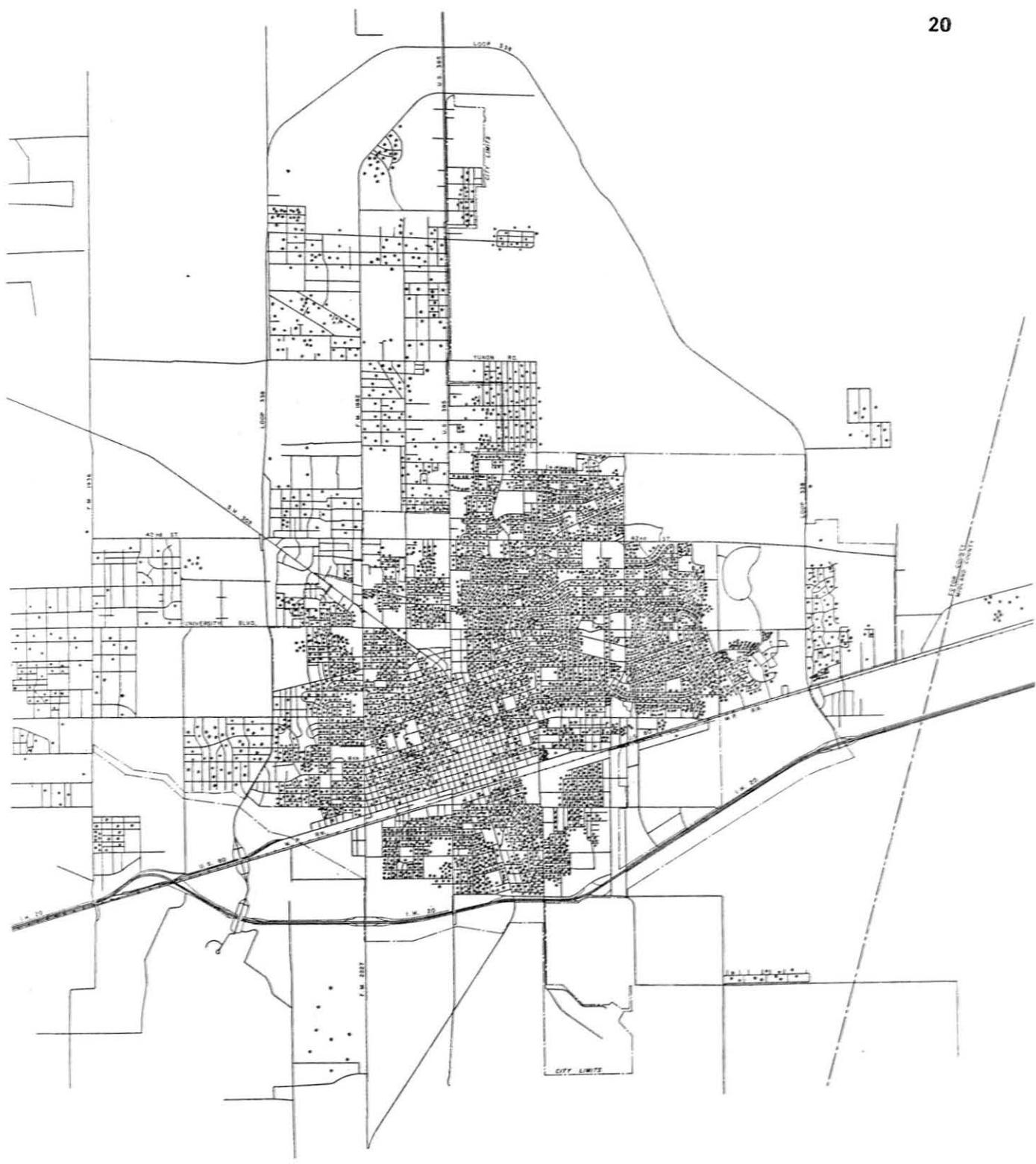
The following plates will exhibit Odessa's street patterns and highway system; population distribution and projected comprehensive plan and land use.



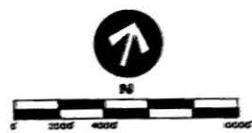
- RAIL-STREET GRADE SEPARATION
- ▲ RAIL-STREET GRADE CROSSING
  
- FEDERAL AID INTERSTATE
- FEDERAL AID PRIMARY
- FEDERAL AID SECONDARY
- FEDERAL AID URBAN
- NON FEDERAL AID STATE SYSTEM

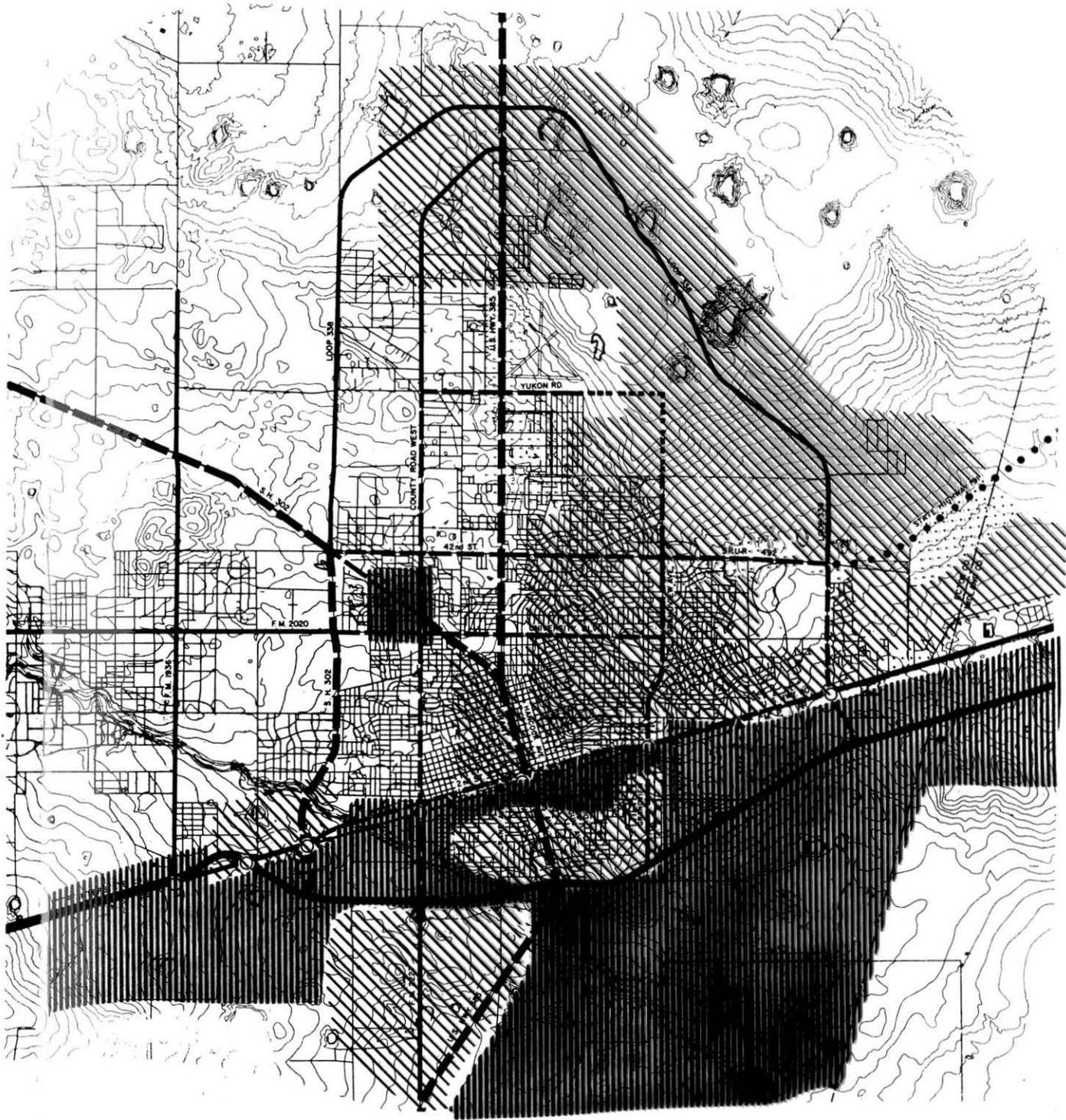


ODESSA, TEXAS



EACH DOT REPRESENTS 20 PERSONS

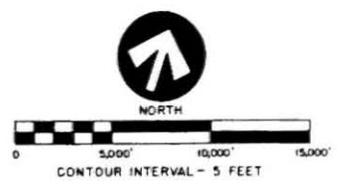
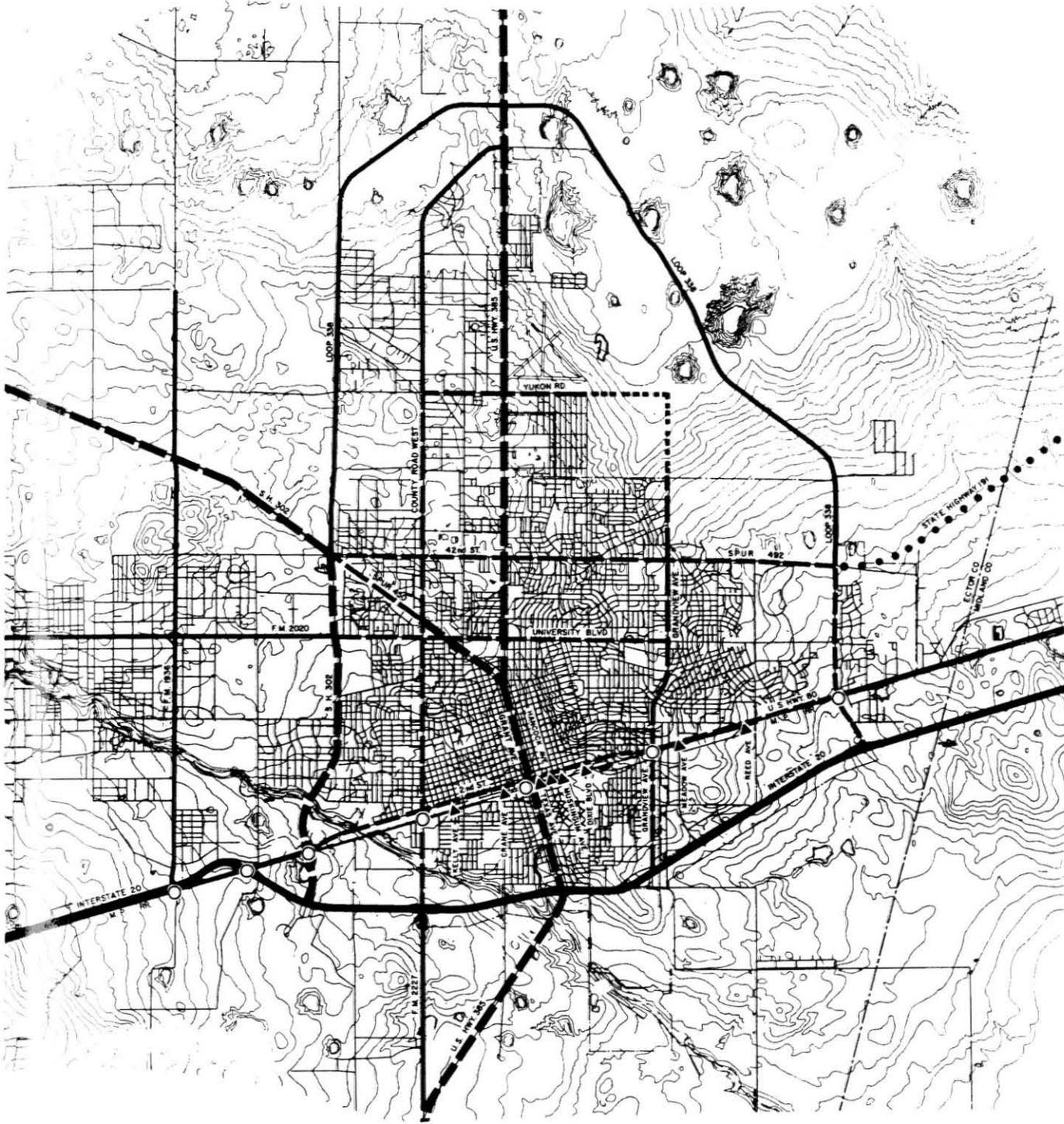




-  INDUSTRIAL
-  COMMERCIAL
-  RESIDENTIAL

# Odessa Future Land Use





## **THE UNIVERSITY**

### Location

The University of the Permian Basin is situated on the eastern edge of the city of Odessa. Fifteen miles from Midland and the heart of Odessa.

### Origin

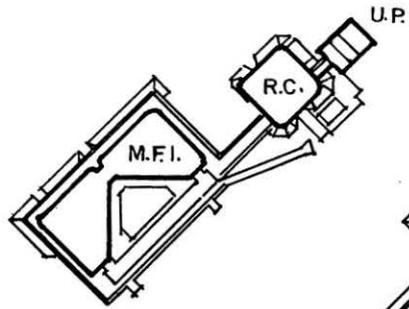
The University of Texas of the Permian Basin was authorized as a component of the University of Texas System in 1969 by the 61st Legislature. UTPB opened in 1973 as an upper level university accepting only junior, senior and graduate students. Educational planning was begun April 1970 with the appointment of Dr. B. H. Amstead as President. Architectural planning was commenced in October 1970 and conceptual plans were presented to the University of Texas System Board of Regents for their approval in January 1971. Design and development drawings of the entire University has developed through a seven phase master plan on the existing phase 1 began construction March 1972.<sup>8</sup> Phase 1 consisted of an athletic Facility Utility Plant and Multi-Functional Instructional Facility. The existing phase consists of 320,000 s.f. of and designed to handle 24,000 students. Phase 2 is a proposed library and administrative facility with an addi-

tional 24,000 square feet and has scheduled to begin construction in 1973 with completion in 1975. Phase 2 was never erected and is still pending construction until there is a substantial need for the additional square footage. The long range scope of the campus plan would encompass some 2,000,000 square feet to handle 20,000 students. While projected development has been some what misinterpreted, the campus seeks alternative directions for potential growth. Plate 3 is a completion of the seven phase master plan in relation to student enrollment.

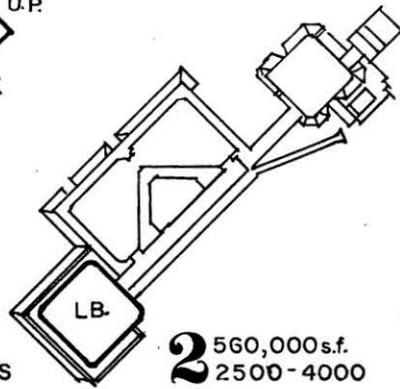
#### Academic Programs

UT Permian Basin has a clearly designated regional responsibility, as well as a state wide mandate. The University currently offers a broad range of undergraduate and graduate programs. There are no doctoral degree programs. However, nine master's degrees are offered in 23 disciplines, and 26 bachelor's degrees are offered in 33 disciplines. As an upper level graduate institution, UT Permian Basin does not normally enroll students in the freshman/sophomore classification.<sup>9</sup>

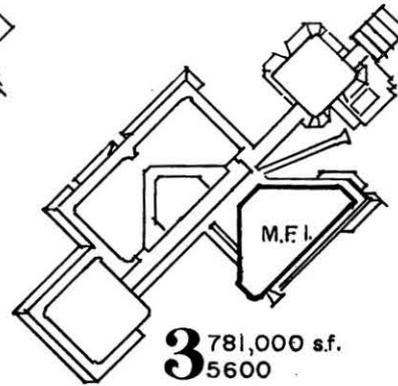
Academic Programs at UT Permian Basin are offered through the three colleges of the University: the College of Arts and Education, the largest in terms of faculty, students and degree offerings; the College of Science and Engineering, which houses some of the most rapidly growing degree programs; and the College of Business



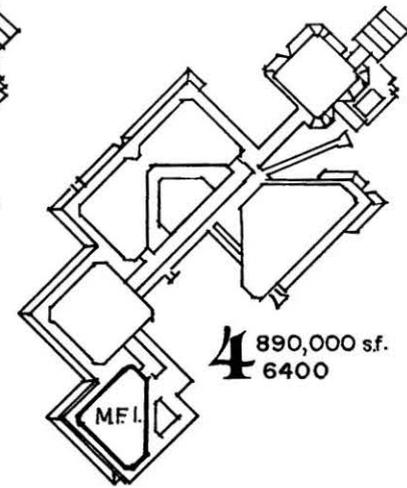
**1** 320,000 sf.  
2,400 STUDENTS



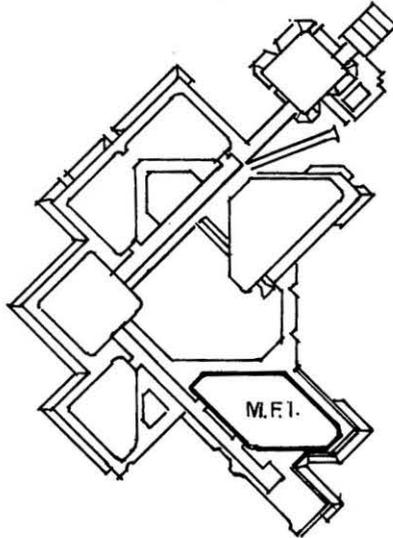
**2** 560,000sf.  
2500-4000



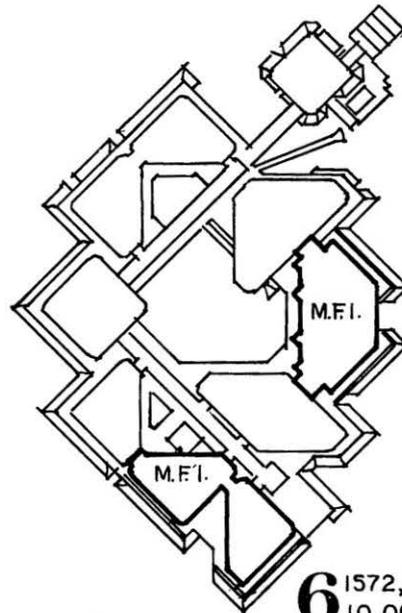
**3** 781,000 sf.  
5600



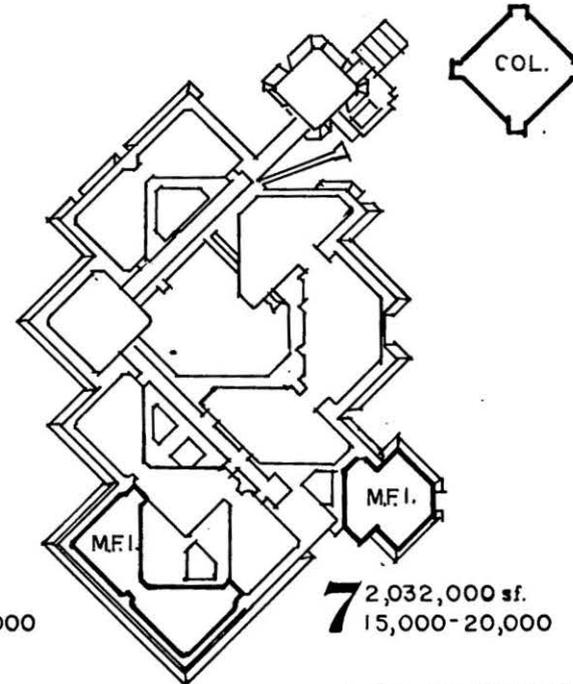
**4** 890,000 sf.  
6400



**5** 1,098,000 sf.  
8,000



**6** 1572,000 sf.  
10,000-12,000



**7** 2,032,000 sf.  
15,000-20,000

## Building Phases

M.F.I.- MULTI FUNCTIONAL  
R.C. - RECREATION CENTER  
U.P. - UTILITY PLANT  
LB. - LIBRARY  
COL.- COLISEUM

Administration, in which new degree options have recently been added. The College of Arts and Education contain degree offerings in art and humanities as well as in professional teaching education. Enrollments in sociology and psychology have steadily grown and demonstrate a need for specific graduate degrees to replace the more confusing master's degree in behavioral science. History, political science, and literature have stable student enrollments, while the fine arts with lower enrollments are nonetheless stable. The professional teacher education department has from the beginning at UT Permian Basin determined that undergraduates must receive a disciplined, focused degree, and so no degree offerings for the bachelor level are made. A variety, however, of master's degrees within education are offered and well-enrolled. The education department maintains a very active summer school program to serve needs of teachers in the Permian Basin. This supports not only the typical undergraduate but also post-master's degree teacher who seeks further depth in specific teaching fields.<sup>10</sup>

The College of Science and Engineering, while developing more slowly, has perhaps the brightest future

at UTPB. Its engineering program currently focuses on control engineering the application of electronics to control devices used in petroleum and other industries. A companion discipline, geology, is enjoying sizable growth at both the graduate and undergraduate levels. Demands from the Permian Basin for degree work in petroleum, electrical and chemical engineering will necessitate UT Permian Basin's pushing into these areas. Computer science is also one of the fastest growing programs in the University and further expansion of this program will be necessary to adequately serve the needs of the region. The life science areas are stable and offer greater opportunities for more students than are currently enrolled. Chemistry and mathematics are small yet stable programs and are necessary to support other science and engineering areas of the curriculum as well as professional teacher education.<sup>11</sup>

### Enrollments

#### Enrollments in the College of Business

Administration continue to grow on a solid pace. New degree programs in finance, marketing and land management offer more flexibility for students and have attracted several majors. The MBA program is an especially appropriate degree for the Permian Basin, through it would attract even greater attention if it were also offered physically in Midland in addition to Odessa, for Midland

houses many corporate and financial offices and demand is naturally greater in that setting.

The following Table summarizes UT Permian Basin present degrees and future scope.

Table 2. 0.0 UT Permian Basin Role and Scope<sup>12</sup>

	<u>Assoc.</u> <u>Cert.</u>	<u>Bacc.</u>	<u>Mast.</u>	<u>Doct.</u>	<u>Special</u> <u>Prof.</u>
Agriculture					
Architecture					
Area & Ethnic Studies					
Business Administration		AE		AE	
Communications		AE			
Computer & Info Scis		AE		A	
Education				AE	
Engineering		AE		AE	
Technologies		A			
Foreign Languages		AE			
Allied Health Scis					
Health Sciences					
Home Economics					
Liberal/General Studies		AE		AE	
Law					
Letters		AE			
Library & Archival Scis					
Life Sciences		AE		AE	
Mathematics		AE		AE	
Multi/Interdisc Studies				AE	
Parks & Recreation					
Philosophy & Religion					
Physical Sciences		AE		AE	
Psychology		AE		A	
Protective Services		AE			
Public Affairs					
Social Sciences		AE		A	
Visual & Performing Arts		AE		A	

- AE - Institution wishes to be authorized by virtue of its role and scope to offer programs in this category and specific degree programs are in existence.
- A - Institution wishes to be authorized by virtue of its role and scope to offer programs in this category but no program is offered at the present time.
- Blank - A blank indicates the category is not within the institutional role and scope or is not applicable.

The University's headcount enrollment of Fall 1983 was 1,975 students, up 20 percent over Fall enrollment 1981, and 25% over Fall 1977

Table 3  
Fall Headcount Enrollment

1977	1978	1979	1980	1981	1983
1,575	1,602	1,598	1,578	1,640	1,975

Note: If past trends hold true as a projection indicator 1,990 enrollment will be about 25,000 students.  
Source: 1983 Statistical Supplement, Coordinating Board Texas College and University System.

Spring enrollment was up 28% in 83 from 1981. It is important to note the characteristics of UT Permian Basin students, for it reveals the challenges facing the University. The average UT Permian Basin undergraduate is 29 years of age, where as the average graduate student is 32. Fifty-two percent of the students are female and 11 percent represent various minorities, less than the general population of the region served by the University.

Table 4  
Headcount Enrollment by Ethnic Origin and Sex

University of Texas of Permian Basin Fall 1981													
Whites		Black		Hispanic		Asian		Indian		Aliens		Total*	
M	F	M	F	M	F	M	F	M	F	M	F	M	F
661	782	10	15	49	61	18	7	2	--	25	10	765	875

Note \* total include students whose ethnic origins were not reported. (M = Male; F = Female).  
Source: 1983 Statistical Supplement, Coordinating Board Texas College and University System.

Among the students attending the University in 1981 ninety-one percent were residents of Texas with 5% out of state and 4% foreign students. Seventy-eight percent of UT Permian Basin students attend classes during the evening: only 16 percent are exclusively daytime students the remaining six percent are enrolled in contract study and thesis research.

### Junior Colleges

Texas junior colleges are the source of about 65 percent of UT Permian Basin's students. A large majority of junior college transfers come from the Permian Basin colleges--Odessa College, Midland College and Howard College. These three feeder community/junior colleges had a total head count in Fall of 1983 of approximately 9,300 up 20% from Fall 1981 (Table 5). The primary educational

Table 5  
Fall Headcount Enrollment  
Odessa, Midland and Howard Junior Colleges,  
1977-1981  
(Semester-length Courses Only)

Institution	1977	1978	1979	1980	1981	1983
Howard College at Big Spring	1,097	1,151	1,005	1,076	991	
Midland College	2,180	2,201	2,527	2,695	2,784	
Odessa College	3,469	3,807	3,670	3,820	3,696	
Total headcount	6,746	7,159	7,202	7,591	7,466	

Note: 27% growth in enrollment from Fall 1977 to 1983. This would account for an additional 1,650 students transferring from the three J.C.'s to UTPB between 1983 and 1990 if past trend hold true.

Source: 1983 Statistical Supplement, Coordinating Board Texas College and University System.

thrust of the students enrolled is vocational with an emphasis on entering the labor market after a limited period of study.

### Existing Problems

Although this support concept has been influential in UT Permian Basin growth the enrollment has never reached the expectations of those who founded the University. Several factors are responsible for this. First and foremost, the expectations that nearby community colleges would supply large numbers of student believes the fact that those colleges are today more productive of vocational students than academic ones. Second, it is difficult to persuade students in local high schools to "remember" the home University and get them to transfer after matriculating at other regional state universities.<sup>13</sup> (Table 6).

Table 6

#### Exemplifying the Influx of Resident Students to Senior and Junior Institutions

#### Distribution of Texas Resident Students by County of Origin, Fall 1981

County	Texas Public Institutions		Texas Independent Institutions		Total
	Senior	Junior	Senior	Junior	
Howard	455	831	68	1	1,355
Midland	1,858	2,440	309	3	4,610
Ector	1,716	2,598	214	--	4,528

Source: 1983 Statistical Supplement Coordinating Board  
Texas College and University System.

Third, with no lower level students in attendance, it is impossible to sustain the kind of campus atmosphere inherent in the minds of most who think of a University; i.e., no team sports on an intercollegiate level, no student union, no dormitories, few clubs and their activities, and little in the way of student life in general. There is, in a word, no emotional rallying point around which students may gather.<sup>14</sup>

Should four-year status be attained, these conditions will change. Though some discussions have been held on four-year status, additional planning will be necessary.

#### Future

To successfully understand the future at UT Permian Basin its important to understand not only its present state but have a overall view of it potential growth. The University stands at the edge of its future. It is at once a university in process--a university in transition. As a university in process it must take a series of progressive and interdependent steps by which it can respond to the needs of the region. A region which is geographically remote, economically dynamic, technologically demanding increasing in population, and diversifying in economy. Collectively, if UTPB has the vision, it can take its people, programs, and facilities and use them wisely. If the University does so, UT Permian Basin

will do much more than survive--it will flourish because the University will provide the people of the Permian Basin and Texas distinctive educational opportunities. This is the most significant mission which UT Permian Basin can fulfil.

## THE COLLEGE UNION

The College Union is an ancient and honorable institution which had its beginnings at Cambridge in 1815. What happened then tells us something about why unions are what they are today.

The members of three Cambridge debating societies used to gather before a debate to compare notes, and afterwards to carry on the argument--usually in a dingy back room of the Red Lion Inn, where they could have something to eat and drink (the forerunner of the snack bar found in almost every union today). But the Red Lion wasn't very satisfactory. Students needed more elbow room. They wanted club rooms and a debate hall of their own. The first union was literally the uniting of the three debating societies to establish their own quarters. Thus the name fifty years, by the way, before there was such a thing as a labor union.<sup>15</sup>

Emphasis in the British unions was, and still is, on debate and discussion, on independence of student thought and action. The Oxford and Cambridge Unions have played such an important part in the discussion of national political and social issues, and in training students to take part in public life, that they have come to

be known as the "cradle of the British Parliament."

Gradually, reference libraries, dining rooms, meeting rooms, lounges and offices were added. The buildings took on the character of men's clubs--the British "gentlemen's club," with a bar. And they emphasized good paintings as part of the decoration, books of poetry and philosophy in the libraries. So unions came to be known also as centers of good taste and social acquaintance.

They became in fact, a symbol of the traditional British two fold goal in education to promote the art of living and especially of living together--of civilized behavior as well as knowledge--and to infuse students with the idea that they are responsible for the welfare of their country. American colleges at the turn of the century saw in the British unions an element needed in American education.<sup>16</sup>

"If one were to name the most fundamental characteristic of these English institutions (Oxford and Cambridge)." Wisconsin's President Van Hise said at his inaugural in 1904, "it would be the system of halls of residence and unions. The communal life of instructors and students in work, in play, and in social relations is the very essence of the spirit of Oxford and Cambridge. If Wisconsin is to do for the sons of the state what Oxford and Cambridge are doing for the sons of England,

not only in producing scholars but in making men, it must have halls of residence and to these there must be added a union.<sup>17</sup>

It was a time of expanding campus populations when the social agencies which once seemed to humanize, enrich and unify college life--the chapel, the convocation, the boarding house, the informal and spontaneous gatherings of teachers and students--became inadequate or impossible. There was growing concern that the communal living of the small college must be lost in its populous successor.

Then came President Woodrow Wilson of Princeton, affirming (in 1909) the British concept in terms that largely reshaped the course of educational emphasis at many institutions: "The mind does not live by instruction. The real intellectual life of a body of undergraduates, if there be any, manifests itself not in the classroom, but in what they do and talk of and set before themselves as their favorite objects between classes and lectures . . .

"If you wish to create a college, therefore, and are wise, you will seek to create a life. . . . My plea then is this: That we reorganize our college on the lines of this simple conception, that a college is not only a body of studies but a mode of association. . . . It must become a community of scholars and pupils."<sup>18</sup>

It was into this climate of ideas about what

constitutes an education that the union came in America. One can see why the union became what, in a large measure, it still is--a place for students to come together and talk among themselves, a place for comradeship.<sup>19</sup> The first building erected explicitly for student union purposes was at Pennsylvania, the dedication address in 1896 stressed the importance of a "place where all may meet on common ground."

For a time--the first quarter of the century--this seemed to be a good idea for men only (again, the British influence). But in the 1920's when women's suffrage appeared and the ancient tradition of education-for-men-only began to dissolve, students saw that it was odd for men and women to eye each other across the campus from their respective strongholds, when they really wanted to be together; unions turned into social centers for everybody, and have with few exceptions been thoroughly coeducational ever since.<sup>20</sup>

At this juncture, in the twenties, two circumstances came together to launch the massive union development of the last forty years.

There was a great postwar upsurge in enrollment in the twenties (as after the Second World War), and students were forced into a fairly grim social existence, unless they belonged to fraternities. It was hard to find a place to eat, or for students to find each other.

Colleges had seen what the canteen and recreation centers had meant to the service men away from home. A counterpart on the campus a union now loomed importantly as an answer to many problems of campus life.<sup>21</sup>

And the answer to the problem of how to get the building also came out of war. What better type of living memorial to honor the college men who had served in the war. What better way to serve the cause of democracy than to create a new campus democracy. The memorial theme was joined to the felt need and this fond appeal coming in a time of prosperity gave a sudden and successful impetus to the slow maturing union movement on a wide front.<sup>22</sup>

In the mid-twenties there were barely a dozen unions. Now there are more than 900 built or being planned. The junior colleges, 700-strong and multiplying fast, are just starting to get interested, not to mention the multitude of unions already built or being planned overseas. And the end is not in sight.

In short, almost every college now recognizes that wherever young people gathered together away from home, a center and program for their out of class life are needed if the college is to fulfill the needs of living along with learning that the union is as normal and necessary as part of the college equipment as a gymnasium, dormitories and library.<sup>23</sup>

Where it once waited on gifts, the union now assu-

mes a high priority in the campus plan. This is especially apparent when a new college is created or an old one moves to a new campus. A number of new colleges and new expecting to have a college union, still others are rehabilitating existing buildings to provide union facilities. And the union is often the second or third building built--sometimes ahead of the library.

#### The Multiple Functions of a Union

In the 1930's the leaders of the union movement, influenced greatly by the concurrent development and success of general community recreation and cultural centers, began to see the union as the campus counterpart of the "community center" elsewhere, with a positive recreational and educational mission to perform. And the Association of College Unions ultimately defined the union officially as "the community center of the college, for all members of the college family" and as "part of the educational program."

It has become not just a sheltering building structure but a priceless tool for shaping community solidarity and the individual student's sense of social responsibility--a natural laboratory where all who will may have a part in the direction of community enterprise.

It is caterer to the campus at large, housing the bulk of its meetings and serving its dinners, advisor to student committees, trouble shooter in certain problems of

student personnel; teacher of the arts of leisure and recreation. It is, or can be, the social-cultural heart of the campus.

It is a lounge, dining room, reading room, art gallery, workshop, theater, music room, forum, game room, dance and party center, public relations agency, office building, ticket bureau, post office, conference headquarters and store. It may perform all of these functions, or part of them, or perhaps still others--but all brought together under one roof so that physical proximity does its part in furthering a sense of community.

So the days when the union was merely "a place to meet," or an incidental supplement to housing--a kind of service station, filling accidental gaps in the provisions for out-of-class needs--are long since gone. It is now, indeed, a community center of the first order, with an identity and meaning of its own.

In sum, a union rightly conceived and planned, can serve the campus community in the following major ways:<sup>24</sup>

#### As the Living Room of the College

The original function of the College union on this continent as a place for social association is still a central function, of course. As one university president said. "The union gives us a living room which converts the university from a 'house' of learning to a 'home' of learning." More specifically:

Men and women students need a common meeting ground. If college men and women are to meet informally and to share common interests beyond drinking a coke together in an overcrowded, noisy corner drugstore, a union is essential.

Commuting students need a place to headquarter on the campus, and the administration and student organizations need an effective way to communicate with them. The commuters ties to the central student body, their participation in campus life, and their satisfaction with their college experience increase immeasurably when there is an adequate social-dining-activity center.

Students and faculty need a common meeting ground to further informal associations outside the classroom, to personalize relations between students and teachers, and to create an intellectual environment outside as well as inside the classroom.

Faculty and alumni always want to entertain at dinners, receptions, and parties. Visitors, parents and alumni need a central place to go when they visit the campus--an information center, lounge, places to meet and visit with friends.

Serving as a living room for the campus in the above ways is a function which has continuing important relevance at any college, representing as it does, the answer to needs which exist regardless of the size of a college, its location, or its plan for housing.<sup>25</sup>

### As the Dining Room of the College

The union is also the campus dining room, usually the main, and often the only dining center for students and faculty who do not dine where they live, and on smaller campuses, many times the dining hall for all or part of the dormitory students, too. Since students have to eat, the dining room function is in many ways the most important service. In the student view, if a union were to consist of only one facility, it would be a lunchroom and snack bar. Many temporary buildings on small campuses which have borrowed the union name for the time being, are just that. and taking all unions together, almost half of the total building area and up to about 70% of the building and equipment investment is devoted to dining and dining-related space.

This role is not likely to diminish. We hear a lot about the vast expansion of college housing, but the U.S. Office of Education reports that the total pattern of college development is such that most students who attend college in the future will commute from their own homes, and they will rely on the union for their meals.

This heavy emphasis on dining is not a digression from the social purposes of a union. Quite the contrary. Just as the dining table is universally the symbol and the center of family social life--the natural and necessary daily gathering place where the influence of conversation

and contact are continuous and most effective--so is it also with college family life. In the union dining rooms, the student gains not only his daily bread or morning coffee, but also a wider circle of friends and a sense of community. and much of what a union does or can do by way of programmed social activity is done to the accompaniment of food and drink.<sup>26</sup>

#### As a Service Center

There are countless other services and conveniences which a union can provide and which simply make life easier: a place to check your things; lockers; an information desk; telephones; barbershop; a handy place to get supplies and books and mail; hometown newspapers; travel bureau or ride exchange; maybe guest rooms where you can put up a visiting friend overnight; a place to cash checks. The union typically provides the answer to the daily service needs of students, by drawing all services together and thus providing a welcome convenience for students and faculty who are likely to be thronging to the union for other purposes.<sup>27</sup>

#### As a Conference Center

Accommodating conferences, institutes and symposia, and extending hospitality to town groups related to the college, are other valuable functions a union serves on most campuses. The conference meeting program dovetails

well with the student-faculty meeting program, because conference meetings are normally held mornings and early afternoons, or on weekends; student and faculty meetings are usually late afternoon or evening on weekdays.

And, of course, playing host to invited groups identifies the college more closely with the community and is a great aid in enlisting interest and support.<sup>28</sup>

#### As a Center for Cultural Recreation

Informal cultural and hobby facilities--constructive outlets for students in their free time are indispensable if they are to be exposed fully to the civilizing influences of the arts--are the hallmark of the union as an educative center; recreational reading room with the latest books and periodicals; music-listening and piano-playing rooms for group recreation; workshops for informal student hobbies; photo darkrooms and adequate gallery for art displays and other exhibits prepared by students; a good small theater.

The cultivation of taste and intelligence in using discretionary time is an important part of what a union is about. The union has a unique and superlative opportunity to enhance the quality of leisure, because it is precisely in the area of student leisure time that it operates.

Since one of the primary functions of a college is to introduce students to the arts and to get them to try out in their daily living the cultural interests the

college so painstakingly cultivates in the classroom, the more cultural opportunities presented to students, the better. Bringing these opportunities to the place where the students are, as in their social center, is likely to result in more interest and participation than if students are expected to seek them out elsewhere on the campus or in the city.

It is well known that the whole pattern and tone of student interests have been substantially changed--away from the often-pointless, time-consuming "collegiate activities" toward serious rewarding cultural pursuits--by the presence of a union that has good cultural facilities and effective leadership. This all means, in short, that with a good union a college can vastly expand the time area in which it educates, and the means by which it educates. And by inviting the public to participate in the union theater and art programs, it can extend cultural benefits to the city and influence cultural standards in the whole community.<sup>29</sup>

#### As a Laboratory for Student Government

A college finds that its efforts toward useful citizenship and its encouragement of student government and responsibility can be greatly expanded and improved if the students have the tools to work with: more offices more closely related to the ongoing life of the campus; handy meeting and conference rooms; workshops--and

the new union building itself to govern. All these facilitate student self-directed programs, enlist more student participation, and give student leaders a new sense of the importance of their role.<sup>30</sup>

#### As a Unifying Force

There is always a risk, even in small colleges, that special interest groups and living-unit groups--the fraternities, the dormitories, the church centers, the clubs or the commuters--will become insular, withdrawing into themselves and splitting the campus socially. Because of its centralized social-cultural-dining facilities and because all students are members equally, the union becomes the common meeting ground. It encourages and strengthens the special interest groups, but on occasion, by conscious design, it brings all together--at open houses and mixers, game tournaments, parties, receptions and audience programs. In this way the strengths of separate groups can be combined to produce a strong unified student body, with all students widening their acquaintance and sharing the feeling of belonging to the larger college community.

Then there is the obstacle to campus cohesion that comes from the weekend exodus, or, on the urban campus, the daily exodus. The prevalence of student cars does not help. When students disappear into town or leave for the weekend, they miss identification with the college com-

munity as a whole.

In the past, the values of a campus-centered fellowship were sought mainly by recreating the Oxford kind of residential college, with the union as the supplement which counteracted the attractions of the town and facilitated interchange among the several college residences. But the residence halls are no longer the main answer--not when non-residents, as noted, are beginning to outnumber all resident students put together. For the increasing number of commuters the residence halls are simply of no significance. This spectacular turn of events in who goes to college, assigns to the union the role of creating a common life for students that educators once anticipated the residence halls, mainly, would fulfill.<sup>31</sup>

## VIABILITY OF THE PROJECT

With the knowledge of the University's present condition it would be understandable to stray from the proposed master plan in the direction of a facility that would bring a sense of campus life attracting not only students but the surrounding community as well. The student union will do just that. There are several important factors for the Union to be the next facilitative structure on the UT Permian Basin Campus they are as follows:

1. More than ever the University needs an attraction expressment of the student campus to encourage the undergraduate to complete his or her education at the UTBP.
2. The city of Odessa is in need of a theatric facility for promotion of cultural and civic events. This will in effect be rented annually producing a much needed source of income for the University.
3. The facility itself will generate a source of income from it daily accommodation to the students, faculty and visitors for a constant revenue return.
4. When the University's four year undergraduate status is obtained they will find an increased demand for classroom and lecture space. This Center will not only meet that need but the old student facility can and will be converted to handle the increased influx of resident students.
5. Presently the Union is a much needed facility for a commuter campus like UT Permian Basin. With class attendance ranging well into the night the commuter student finds himself with long layovers and requires a facility to accommodate his or her leisure dining and educational pastime.

6. The student union will be a foundation for a new campus and new beginning to get the University back on its projected path. It will unify the student in organization and activities and promote a student identity in the university and among the community.

It is plain to see the importance of this project and understand the emotional impact that the designer, if treated with care, can produce to benefit the growth of the university and entire community. The designer must take in heed the information supplied in this section this building will be the pivotal point in the University future and sensitivity to design is crucial.

## ENDNOTES

<sup>1</sup>Marvin Springer and Associates. Comprehensive Development Plan, City of Odessa, Texas. Odessa, Texas, January, 1980).

<sup>2</sup>Odessa, A Twenty Year Plan, Texas Tech University, Division of Architecture (Lubbock, Texas, May 1979), p. 1.1.

<sup>3</sup>Ibid., p. 1.3.

<sup>4</sup>Ibid.

<sup>5</sup>Ibid.

<sup>6</sup>Ibid., p. 1.6.

<sup>7</sup>Ibid., 1.4.

<sup>8</sup>Jessen Associates Inc. The University of Texas of the Permian Basin. (Austin, Texas, n.d.).

<sup>9</sup>The University of Texas of the Permian Basin Strategic Plan, 1984-1991. The University of Texas of the Permian Basin. (Odessa, Texas, March 15, 1984), p. 1.

<sup>10</sup>Ibid., p. 14.

<sup>11</sup>Ibid., p. 15.

<sup>12</sup>Ibid., p. 16.

<sup>13</sup>Ibid.

<sup>14</sup>Ibid.

<sup>15</sup>Port Butts. "The College Union Story" Association of College Unions (March, 1964), p. 58.

<sup>16</sup>Ibid., p. 59.

<sup>17</sup>Ibid.

<sup>18</sup>Ibid., p. 60.

<sup>19</sup>Ibid.

<sup>20</sup>Ibid.

<sup>21</sup>Ibid.

<sup>22</sup>Ibid., p. 61.

<sup>23</sup>Ibid.

<sup>24</sup>Planning College Union Facilities for Multiple Use. Association of College-Unions-International, (Madison, Wisconsin, 1964), p. 62.

<sup>25</sup>"The College Union Story," p. 62.

<sup>26</sup>Planning College Union Facilities For Multiple Use, pp. 62-63.

<sup>27</sup>Ibid., p. 63.

<sup>28</sup>Ibid.

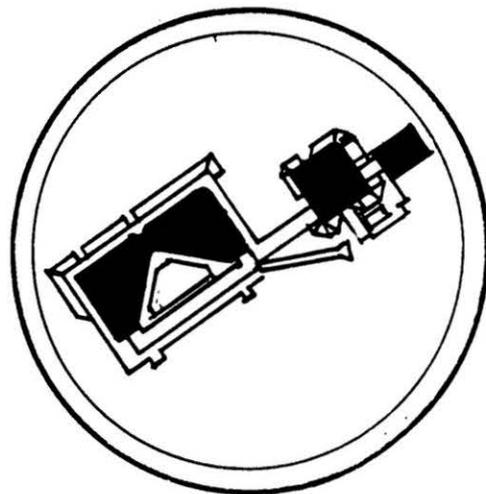
<sup>29</sup>Ibid.

<sup>30</sup>Ibid.

<sup>31</sup>Ibid.

**UTPB**

**ACTIVITY ANALYSIS**



## ACTIVITY ANALYSIS

### PREFACE

This section will provide the designer with an understanding of the multiplicity of activities inherent of student unions by individual physical breakdown revealing the users needs and preferences.

The diversity of facilities and activities of a union building makes their classification into a few categories impossible. Rigid separation of activities into designated spaces is, of course, fruitless because of their unique interrelationship to each other.

Nevertheless, student life does prescribe a few broad areas for student activities. Categories of activities are divided as:

Administrative, Service and Maintenance. Activities provided for the student on an informative and management level deals with those people who duties are management, maintenance, and operation of the activities and space of the facility.

#### Related Subsets

- Parking
- Arrival/departure
- Information (reception/registration)
- Personal hygiene

- Maintenance
- Administrative/office

Commercial activity dealing with commerce provided for the user to deal with daily purchasing and banking transaction without leaving the campus.

Related Subsets

- Commodities
- Banking
- Ticket distribution
- Postal

Food for students and faculty providing facilities for food preparation and sell at all ranges, private to public, breakfast to dinner

Related Subsets

- Dining/public and private
- Snacking
- Drinking

Passive activities providing for leisure and intellectual stimulation, not competitive or recreational requiring noise conscious space.

Related Subsets

- Group meeting
- Banqueting
- Reading/quiet
- Lounging
- Audio visual entertainment

Active activities of small scale recreation and competition. Unlimited use group.

Related Subsets

- Games
- Workshops

Theater activities for particular user groups pertaining to the multiple levels of theatric and lectures.

Related Subsets

- Drama
- Recital

The following activity interrelationships are provided in terms of user time, tendencies, and adjacencies. It is important for the designer to understand that the categories of time span and number of participants to each individual activity will fluxuate a great deal according to time of day and scheduling of classes. The sparatic influx of students during scheduled classes heightens to a continual flow as class ends repeating the process five or six times daily. Because of this unstable consistency the computations of time and participant are not based on an average, but rather a maximum and minimum. This analysis will provide a foundation and guide for space locations, configurations, and articulations in the space summary and detailed space list.

The following activity analysis was compiled of

literature surveys and observations in an effort to compute the pertained statistic in a report to the Subject Project.

## **ADMINISTRATIVE, SERVICE AND MAINTENANCE**

Activity - PARKING

User group: Events: high volumes coinciding with cultural events. Mainly after daily work hours. 200 vehicles max (load handled by existing commuter lot)

Faculty and student: time limit, low volume  
30 min. to 1 hr. 20 max.

Visitor - sporadic 10 to 20 vehicles.

Staff - permanent spaces. 20 vehicles max.

Time span/frequency: Minimum: 30 min., time parking  
Maximum: 2½ hrs. Cultural and civic events.

Objectives: To park user's vehicles in a sequential order relation to the purpose of the visit. To eliminate pedestrian/vehicular conflict and vehicle/vehicular conflict.

Service activities: Union and community functions and events.

Tendencies: \* separation of vehicular station points by user groups

- \* favorable location and accessibility for handicapped staff and visitors
- \* eliminate pedestrian/vehicular conflict
- \* orderly ingress and egress at peak loads.

Physical/support: \* aesthetic treatment with landscaping and signage.

- \* physical elements conducive to vehicle movement

Adjacency: \* entry and exit of facility

- \* to commuter lots

Activity - ARRIVAL/DEPARTURE

User group: student and faculty - sparatic maximum groups  
of five

heavy load - between scheduled classes and  
lunch, constant flow.

Community - heavy load, during events,  
constant flow

Staff - scheduled times and shifts

Time span/frequency: Min: during scheduled classes 25 to  
50 people/hr.

Max: 30 min. to 1 hr. before and  
after cultural events or  
performances. 500 people

Objectives: reduce pedestrian conflict

- \* supply facilities for handicapped
- \* invite and encourage use of other  
activities
- \* to separate and direct user path

Service activities: All

Tendencies: \* to inform user of directional decisions  
\* reduce transitional noise levels  
\* protection from climatic elements

Physical support: \* Strong directional image and axis  
\* inviting transitional space/aesthetic

- \* ease transition from exterior to interior

- \* comfort air temperature controlled

Adjacency: parking/exterior facilities, information and reception

human interaction space (lobby)

Activity - INFORMATION (RECEPTION/REGISTRATION)<sup>1</sup>

User group: visitors: largest group providing University and Union facility information (1-10 people in groups  
student and faculty sparatic one or two groups  
staff 2

Time span/frequency: 8 hours daily

Objectives: \* provide an informative guide for a broad range of activities and university functions

Service activities: all union and university activities educational and recreational

Tendencies: informative guide to user  
\* promote the user to seek union and campus information  
\* instructional facility  
\* rarely used and understood

Physical/support: \* legiable and aesthetic space  
\* harmonic to the surrounding

Adjacency: \* entry/exit/lounge and lobby space, main circulation spine.

Activity - PERSONAL HYGIENE

User group: all heavy loads at noon and between classes,  
14 people max.

Time span/frequency: operation hours extend as long as  
facility is open

Objectives: \* to provide a space for human waste disposal  
and personal hygiene  
\* to provide a sanitary controlled space  
\* to incorporate exhaust systems for odor  
control  
\* to provide facilities for handicapped

Tendencies: \* to become over crowded  
\* high use area  
\* to need constant maintenance

Adjacency: all

Activity - ADMINISTRATIVE/OFFICE

User group: student. 10 to 20 people occupying three to five areas, student representatives to the University.

Administration: \* 20 max. occupying 10 areas management of Union and administrative advisor to the University.

Time span/frequency: continuous 8 hours on weekdays

Objectives: \* to administer and control all activities and functions of the activities.  
\* to supply the students with an administrative staff controlling student activities and functions

Service activities: all

Tendencies: \* centralized power and control  
\* easily accessible to all parts of the building

Physical Support: private work areas with storage areas and writing surfaces.  
Each supported by a public controlled reception area.

Adjacency: arrival/departure, information main circulation spine.

Activity - MAINTENANCE

User group: janitorial and maintenance personnel, 6-8  
people

Time span/frequency: 5 hrs. and weekdays

Objectives: to repair and maintain the entire facility  
interior and exterior

Tendencies: separation of duties among the maintenance  
facility; janitorial building and grounds

Service activities: all

Physical support: storage and shelter for equipment.  
Must be obscure and unobstructive

Adjacency: to all major activity nodes

**COMMERCIAL**

Activity - COMMODITIES/BOOK PURCHASE<sup>2</sup>

User Group: student and faculty sparatic 10 to 20 people per hour during mid semester and heavy load 39 to 50. Two weeks before and after semester starts.\*

Staff 3 cashiers, 2 service personnel, 1 receptionist, and 1 administrator

Time Span/Frequency: 8 hours daily week days

Objective: \* to supply an on campus retail distributor for basic commodities literature and supplies to provide

\* to create an alternate source of income for the University

Tendencies: \* the retail center becomes the main source for purchase of required course literature

\* becomes a stable economic entity for the University

\* provides an added attraction for consumers of the community at large

Physical support: user control in and out of the purchasing area.

- \* defined area for book purchases
- \* defined area for clothing and supplies
- \* adequate display space and natural lighting

Adjacency: entry/exit, parking  
main circulation spine

\*Provided by observation.

Activity - BANKING<sup>3</sup>

User group: student and faculty - 1 to 20 people an hour\*

Staff - 2 tellers, 1 to 3 automatic tellers

Time span/frequency: teller 8 to 10 hrs. daily

automatic teller 24 hrs.

Objectives: \* supple an on campus currency distribution  
system

\* convenience to the user group

Tendencies: \* overcrowding at rush hours at the teller  
lane

\* automatic tellers provide convenient alter-  
native to check cashing

\* promote commerce on campus

Physical support: \* exterior location for 24 hr. service

\* security facility for protection of  
large amounts of cash

\*Provided by observation.

Activity - POSTAL SERVICE<sup>4</sup>

User group: all sparatic; 1 to 8 people per hour

Staff - 1 teller, 1 assistant

Time span/frequency: 1 to 5 min. (high turnover rate)

Objectives: \* to provide a convenient service letter drop  
 \* provide an area for stamp purchase, package weight and delivery and all related postal services

Service activities: ALL

Tendencies: \* to become congested at rush hours  
 \* to create a convenient postal transaction center on the campus  
 \* to be a vital governmental service

Physical support: \* legible signage and convenient location  
 \* harmonic to physical surroundings  
 \* use of self-service postal facility to reduce user time

Adjacency: \* entry and exist 1  
 \* book and commerce facility  
 \* main circulation spine

Activity - TICKET DISTRIBUTION<sup>5</sup>

User group: all - maximum, approximately 200 people will purchase tickets immediately before an event .

staff - 2 selling and distributing tickets,  
money handling

Time span-frequency: Min. - non-existent, no events  
Max. - sparatic for days coinciding  
with cultural events

Objectives: - to sell tickets prior to an event  
- to provide a clear directional image for ticket purchasers  
- to minimize over crowding and pedestrian conflict

Service activities: events and activities selected for ticketing

Tendencies: - to become congested directly prior to major events

Physical support: - position for ease of ticket purchase  
- provide for external sheltered ticket purchase next to major event halls

Adjacency: next to or centrally located to the theaters and lecture halls

## FOOD

Activity - DINING/PUBLIC AND PRIVATE

User group: \*all: sparatic usage before and after noon, 10 people hr. max. during lunch and dinner, high turn over rate, 50 people an hour for two hour span  
Staff - 2 cashiers, 4 service, 3 cooking, 1 maintenance

Time span/frequency: 6 hrs. a day

Objective: create an on campus dining facility with a variety of entrees.

- \* to provide an enjoyable and aesthetic facility for food preparation and sell
- \* to provide for comradery and social interaction
- \* to provide a facility for the convenience of campus commuter students

Tendencies:

- \* to become congested during rush hours
- \* inadequate group and single participant seating
- \* important facility for the student and faculty's daily needs

Physical support: aesthetic well spaced seating for human  
comfort

\* adequate kitchen facility

\* convenient access and egress from food  
check out

Adjacency: \* the kitchen, main structure spine, entry and  
exit exterior service entrance

\*Provided by observation

Activity - SNACKING

User group:\* All: high turn over rate extremely active during noon, dinner and 15 min. time spans between classes (3 to 8 a minute) 80 people max. sparatic during class 5 to 10 an hr. max.

Staff: 2 checkers, 2 service personnel, 3 or 4 cooks, 1 maintenance

Time span/frequency: 8 to 12 hrs. a day

Objectives:

- \* to provide a fast, hot and cold food preparation service for the campus
- \* to provide an orderly ingress and egress food purchase area
- \* to provide accommodating interior and exterior seating for participants

Tendencies:

- \* congested area with restrictive flow during peak periods
- \* high noise levels
- \* congested seating
- \* popular interaction space among students

Service activities: all

Adjacency: lounge/dining  
main circulation spine

\*Provided by observation

Activity - LOUNGING/DRINK<sup>6</sup>

User group: all: 50 people max.

Staff - 1 to 4

Time span/frequency: 4 to 8 hr. with extended hr. on  
weekends

Objectives: \* to provide a means for relaxation and  
leisure time  
\* to provide a facility for students to meet  
and gather after daily classes  
\* to provide a facility that serves alcoholic  
beverages in a controlled space

Tendencies: \* to become gathering and organizing places  
for students and faculty  
\* to become confined and intimate spaces  
\* become a social focal point

Service activities: all

Adjacency: entry, exit, dining facility, main circulation  
spine

## PASSIVE

Activity - GROUP MEETING<sup>7</sup>

User group: student, faculty and community

large groups 10 to 50 people

intimate 2 to 10 people

Time span/frequency: time span is dependent upon the activity taking place inside approximately:

\* meetings - 30 min. to 1 hr.

\* lectures - 1 to 2 hrs.

\* movies - 1½ to 2 hrs.

Objectives: to accomplish an efficient and economic space to be used by a range of groups and activities

\* to develop a working proportion between the user and the space

\* to adjust the size of the space to group size

\* control noise level

\* spread throughout building to service various sections

Tendencies: \* lack of conformity to group size

\* to be a useful quiet space for group

gatherings

- \* to be adjacent to food preparation areas  
for easy service

Physical/support: \* feasible space with movable portion  
walls and folding partitions without  
effecting aesthetic quality

Activity - BANQUETING<sup>8</sup>

User group: all varied participation depending on the activity, removable seating 200 max.

Objectives: \* to provide a multifunctional space for banquets to dances  
\* to provide an open floor plan with little obstruction  
\* to provide a facility that can accommodate a large group of people headed by a form of stage or podium

Tendency: \* large unobstructed spaces of monumental scale  
\* a defined stage area  
\* acoustically inadequate

Service activities: kitchen, for food service

Physical support: \* large expansive roof systems with lighting systems for stage  
\* movable partitions

Adjacency: food preparation area, entry/exit, parking, lobby

Activity - READING/QUIET

User group: student and faculty

sparatic and varies with time of day

1 to 30 people

Objectives:

- \* to provide a noise controlled area for reading and relaxation
- \* to isolate the area from easier section of the building
- \* to provide a variety of areas connected for flexibility of use

Tendencies:

- \* to become overcrowded with increased noise levels and reduction of private isolated human space
- \* to be a popular space for course study
- \* to be a cold sterile atmosphere

Time span/frequency: \* individuals can spend 10 mins. to 2 hrs. in the space

Physical support:

- \* isolated cubicals for 1 or 2 seated
- \* isolated from activity space
- \* expensive decorative space supported by book selection areas and adequate lighting

Adjacency: isolated

Activity - AUDIO VISUAL ENTERTAINMENT<sup>9</sup>

User group: all: 1 to 20 people occupying the space at  
one time

Time span/frequency: average of 30 min. per participant

Objectives:

- \* provide a aesthetic space with single and paired seating for leisurely entertainment from T.V., film and music
- \* to provide adequate isolation between the media's but at the same time intergrated in the same space
- \* to provide for group intimacy as well as interaction

Tendencies:

- \* inadequate seating for the individual and or pair
- \* to become a high use area during popular programing
- \* to be a key leisure space

Physical support: sufficient entertainment equipment

- \* auditorium seating style for proper visibility

Service activities: all

Adjacency: main circulation spine, lounge, food service

Activity - LOUNGING

User group: all: sparatic max. use after scheduled event  
600 max.

Objectives:

- \* to provide a large expansive space for user interaction
- \* to provide a area for student display tables, sales, etc.
- \* to provide a designated area for art exhibits, sculptures, etc.
- \* to provide an expansive, casual space for a variety of university programs
- \* to develop an interior and exterior court yard space with seating and aesthetic quality

Tendencies: a highly used area for variety activities

Physical support: large unobstructed space of monumental proportions

Adjacency: main circulation spine entry/exit/activity areas, theater

## ACTIVE

Activity - GAMES

User group: all: facilities for 20 participants

Time span: 10 min. to an hour depending on the game selection

Objectives:

- \* to provide for small scale recreational facilities involving 1 or 2 participants - table tennis, billiards, video and cards
- \* to provide sufficient spacing for optimal competition
- \* to treat noise levels typical of an activity
- \* to isolate from quiet areas

Tendencies:

- \* to become a very active space with high noise levels
- \* to be a social gathering space
- \* substantial source of income
- \* to become a cold impersonal space

Physical support: service area for food sales and rentals

Adjacency: main circulation spine

Activity - WORKSHOP<sup>10</sup>

User group: students: varies according to the use and facilities for particular activity  
Staff - 1 instructor

Time span/frequency: 8 hrs. daily during the course of the week

Objectives:

- \* to provide a variety of photography activities for a diverse group of student organizations
- \* to provide a safe instructional work facility
- \* to develop a controlled shop environment
- \* to incorporate multiple work spaces with one controlled area

Service activities: campus newspaper, print shop, and maintenance facility

Tendencies:

- \* to be very controlled because of the use of various equipment
- \* to be a highly instructional vocational facility
- \* in need of continual maintenance

Physical support:

- \* sufficient electrical outlets for equipment
- \* foundational ties for machinery

## THEATER

Activity - DRAMA AND OPERA PERFORMANCES<sup>11</sup>

User group: all: seating capacity 1,200 people max.

Time span/frequency: min. 1 hr. events  
 max. 2½ hr. large scale  
 stage performances

Objectives:

- \* to provide a center for the performing arts for student and university programs and civic events for the community at large
- \* to provide an acoustically efficient facility
- \* to provide a theatric center with sufficient support facility
- \* to promote an added source of income to the university
- \* to provide for an aesthetic and comfortable seating arrangement
- \* to provide a controlled and orderly ingress and egress to reduce pedestrian conflict

Tendencies:

- \* acoustically inadequate, impaired visibility for back rows
- \* to seat large groups of people in a monumental space

Service activities: ticket distribution  
lounge or lobby

Physical support: main and balcony level seating with fly  
tower and backstage structure

Adjacency: entry/exit, lobby (lounge), parking, ticket  
distribution, hygiene facilities

Activity - RECITAL PERFORMANCES<sup>12</sup>

User group: all: seating capacity 300 people max.

Time span/frequency: Min. 30 min.

Max. 2½ hrs.

Objectives: \* to provide a center for small scale recital  
and performances and dual function as a lecture hall

\* to provide an acoustically efficient facility

\* to provide a controlled and orderly ingress and egress

\* to provide a distinct directional understanding to the participants

\* to provide aesthetic and comfortable setting for viewing performances

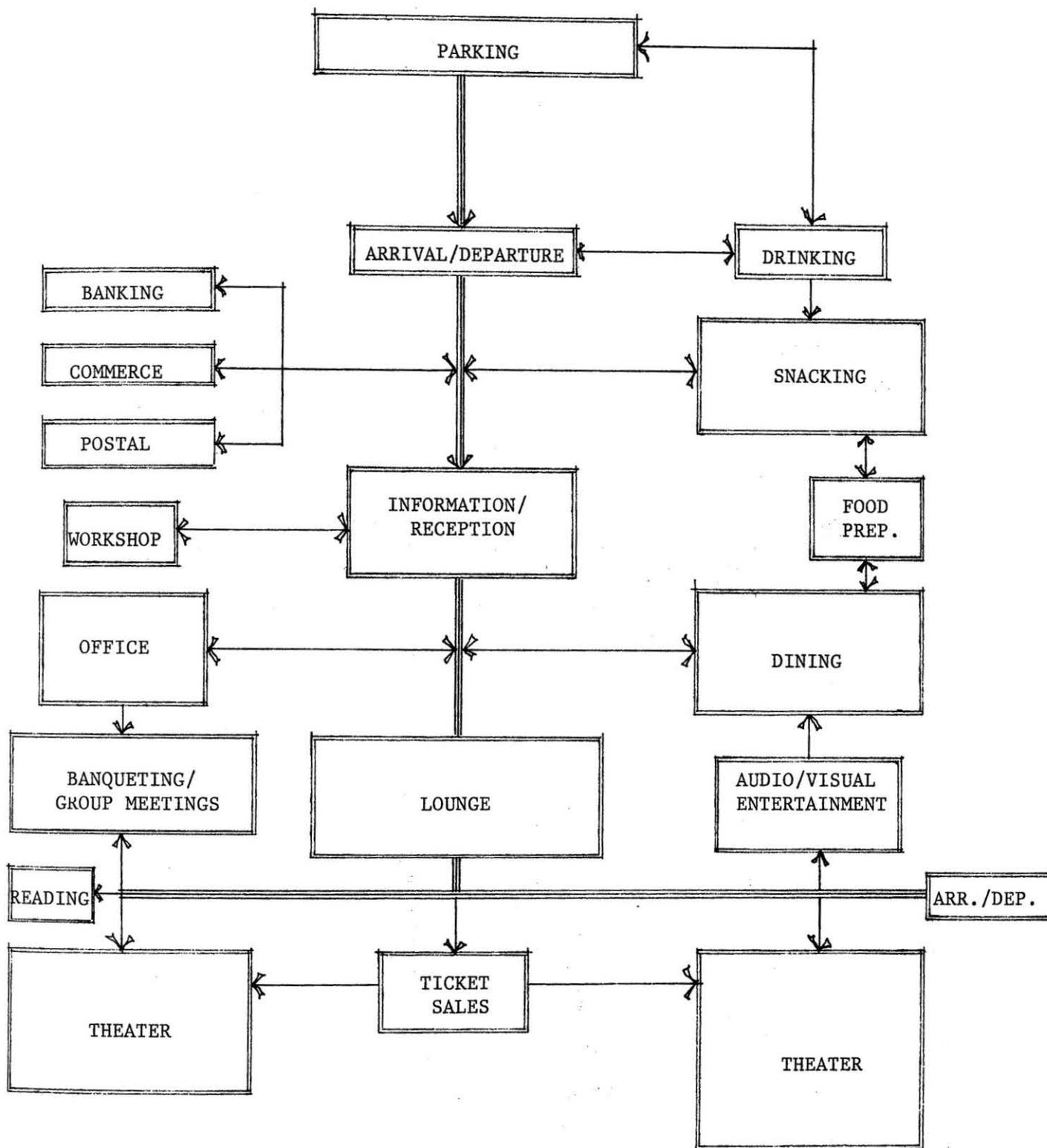
Tendencies: \* visibility problems

\* acoustical problems

Service activities: ticket distribution

lobby

Adjacency: entry/exit, lobby, parking, ticket distribution, physical hygiene facility



**Activity Diagram**

## ENDNOTES

<sup>1</sup>Chester Arthur Berry, ed. Planning a College Union Building. New York Bureau of Publication, Teachers College. Columbia University, (1960), p. 57.

<sup>2</sup>Jack Jenkins and Sidney McQueen, Administration and Operation of the College Union. Association of College Unions-International. (Stanford, California, 1973), p. 318.

<sup>3</sup>"Student Center for Small New Jersey Campus." Architectural Record. (August, 1978), p. 67-71.

<sup>4</sup>Planning Collge Union Facilities for Multiple Use. Association of College-Unions-International. (Madison, Wisconsin, 1964), p. 95.

<sup>5</sup>Planning a College Union Building, p. 134.

<sup>6</sup>"Student Center for Small New Jersey Campus," p. 101-106.

<sup>7</sup>Planning College Union Facilities for Multiple Use, p. 95.

<sup>8</sup>Planning a Collge Union Building, p. 179.

<sup>9</sup>Ibid., p. 181.

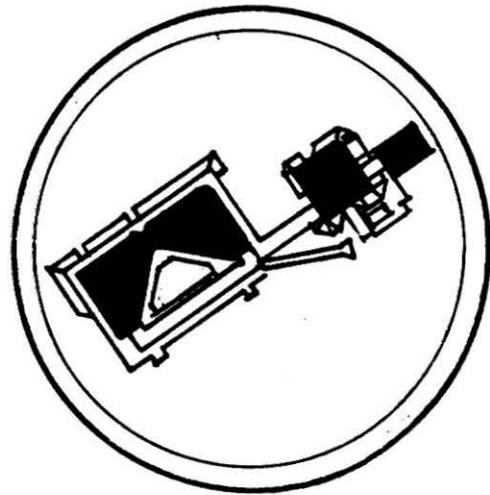
<sup>10</sup>Ibid., p. 149.

<sup>11</sup>"Edward Larra Bee Barnes Design for the Performing Arts at Purchase." Architectural Record. (August, 1981), p. 65.

<sup>12</sup>Ibid., p. 68.

**UTPB**

**SITE ANALYSIS**



## **SITE ANALYSIS**

### **PREFACE**

The site analysis is concerned primarily with site specific issues, and the surrounding environments. Site location in relation to the physical context is addressed first providing the designer with a sequential progression from large to small scale of site data. Geographical maps and environment land use maps of the site are to provide general characteristics of the imaged environment as well as clarifying maps and written information about the area.

Climatic data will be approached in a macro- to micro scale. Restrictive soil features and study of building site development will be delineated through a comprehensive soil survey with mapped utility and easement lines.

The section will also compile a complete description of the existing buildings and roadway to the requirements of the system performance criteria, "building envelope." The conduciveness of the building to the existing structures is of primary concern. The impact of the proposed long range master plan is also an important criteria to consider in design development. The complete analysis, activity and site make it possible to approach

the specifics of the facility itself.

## **ENVIRONS**

The site is located on the eastern edge of the city of Odessa with Midland 15 miles to the east. The site is approximately one mile square and broadened by four major thorough fares:

### Parkway Boulevard (west of site)

The major entry access thorough fare to UT Permian Basin. It is one major thorough fares for which additional interchange structures are recommended on Interstate Highway 20.

Restrictive Zoning. Primarily retail and single family residents.

### East Loop 338 (east of site)

North-south thorough fare system connecting interstate highway 20, U.S. 385 and state highway 302 and 191 to Midland. Major external transportation link to the University.

Restrictive Zoning. Primarily single family residents (Odessa Country Club) with sparatic retail development.

### University Boulevard (South of site)

Major link from east 338 to downtown Odessa. Second major entry access thorough fare to the backside of the University.

Restrictive Zoning. Primarily retail and office space with the only support multifamily residents bordering the campus.

42nd Street (north of site)

This thorough fare is an important east west artery connecting from the Loop 338, UTPB Campus area westward to highway 385 and Ector County Coliseum. 42nd Street also has countinued service to state highway 191 to Midland.

Restrictive Zoning. The land was annexed by the city but is presently undeveloped.

Major activity nodes

Odessa Hilton - six story hotel complex major visitor and convention accommodation in the City.

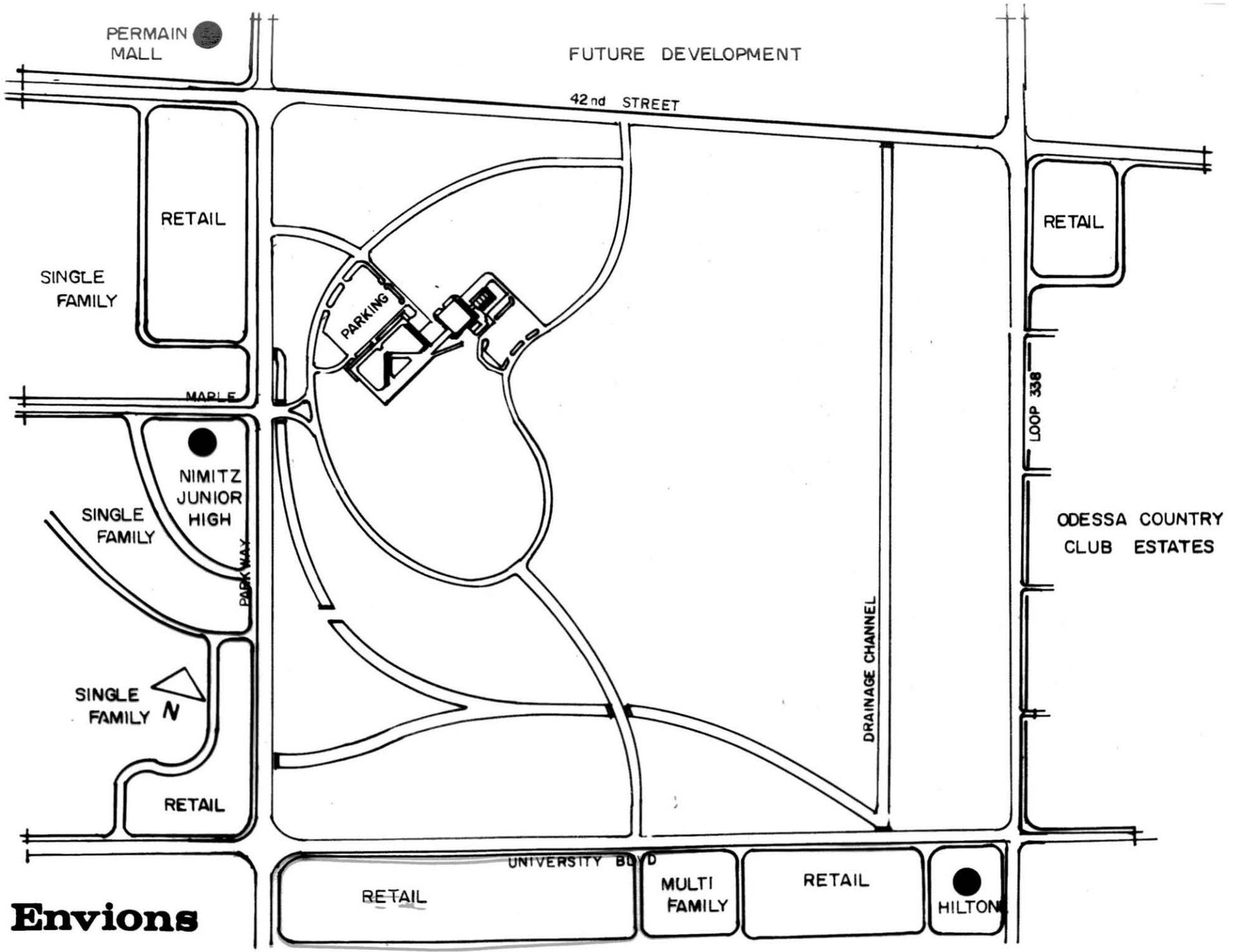
Permian Mall - largest retail mall in the city of Odessa.

Chester W. Nimitz Junior High - one of the largest secondary schools in the city. Actively uses the campus.

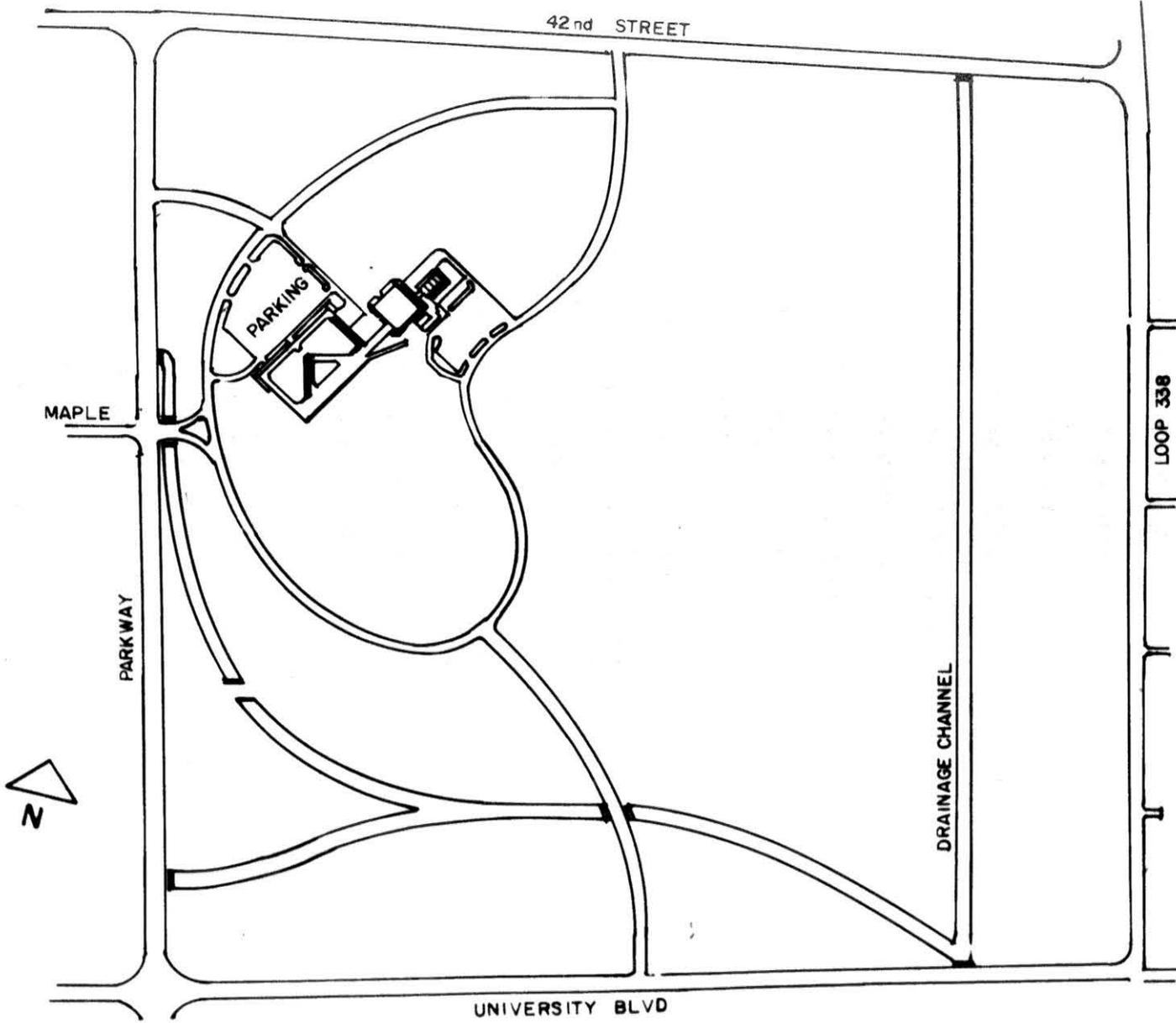
Adjacent zoning and activity nodes are indicated on the overlay (3.1).

## **THE SITE**

The site is property of, owned and serviced by the University of Texas. The existing structures, shown in Figure 3.1 are the present university facilities. The



**Envions**



main facility structure for the University consists of a multifunctional educational facility, gymnasium and utility plant, connected by a pedestrian concourse. The main pedestrian traffic ways are elevated 20 feet above ground level (referred to as the mesa) in an effort to separate pedestrian and vehicular traffic. The multifunctional educational facility rises several floors above the mesa designed with a limited number of permanent interior partitions for flexibility of instructional spaces. Service lines run just below the mesa and are distributed throughout the building.

The main structure presently embodies all instructional facilities, administration offices and student services. It is a four level design encompassing some 320,000 square feet for an estimated 2,400 students.<sup>1</sup>

The gymnasium is a two level structure with recreational facilities such as basketball courts racketball courts, weight rooms, locker rooms and applied sciences. Exteriorly and adjacent to are tennis and squash courts and an Olympic pool and court.

The third structure in the prosession is the utility plant designed to service the existing structure along with the capacity for additional phases. The whole structure has substantial parking and is encircled by an intercampus loop.

There are a few existing outdoor recreational

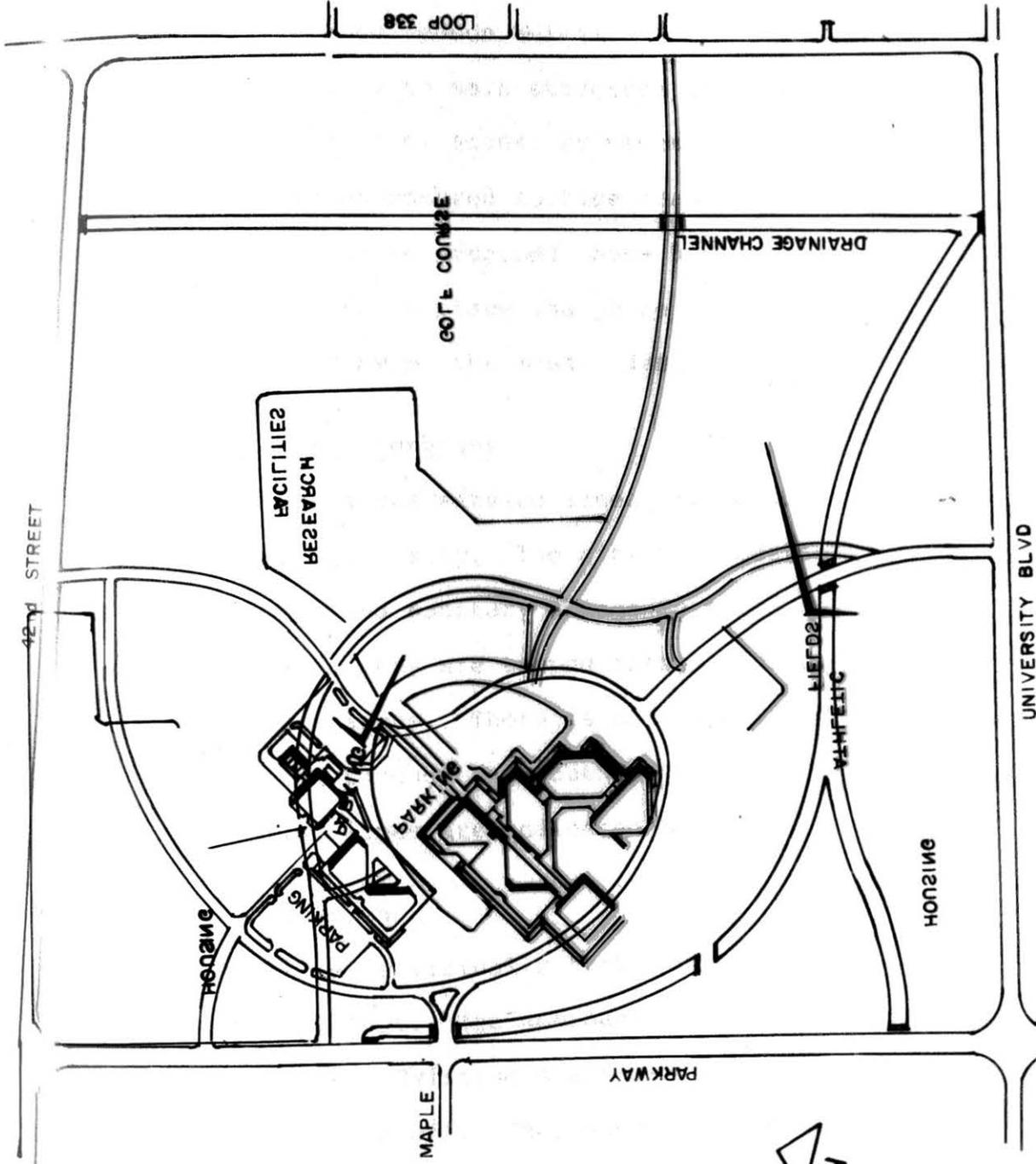
facilities on the site. One is a scenic walk and duck pond supported by a parking lot. Adjacent is a rugby field with a baseball facility mainly for community use. The campus also supplies a physical fitness track for the University and city residents.

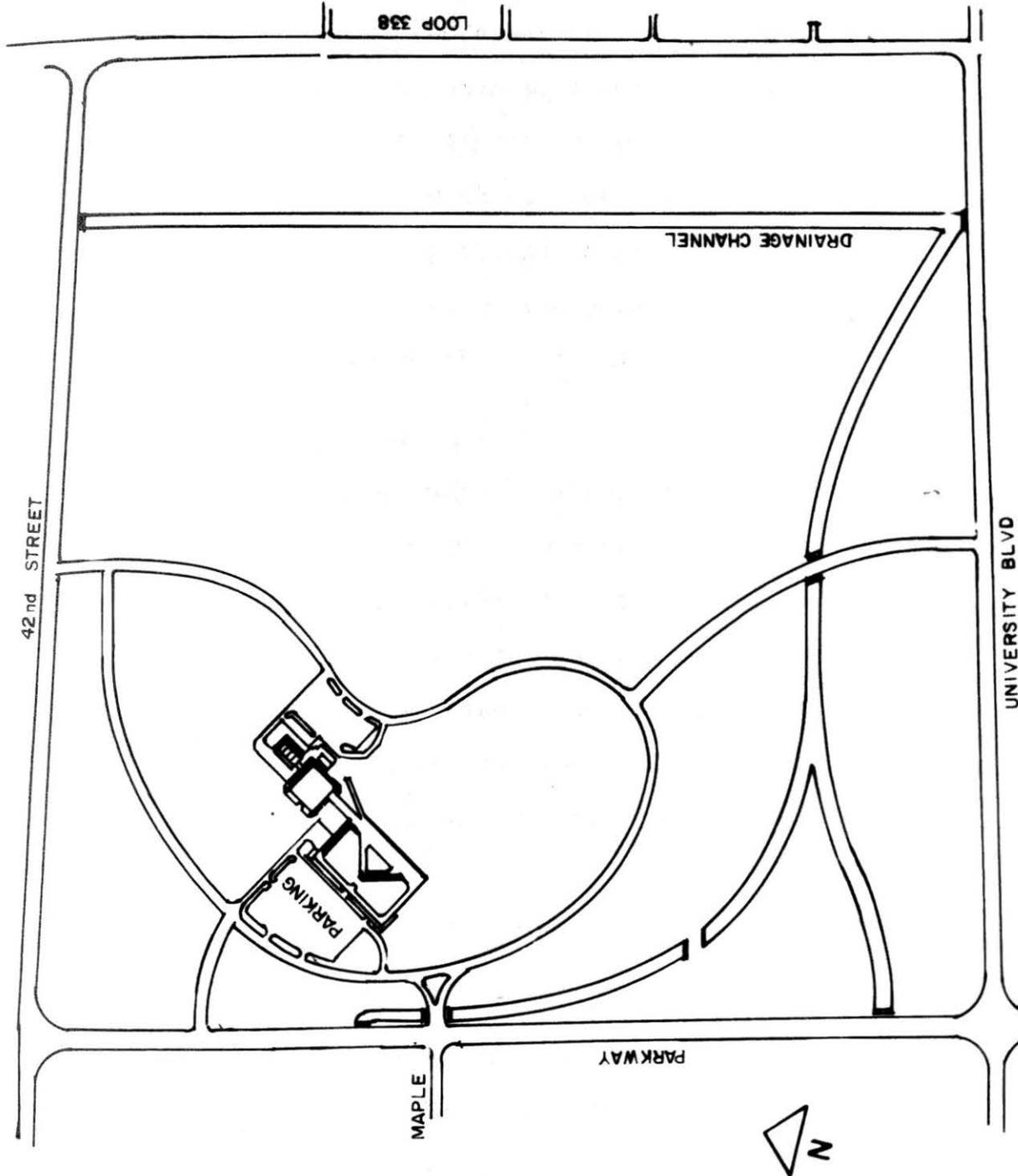
#### Master Land Use Plan

Figure 3.2 shows the proposed land use plan conceived with the original master plan. The plan works around the existing campus loop and a new outer campus loop allocating 30 additional acres of parking to supporting the extended facility. There are an additional 82 acres for campus housing bordering the north and south west corners of the campus. The plan also proposed a 121 acres for a golf course running the extent of the southeastern half of the campus. Some 92 acres were provided for future athletic auditorium and gaming fields. For future educational development there is a 24 acre lot bordering the outer campus loop for UTPB related research facilities. This proposed development will not materialize any time in the near future if ever, but must be taken into consideration and not stray for the cohesiveness for the whole skeem.<sup>2</sup>

#### Preferred Site

The student union should be positioned at the heart of the campus and adjacent to the existing struc-





tures. The 6 acre lot directly adjacent from the northern half of the main structure located in Figure 3.3 seems to be an adequate site reason being:

- \* adjacency to main structure and gym
- \* second level access by pedestrian ramp
- \* large unobscured surface plan
- \* location to proposed phase 3 development the Union can replace the phase without obstructing the skeem of the master design.

#### Utility Lines and Services

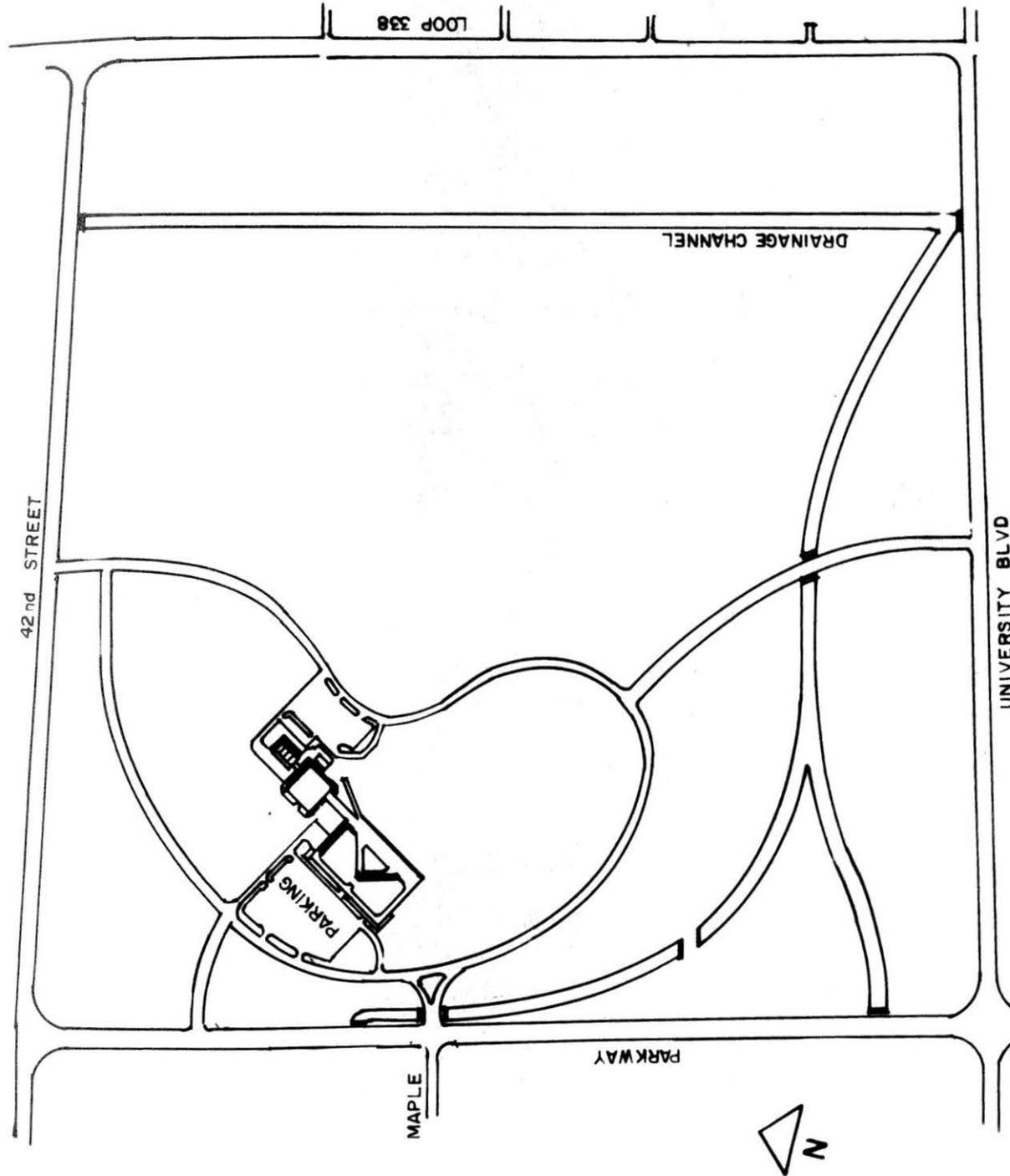
All on campus service lines are supplied and maintained by the University. The city provides service of electrical main and sanitary sewage up to the UTPB property line where they are topped into and dispursed throughout the campus. There is one electrical company easment running through the southeastern edge of the campus at existing lines are indicated in Figure 3.4

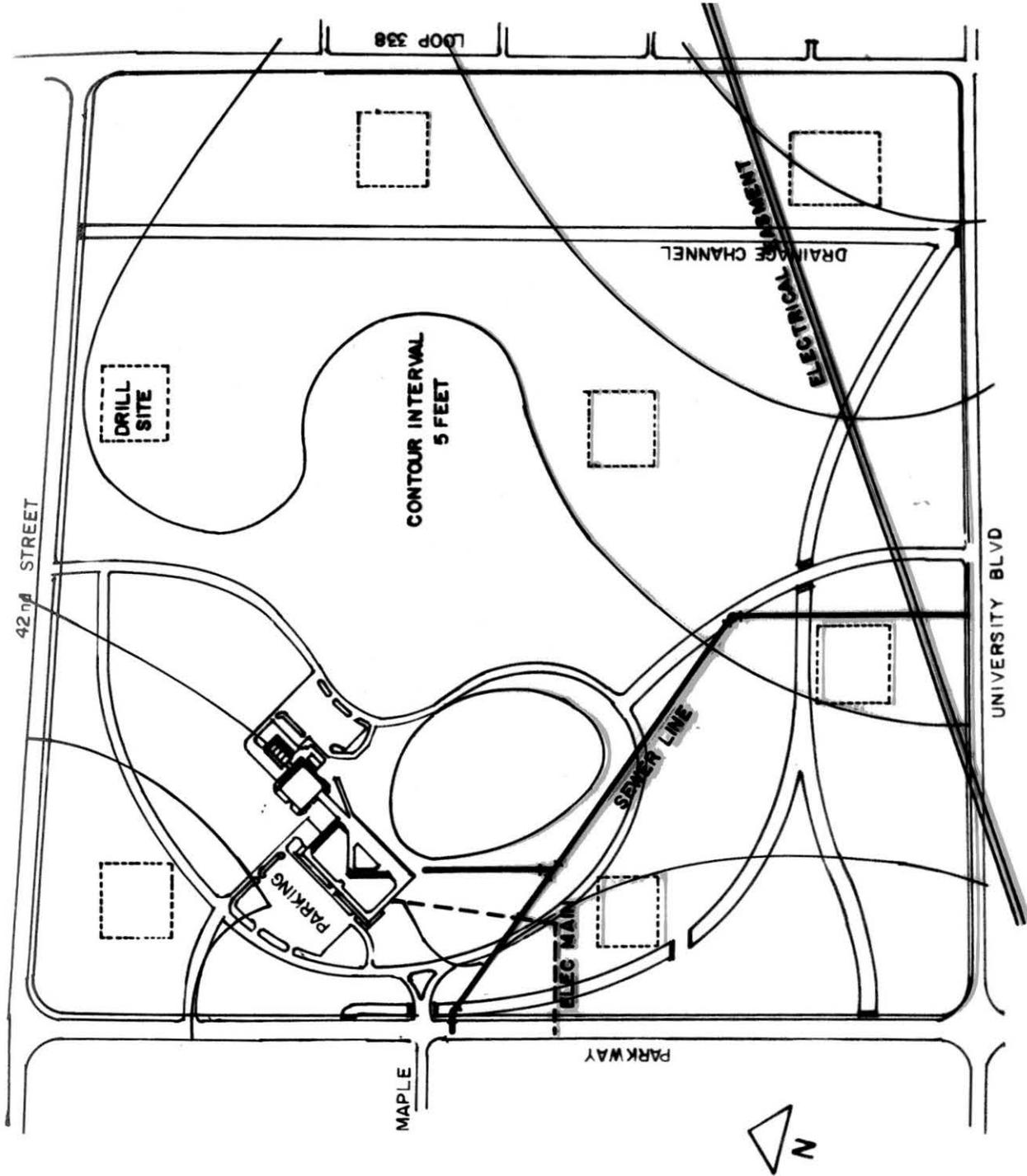
#### Soil and Vegetation

The site is virtually flat approximately 5 foot slope every 500 feet. The dominant slop is toward the southeast corner. Existing drainage channels provide the majority of the run off. The natural terrain is resemblant of flat prairie land: the vegetation consists of sage brush, mesquites and short undergrowth. Landscaping around the existing structures and major

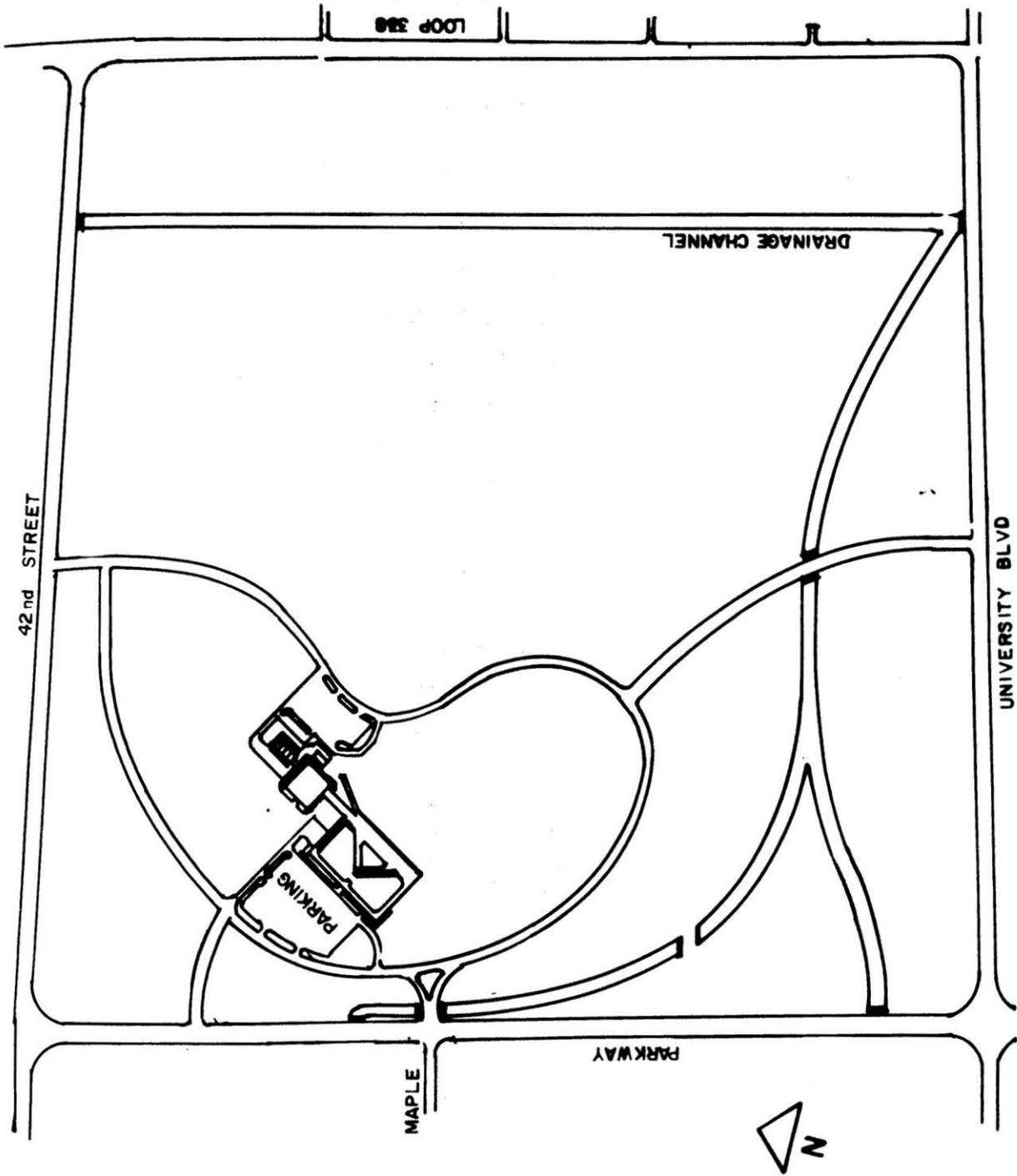


# Preferred Site





# Contours & Utilities



entrances reflect the natural growth with compatible desert plants and flowers, rock berins and tailored grass area. The landscaping is controlled by a more than adequate sprinkler system.

The subsurface is a Duro soil that is a cemented pan, or a hard rock base with a thin layer of top soil. The proper-

Table 3.1<sup>4</sup>

## Duro Soil Properties

Depth in	Water permeability Tr/hr	Potential shrink-swell
0-8	2.0 - 6.0	low
8-30	0.6 - 2.0	low
30-54	none	none
54-66	none	none

Table 3.2<sup>5</sup>Duro Soil  
(building site development)

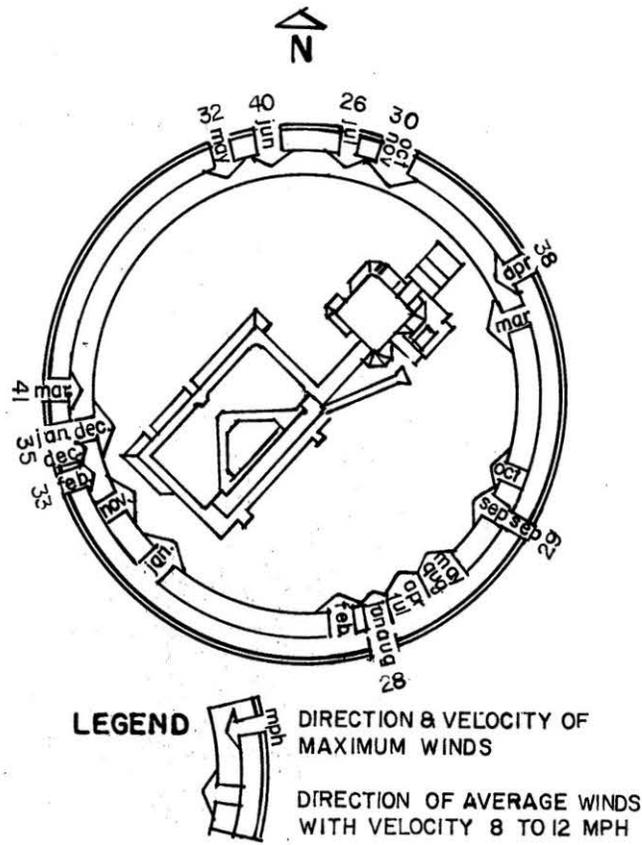
	Severe	Moderate	Slight
Shallow excavation	displacement of the cemented pan over a large area 3" to 6"		
Dwellings without basements		slight displacement of cement pan	
Dwellings with basements	deep excavation 10" to 14"		
Roads and street			displacement of top soil only 1" to 2"

Note: Severe, moderate and slight are in reference to strength of the soil to displace.

ties of Duro soil shown in Table 1 and 2 show that the soil has a high compressive strength due to its cemented pan and lack of water permeability with major site development problem in regard to shallow and deep excavation.<sup>3</sup> Table 3.2 shows the problems with any type of large scale excavation and how such an attempt would be detrimental to building time and cost. This was the reason for elevated service lines in the existing buildings on campus avoiding this added excavation cost. The plus of the Duro soil is the remarkable stability factor providing for a sound foundation in structural design.

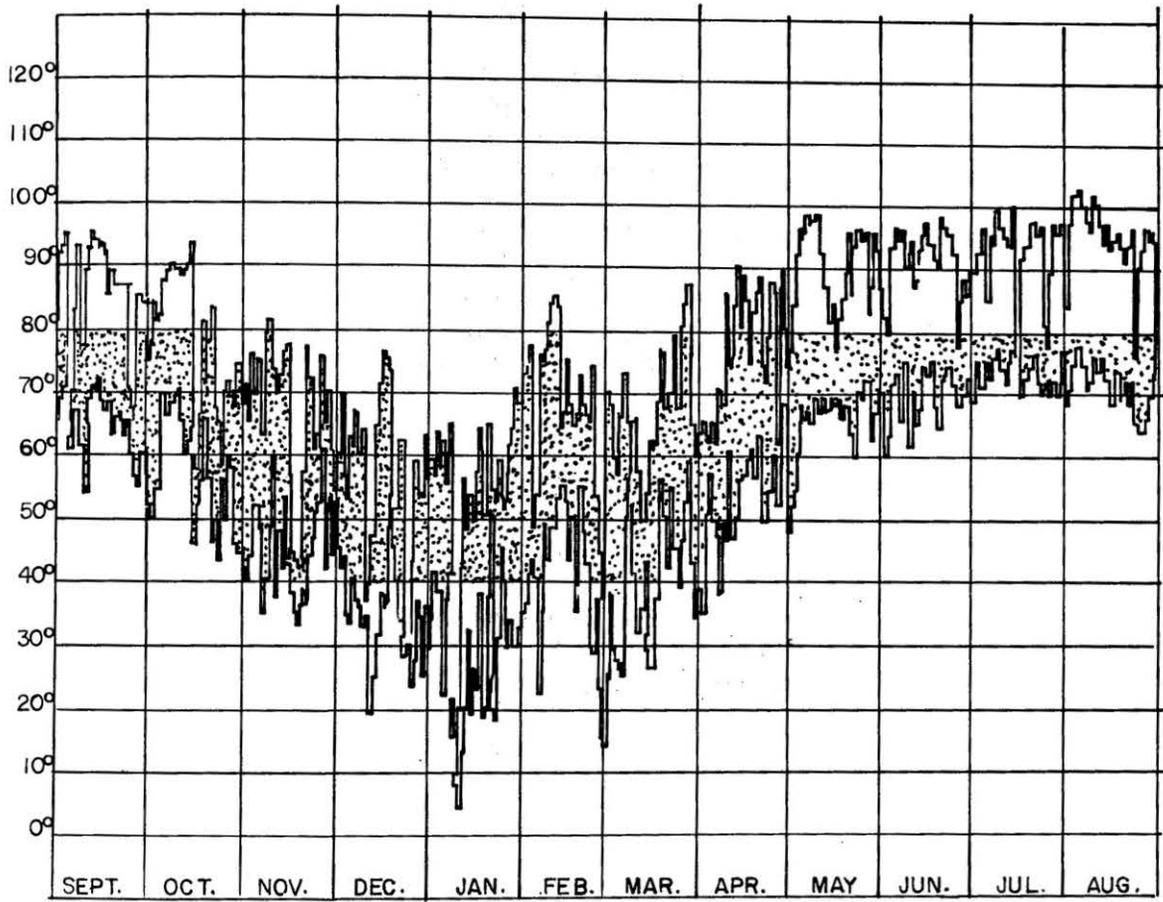
## **CLIMATE**

The climate is typical of Texas weather, primarily unpredictable. Generally the weather is mild, dry, and pleasant. In winter, however strong winds from the north and west can accompany intense cold for short periods. The following is a summarization of highs, lows, and averages or meteorological data.



**WIND VELOCITIES AND DIRECTIONS**

Source: Data was derived from Odessa/Midland Regional Air Terminal 1982.



MIDLAND - ODESSA AIRPORT  
TEMPERATURES FOR 1982

---

Type	Description
Wind	year high average 30 year low average 9 prevailing direction southeast
Temperature	monthly average, highest: 82.3 August 1982 lowest: 43.4 December 1982 yearly average 63.6 1982
Precipitation	monthly average, highest: 3.24 in July 1982 lowest: .91 March 1982 annual 14.65 in

---

Data was derived from Odessa/Midland regional air terminal 1982.

The impact of the meteorological data on the student unions design shows that there is a need for structural wind deflection, natural ventilation, and passive solar application to withstand the predominantly high heat and wind conditons of the region.

## ENDNOTES

<sup>1</sup>Jessen Associates, Inc. The University of Texas of the Permian Basin. (Austin, Texas, n.d.), p. 19.

<sup>2</sup>Ibid., p. 12.

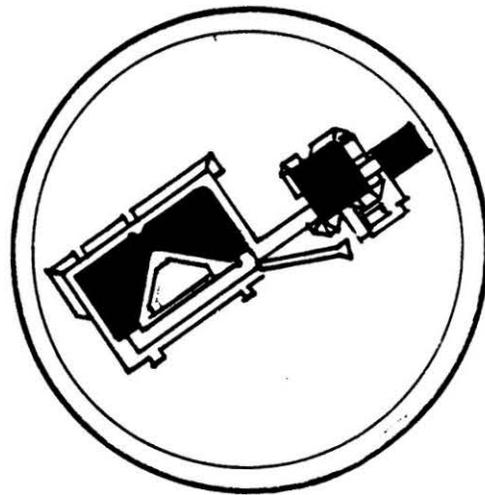
<sup>3</sup>U.S. Department of Agriculture. Soil Conservation Service in cooperation with Texas Agriculture Experiment Station. Soil Survey of Ector and Crane Counties (1978), sheet 5.

<sup>4</sup>Ibid., p. 65.

<sup>5</sup>Ibid., p. 66.

**UTPB**

**CASE STUDIES**



## CASE STUDIES

### PREFACE

This study is an attempt to site examples of the proposed project as a reference point to its design. The following examples were chosen for their uniqueness to this building type in an effort to produce a diversified and comprehensive study of student union structures. Study selection was based on certain criteria that most effectively pertained to the UTPB campus and consists of conformity to scale, site and the concept of a commuter campus.

The following will consist of background on the precepts of student unions to further familiarize the reader with concept objectives of this building type. Following are a number of specific examples formulated in terms of:

Context

Function

Physical

Analysis

#### Background:

The nature of a college union building varies with each structure, whether approached from the functional or the physical standpoint.<sup>1</sup> It is from these two concepts

that the analysis will be based, evaluating specific characteristics of each.

Functional:

Functionally a student union can be a community center supplying its user group with facilities for community service and the performing arts. This category includes the following: theaters, art galleries, informal outing and sports headquarters, ticket bureaus, bookstores, general campus information bureaus, bank, post offices and recreational facilities.

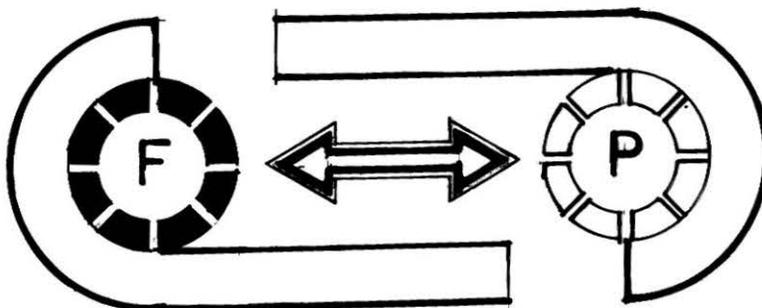
Physical:

Structurally, the union building should suggest its purpose by its appearance and design creating "the living room of the campus."<sup>2</sup> In this respect the union must embody expansive communal spaces for study and student interaction.

These two elements, the functional and the physical, combine to create the student union and formulate an effective criterion for case study evaluation.

Figure 1

FUNCTION + PHYSICAL = STUDENT UNION



## CASE STUDY

University Center, Cleveland State University

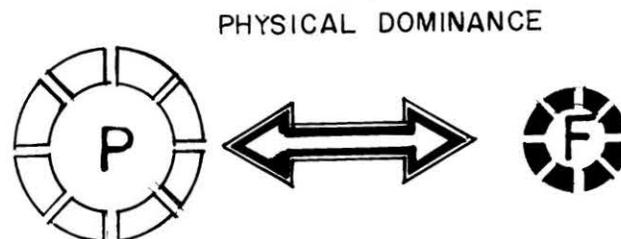
Designers: Don M. Hisaka & Associates in joint venture  
with The Hodgwismer Partnership and Sasaki  
Associates, Inc.

Cleveland, Ohio

Context:

For this University Center, the architects worked with significant site restrictions. The building fronts on one of the city's main thoroughfares. It is bounded on the north by the existing library, on the east by an existing classroom building, on the west by the site of a future classroom building. In addition, all these were to be linked by a network of all-weather corridors. Within these constraints, the architects task was to develop a complex multiuse structure that would center on a student space of grand scale, a living room for the whole campus. The monumental space is the focal point and visual reference for the rest of the campus exemplifying the physical concept of student union design.<sup>3</sup>

Figure 1



### Functional:

The main entrance is set deep in the street facade. The approach is along an oblique wall turned to respond to the direction of pedestrian flow from the city a few blocks away.

The building section is particularly communicative. The upper three partial floors are self-contained working offices, the lower floors house a combination of small scale public functions - any of which are accessible to students or members of the wider community.<sup>4</sup>

### Physical:

Relating to all - and reaching up a full six stories - the student space is monumental and exciting space framed in steel and glazed up to its full height on two sides. The floor plan, printed with a shifting grid of shadows, is itself an extension of the outdoor plaza and spaced out across its broad dimension are kiosks, a giant sculpture, a dining terrace and a planting bed for trees of substantial size. From any vantage point the space is active and alive and its appeal to student users is obvious and gratifying.

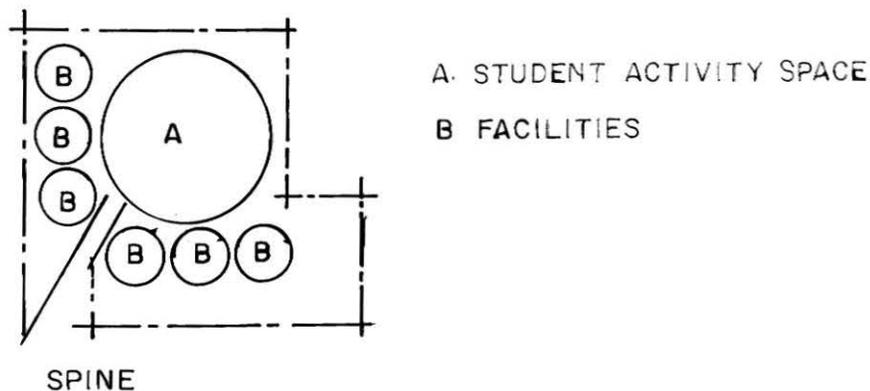
### Analysis:

The design problem in this study is pertinent to the UTPB campus in that the building was constrained by

existing and proposed structures. Not only did the building have to conform but it had to be linked by a network of corridors as well. The structure complied on all counts to the nature of its intent. The activity space - skillfully engineered - created a focal point for the campus, a window for student activity. Along with the Union's functional precept, the physical appearance of the building stands as a monument to the student and all subsequent user groups.

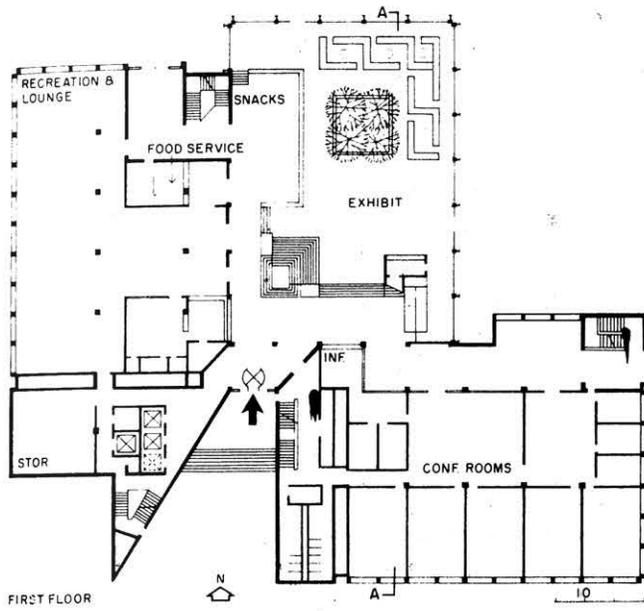
The building lay out is simple but uncommon to most student union designs. The activity space is characteristic of a separate structure standing out from the main building like a bay window. The support functions border on two sides with the entrance common to the whole. The following is a functional diagram of the study.

Figure 2

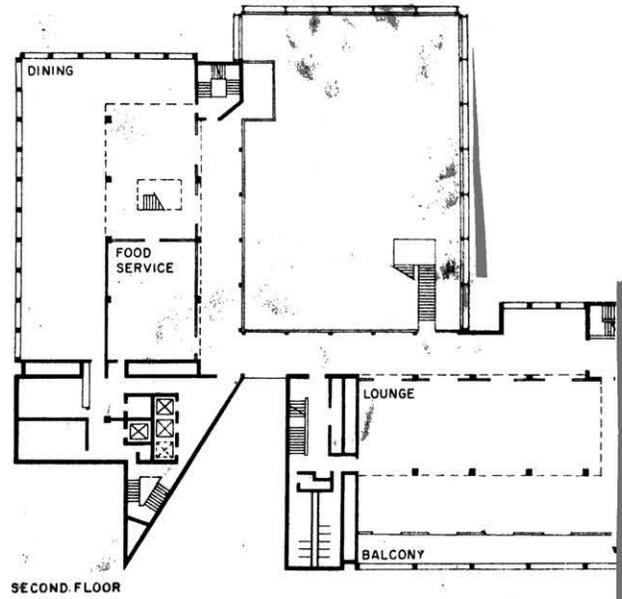


Cost Analysis:

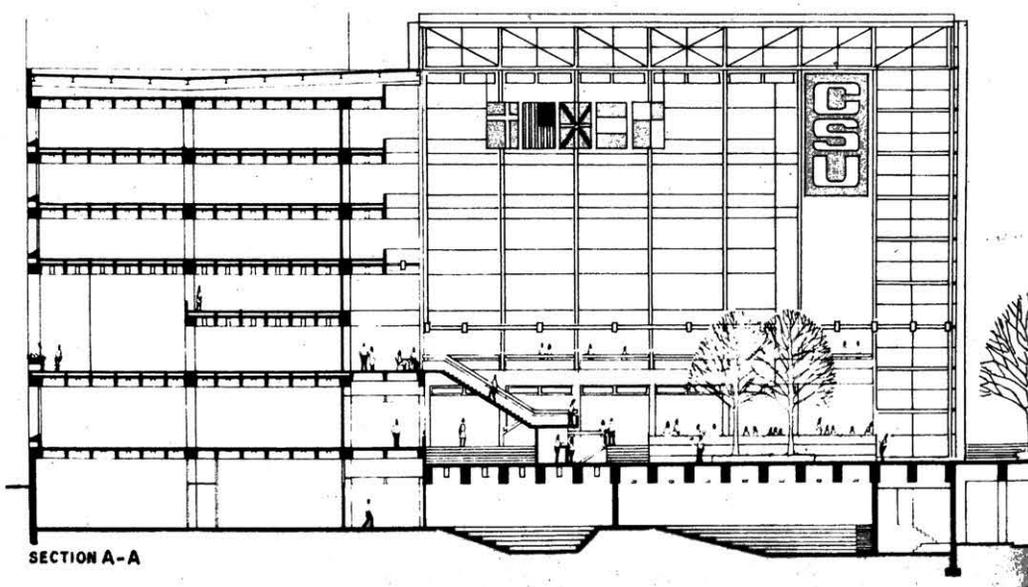
The University Center's construction budget was \$10 million; the base bid \$9,117,745.



Ref. 2a



Ref. 2b



Structural Section

## CASE STUDY

Student Union, San Francisco State University

Designer: Paffard Keating Clay

San Francisco, California

Context:

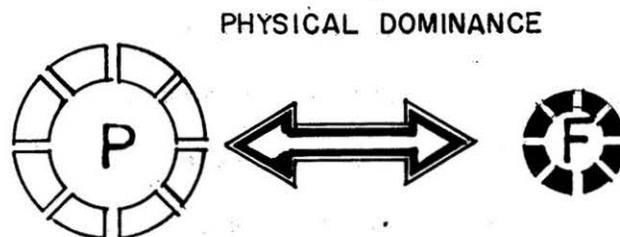
In the mid 1960's, San Francisco State College was one of the most radical campuses in the country. To effect greater participation in campus affairs, students mobilized in many ways. The issue that became the ultimate firebrand was the student controlled design of their union, financed largely from student funds. Moshe Safdie received the commission.<sup>5</sup> Moshe set out to reflect the student's need.

The design faced the major problems of compatibility with the existing buildings and the site. This was a dip in the open area of the campus where, say, 3,000 to 4,000 students might converge from all directions at noon. To handle the flow, Safdie conceived a building "like a hollow hill, light and translucent, arching over the cross-roads." Instead of walking around it, people would walk over and through it, as in a three-dimensional park, via a series of steps, terraces and inclined, landscaped planes. Safdie's plan was rejected for controversial reasons and the project was scrapped until 1969.

In 1969, a local competition was held for the union's design and an architect by the name of Paffard

Keating Clay won. The design took on some of the same concepts that Safdie proposed and the creation was an erected memorial to the students of the 70's, in memory of the 60's. Lacking thought to the interior finishes, the University Center exemplifies the strong characteristic of the physical concept.

Figure 1



Functional:

The student center is about 137,000 s.f. with eating, recreation or lounge facilities, bookstores, student offices, exhibition spaces and outdoor stalls for student sale of goods. The main floor space, conceived as a diagonal street, channels campus traffic. Exteriorly is a large roof area that acts as a terraced amphitheater and exterior student activity space.<sup>6</sup>

Physical:

The structure rises from the ground with two steel space framed pyramids, at 60° angles to each other. One

pyramid - the Pyramid of Sound - has removable concrete benches, creating an outdoor amphitheater with an observation deck at top. The other pyramid - the Pyramid of Silence - is truncated on the vertical face to provide natural light and a view from its top floor. The overall building mass is truly unique to this building type.

Analysis:

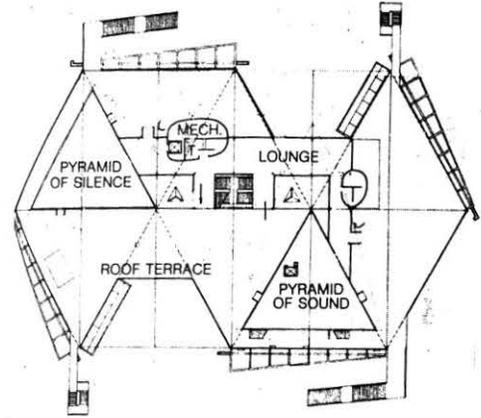
The center, as a functional facility, falls short of adequate. Interior accoustical treatment is minimal with spaces separate and loosely designed. Physically the building promotes a vibrant atmosphere with great detail to exterior spaces. Despite its internal flaws, the student union successfully represents the students in its massing and treatment of exterior functions.

Cost Analysis:

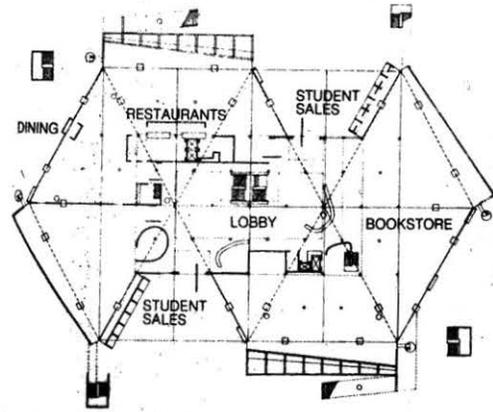
Gross sq. ft.: 137,000

Cost: \$6.13 million

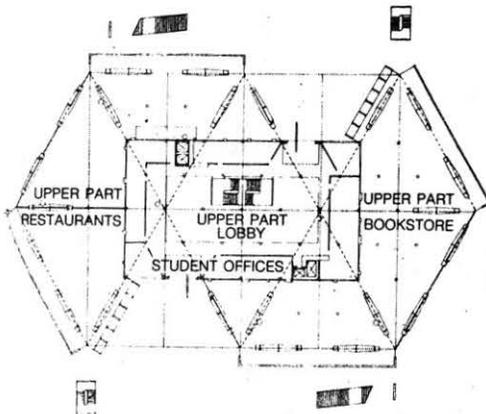
Cost per sq. ft.: \$46.70



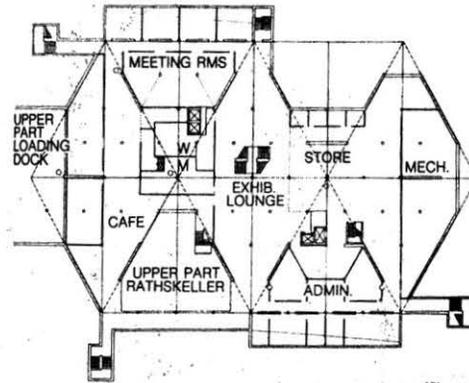
TERRACE LEVEL



GROUND FLOOR



MEZZANINE



UPPER BASEMENT

48'  
14m

Ref. 2b

Ref. 2a

## CASE STUDY

Trenton State College Student Center

Designers: Caudill Rowlett Scott; Collins Uhl

Hoisington Anderson

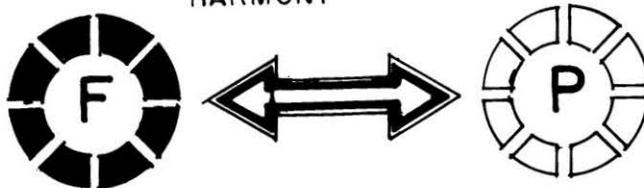
Trenton, New Jersey

Context:

In the mid 70's, Trenton State College in New Jersey developed a new master plan in an effort to eliminate commuter problems and accentuate a new campus look. Directly thereafter, Caudill Collins Anderson (who had already completed two buildings on campus) were commissioned to design a new Student Center reflecting the campus needs.

Scott and Anderson wanted to design a building that would serve as a magnet for both resident and commuter students and, at the same time offer special facilities to the surrounding community on an intermittent basis. In doing so the building was masterfully sited with great detail to the interior spaces. This building exemplifies the precepts of the Physical and Functional concept, creating a unique harmony between the two.

Figure 1  
FUNCTIONAL & PHYSICAL  
HARMONY



### Functional:

The building rises in two triangular sections that straddle the main pedestrian circulation route between student parking and the center of the campus. In this manner, the main lounge - a distribution point as well as a destination - becomes an incident along the commuter students' normal daily route both when he arrives and leaves the campus.<sup>7</sup>

The floor plan is carefully ordered so that the most heavily used spaces and central lobby are located nearest the circulation spine from any barriers. Bordering the lounge on the main level, are support facilities including snack bar, kitchen, and rathskeller. Carried from reasons of functional separation to the opposite side of the main circulation route are "commercial" spaces further carrying out the integration concept. These spaces consist of branch bank, college bookstore and ticket booth for campus activities. Ref. 3a

On the balcony level overlooking the main lounge are a series of smaller, more intimate spaces, open and enclosed for group congregation. This level also provides a community use multifunctional facility and administration office. Ref. 3b

### Physical:

The physical appearance reads legibly as to the buildings intent. Two dissimilar sized triangular volumes

linked, by a covered passage make up the building's massing reinforced by a strong directional axis. The exterior cladding of dark red "campus" brick is accentuated by cast-in-place columns and spandrels producing a nice contrast and visual enrichment. The interior is handled with the same attention to detail. The main lounge is of double-height, with skylighted volume; in scale and character, it is a courtyard filled with natural light, with plants, and with student activities.<sup>8</sup> Sections of mirrored glass are supported by concrete "trees" that are freestanding at the center of the space and reduce sun loads during the day. At night the skylight, with carefully placed lighting, becomes a huge chandelier instead of a vast black hole, thanks to its mirrored surface. The finishes provide a lively, if active, composition; a composition that is active at night.

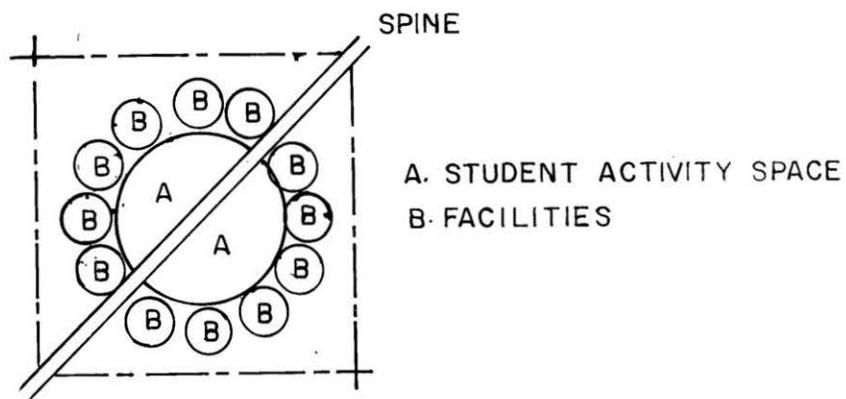
#### Analysis:

The building as a whole effectively solves the problem of student integration with its skillful orientation to the site and functional make up. From the physical standpoint the center's unique appearance is inviting, expressing the "living room of the campus" concept.

What is seen in this study is an introversion of interaction space bordered by its functional entities all converging on a central spine. The core allows for stu-

dent social activity without infringing on the outlying facilities and allows the user ingress and egress unconstrained. The following is a functional analysis of the study.

Figure 2

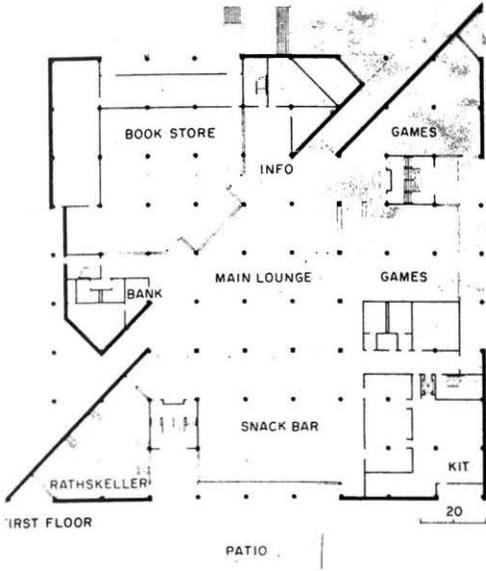


Cost analysis:

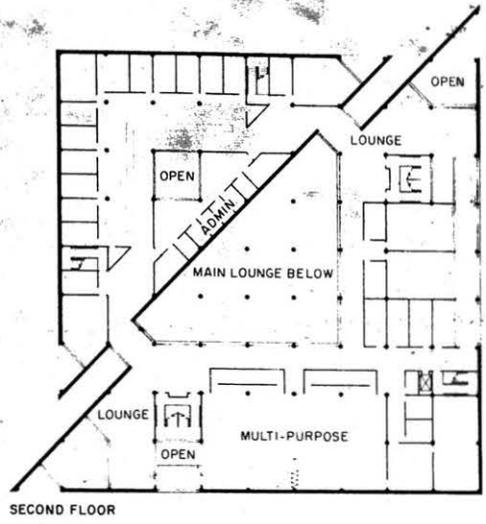
Area: 35,000 sq. ft.

Approximate Cost: \$4 million

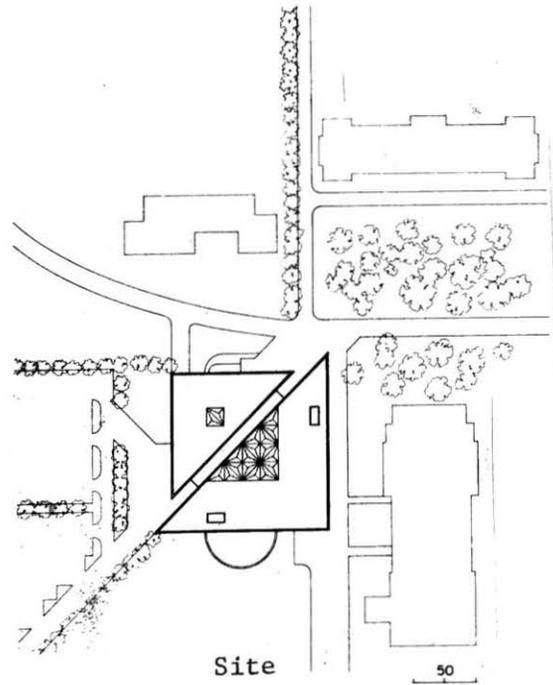
Cost/sq. ft.: \$115.



Ref. 3a



Ref. 3b



Site

## CASE STUDY

Performing Arts Center, State University New York

Designer: Edward Larrabee Barnes

Purchase, New York

### Context:

For years of patient planning, prior to the completion date, 1981, Barnes together with Dean of Drama Harris Houghton, theater consultant Ming Cho Lee and a host of other specialists developed building plans that would give State University's campus one of the finest and most flexible centers of its kind. The center was designed as a teaching and training facility for future generations of theater performers, designers, technicians and administrators.<sup>9</sup>

### Functional:

The center is entered either from a lower level vehicular drop off or on foot by main campus level. Either way, the visitor enters a large, carefully layered series of lobby spaces designed to serve the several theaters either singularly or simultaneously.<sup>10</sup> The largest of the four theaters, the 1400 seat opera house, provides space for the grandest of musical productions. Sight lines are excellent and viewing distances are reasonable for a house of this size about 65 feet to the last row of seats on the orchestra floor, somewhat further to

the last rows of the balconies the proscenium is generous in scale, the fly tower houses a system of 37 pipes and the orchestra pit can be doubled in size to accommodate the full 80 member orchestra.<sup>11</sup> There are also two medium sized houses. The first is a recital hall a 500 seat facility designed expressly for concerts. The hall employs continental seating with a series of triangular-shaped elevated boxes that enclose built in music stands that listeners who wish to do so may follow performances in their score.

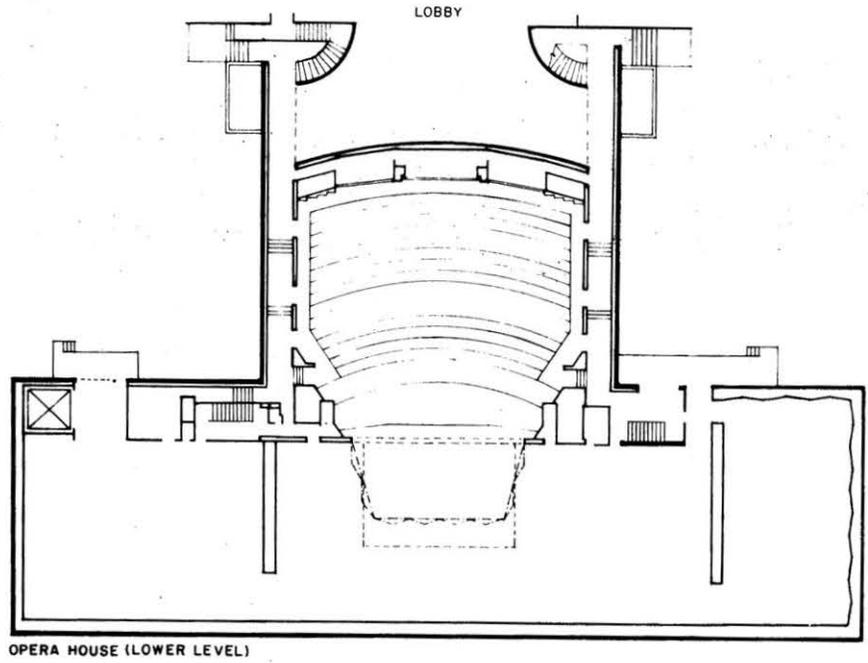
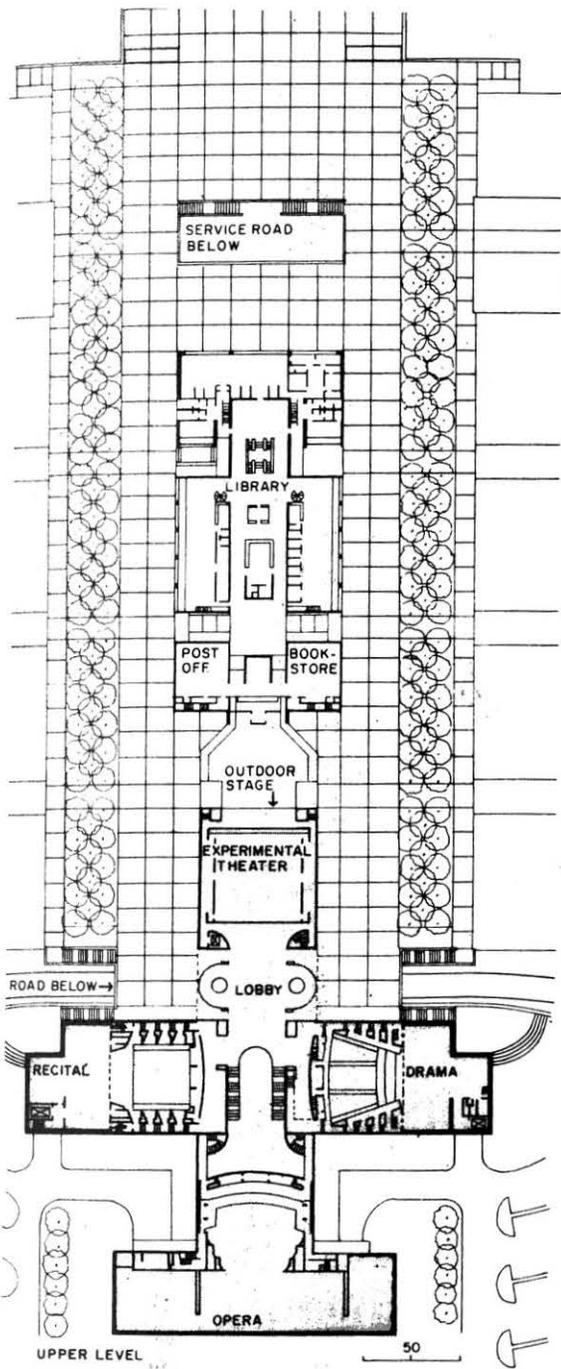
A second medium sized theater, this one for drama accommodates some 350 people. Its side house platform design provides "wrap-around" possibilities for audience and performer. Conventional instead of continental was designed for the house. All three share a common lobby space. In addition to the three main houses there is an outdoor stage under a tent, and a small experimental theater.<sup>12</sup>

#### Physical:

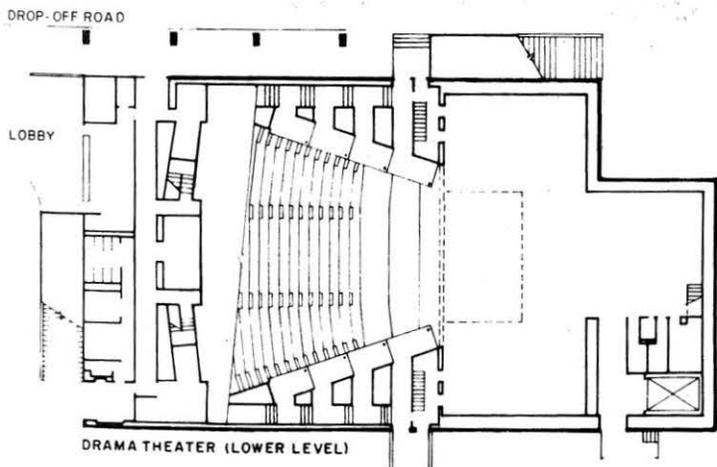
The entire structure forms the main foundation axis of the campus in form. The stage houses with their tall fly towers gives the massing of clear tripartite symmetry and individual components their simple volumetric expression the building form a symmetrical T shape design supported by an elongated triangular plaza entrance. The Center's brick is chosen for compatibility with nearby university buildings.

Analysis:

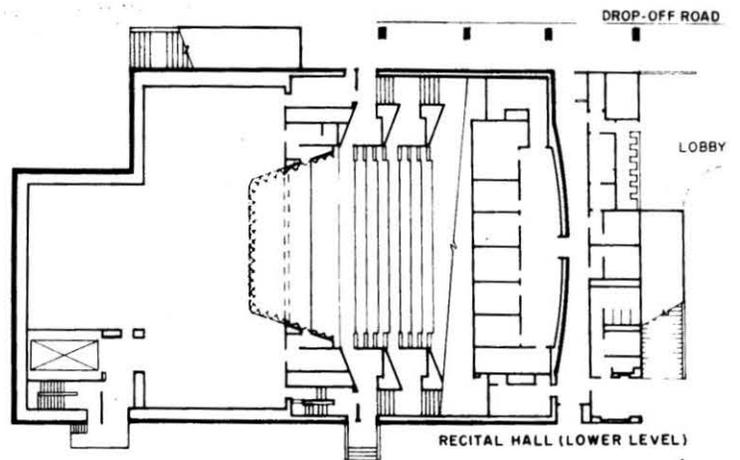
The concept of shared lobby space gives a coherency to total design. The building as a whole effectively solves the problems inherent to theater design. The project seems to be a asset and attraction to the University.



Ref. 4a



Ref. 4b



Ref. 4c

## ENDNOTES

<sup>1</sup>Chester Arthur Berry, ed., Planning a College Union Building. New York Bureau of Publication, Teachers College, Columbia University, (1960), p. 10.

<sup>2</sup>Joseph DeChiara and John Callendar, Time-Savers Standards for Building Types. McGraw Hill Book Co. (New York, 1980), p. 285.

<sup>3</sup>"University Center Cleveland State University in Downtown Cleveland." Architectural Record. (August, 1975), p. 91.

<sup>4</sup>Ibid., p. 91.

<sup>5</sup>"Activism in Concrete." Progressive Architecture. (March, 1978), p. 67.

<sup>6</sup>Ibid., p. 68.

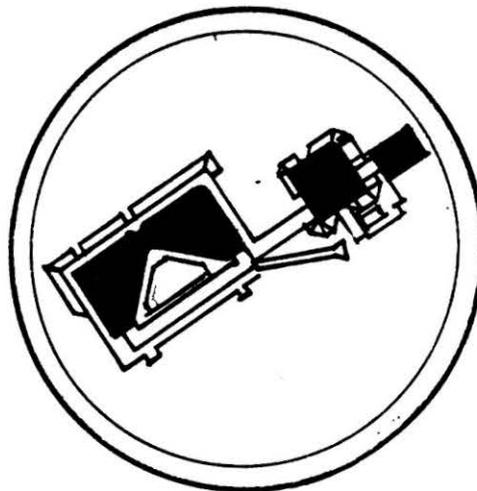
<sup>7</sup>"Student Center for Small New Jersey Capus." Architectural Record. (August, 1978), p. 102.

<sup>8</sup>Ibid., p. 104.

<sup>9</sup>"Edward Larrabee Barnes Design for the Performing Arts at Purchase." Architectural Record. (August, 1981), p. 66.

**UTPB**

**SPACE SUMMERY**



## SPACE SUMMERY

### PREFACE

The space summary is provided to serve as a compilation of data in an analytical way defining the spaces which house the activities. Justification of the student unions embodied facilities was derived from a cross section of 33 responding two year colleges provided by the Association of College Union International. Facility selection was based on the significant percentage (40% or better) of each facilitative activity most commonly provided in Two-Year Colleges. Wherever appropriate, the maximum number of occupants within a designated area is complied with an area per user to obtain an allotable square footage. Space allocation was derived from authoritative and reliable texts, diagrams of activities, equipment and furniture, as well as standard conventions of similar building types. Corresponding sources are listed at the endnote portion of this section.

Data is completed in a matrix to allow the designer to easily summarize scale relationships of spaces. It is important to note that integration alteration or elimination of space is acceptable provided that all functions and requirements of the activity analysis and detailed space list are satisfied.

SPACE	MAX. NO. OCC.	SQ.FT./ OCC.	NO. UNITS	UNIT SQ.FT.	TOTAL SQ.FT.	SOURCE
Information desk	2	50	1	100	100	4
Entrance Lobby	100	--	1	850	850	4
Coat Room	1	--	1	155	155	Ref. Detail space list (D.L.S.) p.157
Telephone alcove	1	10	4	10	40	5 & 1
Lounge *Art Gallery *Communication Center *Program lounge	600	5	1	3,000	3,000	5 & 2
Storage	--	--	1	200	200	2
Public Restrooms *Men *Women	15 15	-- --	2 2	225 225	500 500	8
Administrative Offices *Executive Director	1	175	1	175	175	Ref. Detail space list DSL p. 167

SPACE	MAX. NO. OCC.	SQ.FT./ OCC.	NO. UNITS	UNIT SQ.FT.	TOTAL SQ.FT.	SOURCE
*Program Director	1	150	1	150	150	Ref. (DSL)p.169
*Sec. pool/ Bookkeeping	1	200	1	200	200	Ref. (DSL)p.171
*Central Storage	1	--	1	150	150	Ref. (DSL)p.173
Staff Restroom						
*Men	2	--	1	175	175	8
*Women	2	--	1	175	175	8
Student Committee Rooms	2	--	2	150	300	2
Meeting rooms						
*Large	80	15	1	1,200	1,200	4
*Medium	50	15	2	750	1,500	4
*Small	30	15	1	450	450	4
*Storage		200	2	200	400	6
Kitchenette	1	80	1	80	80	1
Student offices	1	100	5	100	500	4 & 2
Receptionist	5	--	1	200	200	2
Snack bar	300	12	1	3,600	3,600	2

SPACE	MAX. NO. OCC.	SQ.FT./ OCC.	NO. UNITS	UNIT SO.FT.	TOTAL SO.FT.	SOURCE
*Kitchen	8	--	1	1,000	1,000	2
*Storage pantry	--	--	1	800	800	2
Subtotal					5,400	
Bookstore	--	--	1	4,000	4,000	Ref. DSL p.179
Cafeteria	440	12	1	5,280	5,280	4, 5, 2
*Kitchen	10	--	1	1,440	1,440	4, 5, 2
*Storage pantry	--	--	1	1,200	1,200	4, 5, 2
Subtotal					7,920	
Gameroom						
*Table tennis	--	--	2	300	600	5, 4
*Billiards	--	--	5	200	1,000	5, 4
*Cards	--	--	4	50	200	5, 1
*Video	--	--	6	25	150	5
*Control	1	100	1	100	100	3
*Storage	--	--	1	200	200	Ref. DSL p.204
Subtotal					2,250	

SPACE	MAX. NO. OCC.	SQ.FT./ OCC.	NO. UNITS	UNIT SQ.FT.	TOTAL SQ.FT.	SOURCE
Vending Room						
*Seats	30	12	--	--	360	5 & 2
*Machines	--	--	6	16	96	2
Subtotal					456	
General Workshops for student organ.						
*Print shop	4	--		250	250	Ref (DSL) p:208
*Film processing	2	--	1	550	550	3
*Print room and storage	2	--		300	300	3
Subtotal					850	
TV & film lounge	50	15	1	750	750	4
Music lounge	20	20	1	400	400	1
Listening booths	1	12	4	12	40	1
Subtotal					440	
Campus Newspaper Office	3	60	1	180	180	3

SPACE	MAX. NO. OCC.	SQ.FT./ OCC.	NO. UNITS	UNIT SQ.FT.	TOTAL SQ.FT.	SOURCE
Poster room	3	50	1	150	150	Ref. (DSL)p.216
Postal	--	--	1	900	900	Ref. (DSL)
Banking						
*Vault	--	200	1	200	200	9
*Teller	2	100	1	200	200	9
*Work Area & Atm	--	--	1	150	150	9
Subtotal					550	
Rathskeller	--	--	1	3,400	3,400	6
Reading room & browse library	.40	20	1	800	800	Ref. (DSL)p.224
Maintenance	.1	75	2	75	150	Ref. (DSL) p.226
Subtotal					39,371	
HVAC						
Plumbing						
Electrical		39,371 (.04) =			1,575	4% of Net

SPACE	MAX. NO. OCC.	SQ.FT./ OCC.	NO. UNITS	UNIT SQ.FT.	TOTAL SQ.FT.	SOURCE
Net to Gross		39,371 (.28) =			11,024	Circulation & walls 28%
Theater (Drama)						
Coat room	--	--	1	200	200	9
Entrance lobby	100	--	1	500	500	9 Ref. (DSL) p. 230
Seating	1,200	8	1	9,600	9,600	9
Orchestra pit	--	--	1	900	900	9
Ticket booth & office	5	80	1	400	400	9
Projection room	--	--	1	200	200	9
Stage	--	--	1	3,500	3,500	9
Green room	--	--	1	400	400	9
Dressing rooms	1	120	1	120	120	9
	5	--	2	80	160	9
	1	50	5	50	250	9
Costume	--	--	1	900	900	9
Shop	--	--	1	2,000	2,000	9

SPACE	MAX. NO. OCC.	SQ.FT./ OCC.	NO. UNITS	UNIT SQ.FT.	TOTAL SQ.FT.	SOURCE
Subtotal					19,130	
Theater (Recital)						
Coat room	--	--	1	200	200	9
Seating	300	8	1	2,400	2,400	9
Projection	--	--	1	200	200	9
Stage	--	--	1	1,700	1,700	9
Green room	--	--	1	300	300	9
Dressing room	1	50	6	50	300	9
Entrance lobby	--	50	--	50	300	9
Costume	--	--	1	400	400	9
Subtotal					5,800	
Theater (total)					24,930	
HVAC/plumbing						
Electrical/ circulation					7,479	9 (30% of net)
	24,930 (.30) =					

SPACE	MAX. NO. OCC.	SQ.FT./OCC.	NO. UNITS	UNIT SQ.FT.	TOTAL SQ.FT.	SOURCE
Parking	--	310	40	310	12,400	2
Outdoor court	--	--	1	4,000	4,000	2
Total Net Square (total building) =						64,301
Gross Sq. Feet/Net Ratio (building): 32% (40,576) =						12,599
Gross Sq. Feet/Net Ratio (theater): 30% (25,380) =						7,479
Gross Sq. Feet (total building) =						84,379
Gross Sq. Feet (exterior facilities) =						16,400
Total Site Sq. Footage						100,799
25 acre site						

## Endnotes

<sup>1</sup>Robert T. Packard, Ramsey/Sleeper Architectural Graphic Standards (New York: John Wiley & Sons, Inc. 1981).

<sup>2</sup>Joseph De Chiara and John Callender, Time-Savers Standards for Building Types (New York: McGraw-Hill Book Co., 1980).

<sup>3</sup>Chester Arthur Berry, Ed. Planning a College Union Building (New York Bureau of Publication, Teachers College, Columbia University, 1960).

<sup>4</sup>Port Butts, "The College Union Story," (Association of College Unions).

<sup>5</sup>Jack Jenkins and Sidney McQueen, Administraion and Operation of the College Union. (Stanford, California: Association of College Union-International, 1973).

<sup>6</sup>Case Study.

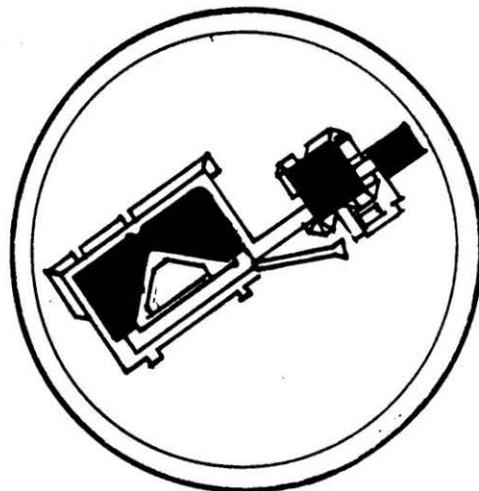
<sup>7</sup>McGuinness, Stein and Reynolds, Mechanical and Electrical Equipment for Buildings. John Wiley and Sons, (New York, 1980).

<sup>8</sup>Author unknown, Architectural Rule of Thumb (Guidelines Publications: Orinda, California, 1975).

<sup>9</sup>1984 Dodge Construction System Costs.

UTPB

**SYSTEMS  
PERFORMANCE**



## **SYSTEM PERFORMANCE CRITERIA**

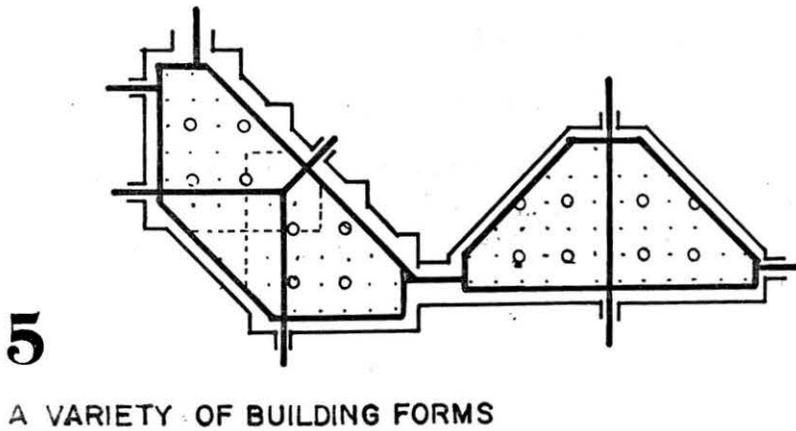
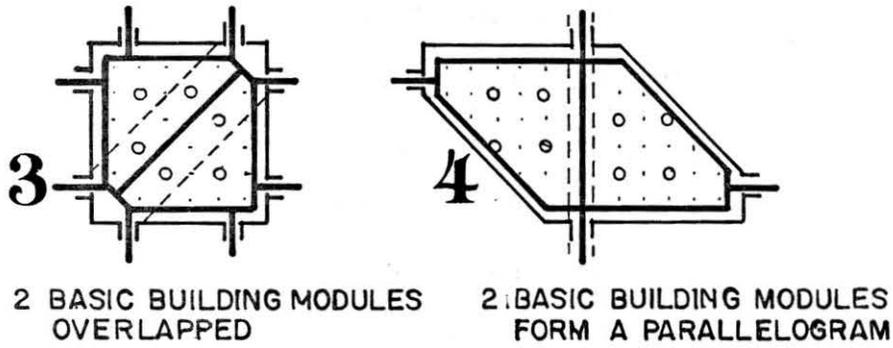
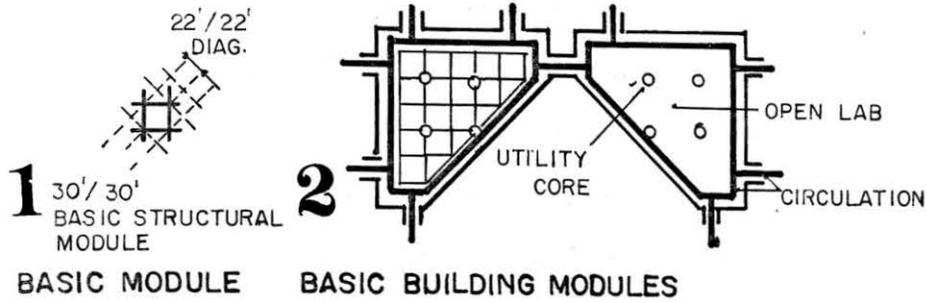
### **PREFACE**

The system performance criteria is provided to give a compilitave description of the operative building systems in terms of user satisfaction to the activities in which they are involved. In all cases the facility must conform to the codes and ordinances applicable to the requirements of the University of Texas of the Permian Basin and the city of Odessa, Texas. The building systems must in effect conform to the existing structure not only as an assimulance of the building envelope but to the service system as well. This section is not implementing preconceived design criteria but is a preliminary description of the building acting as a complete unit requiring the harmonious interactional system. In all cases, the designer is expected to explore the full range of possible systems to select the most efficient in terms of operating and maintenance cost.

## **BUILDING ENVELOPE AND STRUCTURING**

The material and construction must meet the prescription of the existing buildings on campus. The building will be constructed of poured in place reinforced concrete. It should conform to the warm architectural concrete finish of exposed buff colored panels combined with local aggregates. The envelope will reflect and be accountable for all activities with which it interacts i.e. mechanical, electrical, etc.) and all applicable sections of the Uniform Building Codes and the N.F.P.A. Life Safety Codes. In addition the structure must be reflectant of the master campus plan structural design concept. The campus is developed on "truncated square" modular system (Fig. 1). Through the manipulation of the Basic Building Modules, a variety of building forms is possible (Fig. 2-5). This building unit was developed to allow the large structures to be contiguous and because of their shape, leave open spaces which are shielded from high winds by the building themselves.<sup>1</sup>

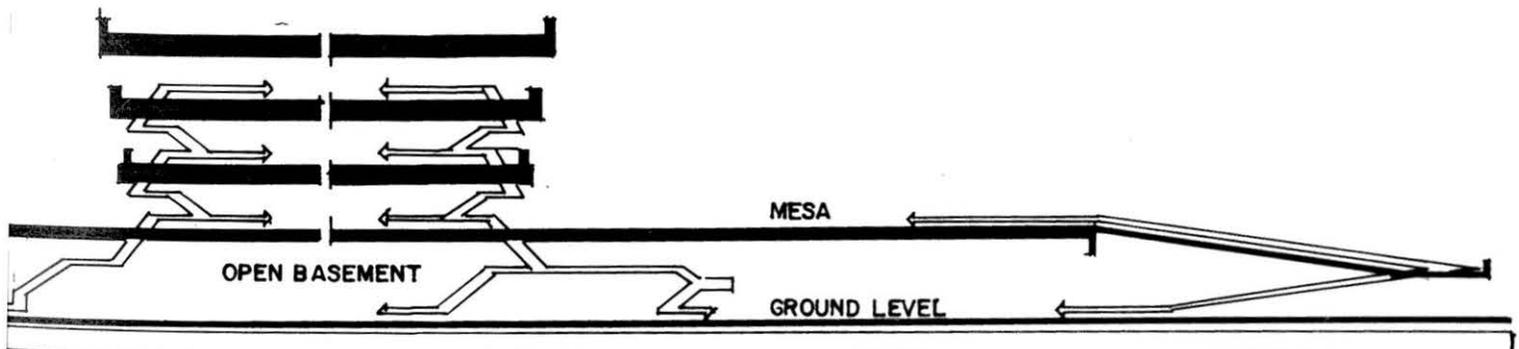
The basic module was designed on a five by five foot square repeated thirty six times culminating in a 30' by 30' basic structural module. Flexibility in shape and form originated from the overlapping of 22' by 22' diagi-



# UTPB Concepts & Modules

nal module enhancing the restrictive square into parallelogram configurations. Continuing the use of this system will enable the designer freedom of design yet with sufficient correlation to the existing building type.

The concept of vertical proportion will be an important consideration. The campus was designed with a prescribed vertical modular system that will need to be reflected in the student union. The existing structures are basically permutations of a 300 ft. square (horizontally) with a 65' four floor vertical high. Ground level is reserved for student life activities and vehicles-service access, buses, dropoff for students in private cars and public access to all buildings. Second level or "mesa" is the pedestrian way and classroom space elevated approximately 20 feet above ground level accessed by stairs, ramps and elevators. The remaining two levels are 14 feet high structural floors for multifunctional institutional development and laboratory space (Fig. 6).<sup>2</sup>



**UTPB Sectional Concept**

The buildings are interconnected with a mesa level pedestrian traffic way creating a two level campus. The designer should implicate this concept in his physical and structural design.

The student union must as well conform to the existing mechanical service connection's originating from the campus Utility Plant. The plant was designed to handle additional phases supplying the building with chilled water and steam. in addition to city connections of electrical and sewer services. The utility line run just below the Mesa, pedestrian level, minimizing excavation into the underlying rock. Utility shafts carry all building services to the ceiling space of each floor where they are distributed as needed. This utility service concept is described in diagram 7.3

Note that the main service way is distributed under the concrete waffle slab supporting the Mesa and distributed to the classroom floor, concealed by a suspended accessible ceiling. The utility lines are further distributed to the laboratory floor were they are exposed and the light fixtures form the ceiling plan. A form of this system must be reproduced in the student union to set the stage for future expansion along the same lines as well as preserving the harmony of the University building system.

## Laboratory Floor

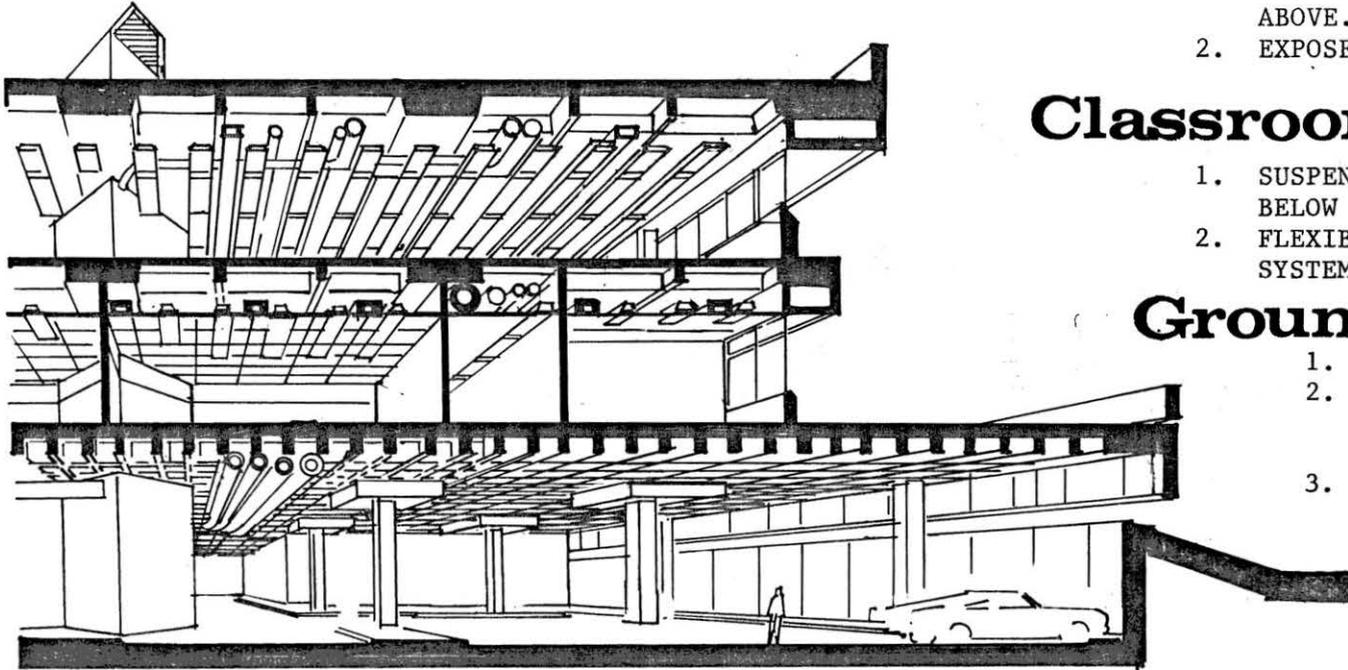
1. LIGHT FIXTURES FORM CEILING PLANE WITH DUCTS, PIPES, ETC. ABOVE.
2. EXPOSED CONCRETE STRUCTURE.

## Classroom Floor

1. SUSPENDED ACCESSIBLE CEILING BELOW PIPES AND DUCTS.
2. FLEXIBLE DRYWALL PARTITION SYSTEM

## Ground Level

1. CONCRETE WAFFLE SLAB.
2. "LIGHT CAPITALS" PROVIDE BRIGHT GROUND BUT DARK CEILINGS TO CONCEAL PIPES.
3. PEDESTRIAN & VEHICULAR CIRCULATION, SERVICES, AND STUDENT ACTIVITIES.



The structural system and building envelope must also meet the following requirement listed below to help create forms which express the dynamics of the activities involved.

Functional Requirements:

- to withstand all loads as required by the UBC without damage or alteration of interior or exterior building materials and their functions.
- to control thermal transmission, air infiltration, and material maintenance which effect operation and life cycle costs.
- acoustical treatment for noise sensitive areas.
- implication of natural lighting in areas that are in need of a continual source of light.
- to provide spaces free of obstructions for maximum use of the area.
- control construction cost by adequately adapting to the utility and services of existing build and avoiding extensive excovation.
- to provide for facility security during non-use periods.
- to maximize life safety features within the facility.

## HVAC

Air flow, temperature, and humidity must be controlled to the level need in its corresponding activity. All the equipment and systems must meet the standard requirements of the Uniform Building Code and the N.F.P.A. Life Safety Code. Heating and cooling exchange will in affect be serviced by the steam and chilled water line running from the utility plant. Mechanical space is required for air handler units and distribution to supply ducts.

Human comfort is the ultimate goal of the facility. With the variety of spaces and areas being serviced the designer must have a comprehensive understanding of required air temperature and change for each individual activity. The designer should also explore all methods of air control to maximize use of natural ventilation and active solar systems to control operating costs.

The present system suplies steam and chilled water service piping distributed through utility cores, floor by floor. The lines are dispersed through the ceiling crawl space where the air handler units directs the flow to the supply ducts. This system conveniently expands the amount of usable square footage by reducing the need floor mecha-

nical space. A form of this system must be implicated it to the design of the student union.

Equipment:

- : mechanical space for service lines
- : adequate crawl space for ducting with accessibility for routine maintenance and repair
- : acoustically isolated ducting system and air handling units to minimize noise levels
- : sufficiently operable air handling units at each or alternate floors.

SUMMARY LIST OF HVAC REQUIREMENTS

	Air Temp. <sup>4</sup>	Outdoor Air cfm/occupant <sup>5</sup>	Approximate volume of room	Air Change min. per change	Minimun CFM air required for room) <sup>6</sup>
*Theater Drama	68 to 72	5 to 15	387,600 cf	8	48,450 CFM
*Theater Recital	68 to 72	5 to 15	120,000 cf	8	15,000 CFM
Bookstore	65 to 70	5 to 15	40,000 cf	10	4,000 CFM
Snack bar	68 to 72	10 to 15	36,000	10	3,600 CFM
Kitchen	65 to 70	25 to 50	10,000	2	5,000 CFM
Cafeteria	68 to 72	10 to 15	52,800	10	5,280 CFM
Kitchen	65 to 70	25 to 50	14,400	2	7,200 CFM
Bank	68 to 72	10 to 15	5,500	10	550 CFM
*Lounge	68 to 72	10 to 30	60,000	10	6,000 CFM
*Lobby	68 to 72	10 to 30	17,000	10	1,700 CFM
Bar	65 to 70	25 to 40	34,000	5	6,800 CFM
Committee room	72 to 74	25 to 50	1,500	10	150 CFM
Vending room	68 to 72	5 to 15	4,560	6	760 CFM
Work shop	65 to 70	5 to 15	2,500	5	500 CFM
TV film lounge	68 to 72	5 to 15	7,500	10	750 CFM
Student offices	72 to 74	10 to 30	1,000	8	125 CFM
Game room	65 and below	25 to 40	22,500	3	7,500 CFM
Meeting room					
Large	72 to 74	10 to 30	12,000	6	2,000 CFM

	Air Temp. <sup>4</sup>	Outdoor Air <sup>5</sup> cfm/occupant	Approximate volume of room	Air Change min. per change	Minimum CFM air required for room) <sup>6</sup>
Medium	72 to 74	10 to 30	7,500	6	1,200 CFM
Small	72 to 74	10 to 30	4,500	6	750 CFM
Admin. offices					
Executive	72 to 74	10 to 30	1,752	8	218 CFM
Physical Director	72 to 74	10 to 30	1,500	8	187 CFM
Restrooms	68 to 72	10 to 30	1,750	3	583 CFM
Reading room					
Browse Library	68 to 72	5 to 10	8,000	10	800 CFM
Not with * ceiling height 20' or average without 10' or average					

## **LIGHTING/ELECTRICAL**

Lighting and electrical systems must meet and account for all corresponding activities and functions. The equipment and fixtures will satisfy the requirements of the N.F.P.A. Life Safety Code, and the Uniform Building Code. Within the student union there are a variety of lighting levels and service outlets to be considered. Natural light is appropriate in most areas excluding the theaters, service and security areas. Night security and lighting is required to insure the building and parking lot security during night events. High intensity lighting levels are appropriate in the following spaces: reading room, meeting and conference rooms, gameroom, work shop, offices, work stations, commercial areas, and stage. Low intensity and adjustable light levels are in the following: TV room, film processing and print room (both "safe" and white light illumination) theater seating and bar.

The remainder of the space are sufficiently lighted with standard average illumination. Foot candle breakdown is provided in Table 2.

### Functional Requirements, Lighting

- to insure visibility requirements for activities

- to function with the least amount of obstruction to the space in which it serves
- easy access for maintenance and replacement
- to provide all equipment and fixtures with the required electrical supply
- to isolate all electrical equipment from moisture and ducts and all uninsulated spaces
- maintain a back up power supply in the event of a black out.

Summary List of Lighting Requirements (Table 2)

Facilities	Required Footcandles <sup>7</sup>
Theaters	
During intermission	5 fc
During performance	0.1 fc
Foyer	5 fc
Entrance lobby	20 fc
Bookstore	
Store interior	30 fc
Administration areas	100 fc
Showcase	200 fc
Stockroom	30 fc
Snack bar and cafeteria	
Seating	30 fc
Cashier	10 fc

Kitchen	70 fc
Lobby	30 fc
Lounge	70 fc
Bar	
Light environment	10 fc
Reading room & brows library	70 fc
Offices	
Accounting, bookkeeping	150 fc
Drafting	200 fc
Regular office work	70 fc
Meeting and committee	70 fc
Workshop	100 fc
TV Film lounge	5 fc
Gamerom	70 fc
Bank	
Entrance	30 fc
Active	50 fc
Inactive	10 fc
Toilets	20 fc
Corridors elevators and stairs	20 fc

## PLUMBING

The materials and construction of water supply and sewage systems must meet and account for all activities in which they correspond to following the guidelines of the Uniform Building Codes and NFPA Life Safety Codes. All sewage and water line originated on the campus boundary and University lines carry the services to the buildings for convenient tie in. The Plumbing system should adapt in the most economically feasible way. There presently is an existing landscape watering system and is adaptable for hook-up on the union's site.

### Functional Requirements

- provide ample water supply to all fixtures throughout the structure
- to provide ample amount of drinking fountains (1 to 75 people) on average
- to arrange and group restroom facilities and vent stacks minimumizing penetration of the roof membrane
- supply sufficient amount of key controlled hose bibs for exterior use
- instigate fire sprinkler system and fire hose stations - conceal sewage clean outs within wall or service areas

Proper Flow and Pressure  
for Public Restroom

No	Fixture	Flow <sup>8</sup> Pressure	Flow <sup>9</sup> g p.m.	Total g p.m.
Men				
7	flush valve for w closet	10-20	15-40 30 average	210
7	flush value for urnal	15	15	105
14	basin faucet	8	30	<u>42</u> 357 g p.m.
Women				
14	flush valve for w. closet	10-20	15-40 30 average	420
14	basin faucet	8	30	<u>42</u> 462 g p.m.

Fixture requirements were established coinsiding with maximum loads, during University events and theatrical performances.

## ENDNOTES

<sup>1</sup>Jessen Associates Inc. The University of Texas of the Permian Basin. (Austin, Texas, n.d.), p. 13.

<sup>2</sup>Ibid., p. 14.

<sup>3</sup>Ibid., p. 15.

<sup>4</sup>McGuiness, Stein and Reynolds. Mechanical and Electrical Equipment for Buildings. John Wiley and Sons, (New York, 1980), p.

<sup>5</sup>Ibid., p. 193.

<sup>6</sup>Ibid., p. 192.

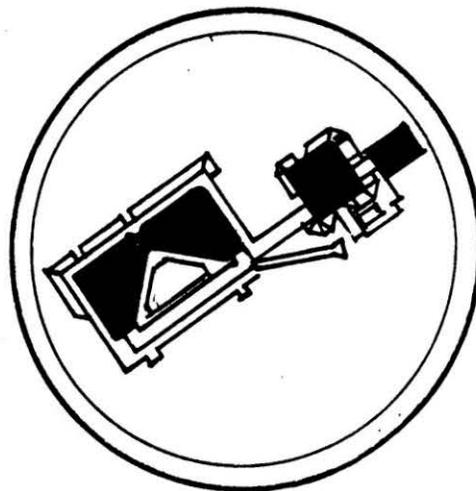
<sup>7</sup>Ibid.

<sup>8</sup>Ibid. pp. 732-735.

<sup>9</sup>Ibid., pp. 460-461.

**UTPB**

**COST ANALYSIS**





Cost will be estimated on cost per square foot method broken down in the Student Union and Theaters. First the structure will be broken down into general construction and mechanical systems deriving a total cost per square foot. This will be further modified by multiplying a cost escalation indicator to the mid point of construction determining the total construction cost. Externals are added for total project cost to obtain total project value.

## **COST**

### Building Cost: (Student Union)

Medium cost per sq. ft. 1984	81.73 <sup>1</sup>
Cost Escalation to mid point of construction August 1986	<u>1.05<sup>2</sup></u>
Cost per sq/ft. August 1986	85.81

### Building Cost: (Theaters)

Medium cost per sq. ft. 1984	49.36 <sup>3</sup>
Cost escalation to mid point of construction August 1986	<u>1.05</u>
Cost per sq/ft. August 1986	51.82

### Student Union

Building Cost 51,970 sq. ft. at 85.81 \$4,459,545

Breakdown	Cost	Percent of Total <sup>4</sup>
General	\$3,291,144	73.80%
Mechanical & electrical	<u>1,168,400</u>	26.20%
	\$4,459,545	

## Theaters

Building Cost Breakdown	32,409 at 51.82	\$1,679,434
	Cost	Percent of Total <sup>5</sup>
General	\$1,103,388	65.7%
Mechanical & Electrical	<u>576,045</u>	34.3%
	\$1,679,434	

Building Cost (Student Union)	\$4,459,545
Building Cost (Theaters)	<u>1,679,434</u>
Total Construction	\$6,138,979

Design Fees	\$ 513,669
Movable Equipment	30,000
Site Development & Parking	<u>811,057<sup>6</sup></u>
Subtotal	\$1,354,726
Total Project Value (based on national average)	\$7,493,705

City cost adjustment for Odessa is 88.5%<sup>7</sup>

$$7,493,705 \times .885 = \$6,631,929$$

Project start 1 yr. from date

Cost escalation from

December 1984 to December 1985

$$(1.09)^8 \times 7,180,478 = 7,228,802$$

Total Project Value = 7,228,800

Margin of error 7%

Funded by the University of Texas

#### Compariabies

- 1) College: University of Wisconsin - Stout  
City and State: Menomonie, Wisconsin  
Project: 1981-83 Student Center

Bid date: 19 July 1983  
Competition date: April 1985

Statistics:  
Gross Square Foot: 87,763 GSF  
Assignable square feet: 52,618 ASF

Total construction cost: \$6,665,190

Total project cost: \$7,513,000

Description - two story building composed of reinforced concrete footings foundation walls, columns, and slabs on the lower floor with concrete waffle slabs and concrete columns on the second level. Roof is constructed of long span steel gable trusses in two elements joined by a flat roof are framed with steel beams and bar joists.<sup>7</sup>

- 2) College: Trenton State College  
City and State: Trenton, New Jersey  
Project: Student Center 1978

Statistics:  
Gross Square Footage: 35,000 GSF  
Total project cost: \$4,000,000

Description - two story structure composed of foundation walls reinforced concrete footings. Brick facade. Central double height lobby supported by concrete columns and topped out with structurally framed skylights.<sup>8</sup>

## ENDNOTES

<sup>1</sup>Robert Sturgis Godfrey, Building Construction Cost Data 1984. 42 edition. Robert Snow Means Company Inc. Consultants and Publication. (Kingston, MA. 1984), p. 402.

<sup>2</sup>"Cost Projection System with Regional Modifiers." Design Cost and Data. (January-February, 1984), p. 4.

<sup>3</sup>McGraw-Hill Information Systems Company. McGraw-Hill Dodge Construction Systems Cost 1984, p. 12.

<sup>4</sup>Buidling Construction Cost Data 1984, p. 402.

<sup>5</sup>McGraw-Hill Dodge Construction Systems Costs 1984, p. 12.

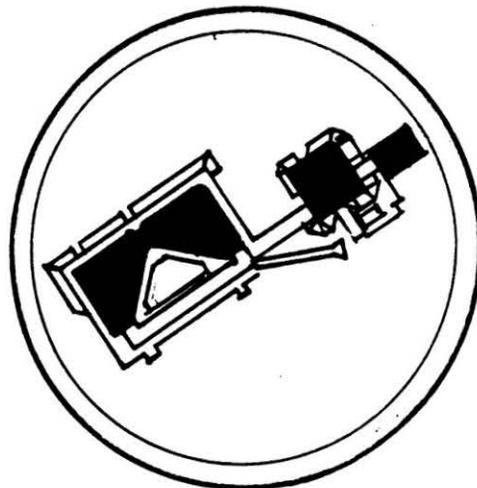
<sup>6</sup>Association of University Architects Building Project Survey. Student Unions/Student Service Buildings. University of Wisconsin, (Menomonie, Wisconsin, 1984).

<sup>7</sup>Ibid.

<sup>8</sup>"Student Center for Small New Jersey Campus." Architectural Record. (August 1978), p. 101-106.

**UTPB**

**DETAIL SPACE  
LIST**



**SPACE:** Information Desk

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 2

**SQ.FT. PER OCCUPANT:** 50

**TOTAL AREA:** 100 sq. ft.

**FUNCTIONAL REQUIREMENTS:**

- to provide an area for student union and University information
- an area to act as an guide for visitors and students alike
- to provide clear information and directional symbols to facility's use

Adjacent Spaces: vestibule, entrance, lobby

Activities Housed: University and union information center

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be conducive to rolling stool, carpet is preferred. Open space with front long post office counter to define the space. Side entrance and 8 ft. ceiling height extending over counter to further define the space.

Lighting: ambient: 50 foot candles, task lighting over counter. 100 foot candles, internal control

Furnishings/Equipment:

41" front counter with storage below  
2 - medium high work seats  
wall racks and other compartments

**SPACE:** Entrance Lobby

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 100

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 850

**FUNCTIONAL REQUIREMENTS:**

- to provide a space for coat and garment hanging
- to provide an inviting and comfortable space for people to enter, organize and exit the facility
- to provide clear and informative directional guides for user
- to provide a catalise for adjacent spaces
- to provide a space for organization and dispersment of facilitative users

Adjacent Spaces: vestibule, information desk, restroom facilities, general circulation coat check, phone booths

Activities Housed: departure and arrival information control, personal hygiene

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be high traffic, non-slip and low maintenance. Walls should reflect the whole building with the use of color and pattern to express an inviting appeal. Ceiling height 10' minimum with the use of a type of natural lighting system.

Lighting: skylights should be incorporated with 30 fc ambient lighting system

Furnishings/Equipment:

directional signage

low traffic lounge seating groups in singles and pairs, 15 to 30 people

2 - pay phone booths

2 - trash receptacles

4 - ash dispensers

**SPACE:** Coat Room

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 155

**FUNCTIONAL REQUIREMENTS:**

- to provide a space for lost and found articles
- to provide a space for coat and garment hanging
- to provide space fairly shallow to expedite service
- to provide space devoted to storage of umbrellas,  
books and bulky packages
- to provide special organization for item check

Adjacent Spaces: vestibule, lobby, information desk

Activities Housed: coat garment and item check  
and lost and found

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be high resistance commercial low maintenance carpet. Walls must be conducive to rack mounting with 8'-0" ceiling height. Fronted with a checking counter and side entrance.

Lighting: 70 fc ambient with 100 fc task over counter

Furnishings/Equipment:

combination coat, hat, umbrella, overshoe racks  
back to back and wallmounts with 3 in oc  
hanger spacing in  
shelf and compartment units  
41" front counter with storage below  
1 - medium high work seat

**SPACE:** Telephone alcove

**NUMBER OF UNITS:** 4

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 10

**TOTAL AREA:** 40

### **FUNCTIONAL REQUIREMENTS:**

- to provide a noise resistant, optional, open or enclosed space
- to provide a comfortable space for telephone conversations, standing or sitting

Adjacent Spaces: entrance, lobby, vestibule

Activities Housed: telephone communication

### **TECHNICAL REQUIREMENTS**

Space Enclosure: floor low maintenance  
seated enclosure. Ceiling height 70"  
glass retractable door.

Lighting: 100 fc task door controlled

Furnishings/Equipment:

- telephone
- phone book and holder

**SPACE:** Lounge

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 600

**SQ.FT. PER OCCUPANT:** 5

**TOTAL AREA:** 3000

**FUNCTIONAL REQUIREMENTS:**

- to provide leisure and lounge space promoting comfort
- to provide a space unobstructed with structural supports for flexibility in use
- to facilitate for displays programs and exhibitions
- to provide a space that stands as a central element of the complex

Adjacent Spaces: personal hygiene, entrance lobby, maintenance, all activities

Activities Housed: lounging, exhibits, programs, displays

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor high resistance carpet for noise control. Wall with pattern and color with esthetic appeal. Ceiling height 10' to 15' with the use of a natural lighting system

Lighting: skylighting system should be incorporated with 30 fc ambient lighting

Furnishings/Equipment:

lounge seating, 1 and 2 seat units as needed

3 - trash receptacles

coffee and end tables as needed

2 - cigarette and ash urns - wall hung

1 - trophy case - 6'-0" x 1' - 0" x 3'-6"

1 - bulletin board - display cases, reset in wall 3'-0" x 5'-0"

**SPACE:** Lounge storage

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** -

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 200

**FUNCTIONAL REQUIREMENTS:**

- to provide a space to store tables, chairs, folding if adequate
- to provide a space for storage of equipment and articles relevant to small lounge performances and art exhibits
- to provide separation from public areas for staff access only

Adjacent Spaces: lounge, exterior access

Activities Housed: furniture and equipment  
storage

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor hard, smooth, nonslip, and non-porous on the same level with adjacent floor. Secure from public areas and able to be secured by 2 doors interior and exterior service. Ceiling height, 8'-0"

Lighting: ambient 50 foot candles, internal control

Furnishings/Equipment:

- wall racks (full length of one wall)
- 1 - handcart

**SPACE:** Public Restroom

**NUMBER OF UNITS:** 2  
1 men  
1 women

**NUMBER OF OCCUPANTS:** 15

**SQ.FT. PER OCCUPANT:** 225

**TOTAL AREA:** 500

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space that effectively disposes of human waste and aid in the general good hygiene of user, in a pleasant environment

Adjacent Spaces: all activities

Activities Housed: personal hygiene

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor non-slip, unglazed tile floors for safety. Walls should be water resistant, glazed tile walls preferred. Ceiling height: 8'-0" with required ventilation

Lighting: 20 fc ambient with 50 fc candle, task above or directed on mirrors, 3 exhaust fans for odor control

Furnishings/Equipment:

## Men

- 4 - w/c wall hung 1'-3" x 2'-6" x 1'-2 1/2"
- 3 - w/c wall hung (handicap use) 1'-3" x 2'-6" x 1'-8"
- 7 - urnals wall hung 25" x 18" x 1'-9"
- 3 - lavatories 19" x 17" x 2'-7"
- 1 - lavatory (handicap use) 19" x 17" x 2'-5 1/2"
- 4 - mirrors 3'-0" x 3'-0"
- 4 - electrical wall hung hand dryers 11 1/4" x 9 1/2"
- 7 - double toilet paper holders
- 4 - soap dispensors
- 3 - pair handicap handrails 3'-6" x 1" x 2'-9"
- 1 - wall waste receptacle 47" x 14" x 7 1/2"

## Women

- 9 - w/c wall hung 1'-3" x 2'-6" x 1'-2 1/2"
- 5 - w/c (handicap use) 1'-3" x 2'-6" x 1'-8"
- 4 - lavatories 19" x 17" x 2'-7"
- 1 - (handicap use) 19" x 17" x 2'-5 1/2"
- 5 - mirrors 2'-6" x 2'-0"
- 1 - full length mirror
- 5 - electric wall hung hand dryers 1'-4" x 9 1/2"
- 5 - double toilet paper holders
- 5 - napkin disposal units 11" x 9"
- 5 - soap dispensers 6" x 5 1/2"
- 5 - pair handicap rails 3'-6" x 1" x 2'-9"
- 2 - wall waste receptacle 47" x 14" x 7 1/2"

1 - couch of bench seat 6'-0" x 2'-0" x 1'-4"

**SPACE:** Executive Director

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 175

**TOTAL AREA:** 175

### **FUNCTIONAL REQUIREMENTS:**

- to provide space for executive director to oversee operations, do paperwork, conduct interviews, or relax

- to control entry and exit with reception

Adjacent Spaces: lounge, lobby, physical director, sec. pool and staff restrooms

Activities Housed: administration

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be commercial type, high quality carpet. Walls should acoustically isolate the room. Ceiling height: 8'-0".

Exterior view desirable with operable window.

Lighting: ambient: 100 foot candles, internal control

Furnishings/Equipment:

1 - desk 2'-6" x 5'-6"

- 1 - work chair with casters
- 2 - waiting chairs
- 2 - credenzas with file cabinets, 2'-6" x 6'-0"
- 1 - telephone and intercom system
- 1 - trash receptacle

**SPACE:** Program Director

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 150

**TOTAL AREA:** 150

### **FUNCTIONAL REQUIREMENTS:**

- to provide space for the program director to do paperwork

- to control entry/exit with reception area

Adjacent Spaces: information desk, public lobby, Executive Director, sec. pool, staff restrooms

Activities Housed: administration

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be commercial type, high quality carpet. Walls should acoustically isolate the office. Ceiling height: 8'-0". Exterior view desirable with operable windows.

Lighting: ambient 100 foot candles, internal control

Furnishings/Equipment:

- 1 - desk 2'-6" x 5'-6"
- 1 - work chair with casters
- 2 - waiting chairs
- 1 - telephone and intercom system
- 1 - trash receptacle
- 1 - credenza
- 1 - table

**SPACE:** Secretarial pool/  
Bookkeeping

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 200

**TOTAL AREA:** 200

**FUNCTIONAL REQUIREMENTS:**

- to provide a reception area and control for the Executive and Program Directors
- to provide a space for the secretary to do paperwork
- to provide a central work space for filing and bookkeeping

Adjacent Spaces: Executive Director Office,  
Program Director Office, information desk,  
lobby, staff restrooms

Activities Housed: administration

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be commercial type, high quality carpet. Closed off or open reception space. Ceiling height: 8'-0" enclosed and secured filing and bookkeeping area

Lighting: ambient 100 foot candle internal control

Furnishings/Equipment:

- 1 - desk 2'-6" x 5'-0"
- 1 - work chair with casters
- 5 - waiting chairs
- 1 - work table
- 3 - filing cabinets 17" x 20" x 52"
- 1 - flat cabinet 2'-0" x 3'-0" x 3'-6"
- 1 - telephone and intercom system
- 1 - trash receptacle

**SPACE:** Administrative Storage

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 150

**FUNCTIONAL REQUIREMENTS:**

- to provide space for office supplies (paper stock, paper handling and processing materials), coffee bar, and photo copying
- visually and acoustically isolate the space
- to control entry/exit through sec. pool/bookkeeping area

Adjacent Spaces: sec. pool/bookkeeping

Activities Housed: administration

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be commercial type, low maintenance carpet. Walls should acoustically isolate the space. Ceiling height: 8'-0"

Lighting: 30 foot candle, internal control

Furnishings/Equipment:

75 - lineal feet of shelving 12" deep  
photo copying machine 2'-6" x 4'-6"

**SPACE:** Staff Restrooms

**NUMBER OF UNITS:** 2  
1 men  
1 women

**NUMBER OF OCCUPANTS:** 2

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 350 (175 each)

### **FUNCTIONAL REQUIREMENTS:**

- to provide space for staff to perform personal hygiene in comfort and privacy

Adjacent Spaces: Executive and Program Directors offices, information/reception staff, lobby

Activities Housed: personal hygiene

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material non-slip and water proof (carpet preferred), acoustical isolated.

Ceiling height: 8'-0", required ventilation

Lighting: ambient: 30 foot candles, waterproof fixtures, internal control, 1 exhaust fan

Furnishings/Equipment:

Men

1 - w/c wall hung (handicap use) 1'-3" x 2'-6" x  
1'-8"

- 1 - urnal wall hung 25" x 18" x 1'-9"
- 1 - sink and counter 36" high
- 1 - soap dispenser
- 1 - towel dispenser
- 1 - towel receptacle
- 1 - mirror over counter
- 1 - pair handicap hand rails 3'-6" x 1" x 2'9"

Women

- 1 - w/c wall hung (handicap use) 1'-3" x 2'-6" x 1'-8"
- 1 - w/c wall hung 1'-3" x 2'-6" x 1'-2 1/2"
- 1 - sink and counter 36" high
- 1 - soap dispenser
- 1 - towel dispenser
- 1 - towel receptacle
- 1 - sanitary napkin dispenser
- 1 - mirror over counter
- 1 - pair handicap hand rails 3'-6" x 1" x 2'-9"

**SPACE:** Student Committee Rooms      **NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** 10      **SQ.FT. PER OCCUPANT:** 15

**TOTAL AREA:** 300 (150 each)

**FUNCTIONAL REQUIREMENTS:**

- to provide a space for group discussion
- to provide a space for program committees to meet and work
- to provide a space for visual and oral presentations acoustically isolated for sounds generated and sound infiltration

Adjacent Spaces: student offices, administrative offices, public restrooms

Activities Housed: group meetings

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material must be acoustically absorbent and durable. Material and finishes must facilitate a comfortable and relaxing atmosphere. Ceiling height: 8'-0" to 10'-0"

Lighting: ambient 70 foot candles, task lighting on presentation board, 150 foot candles, internal control

Furnishings/Equipment:

- 1 - conference table, 4'-0" x 9'-10"
- 10 - upholstered swivel chairs
- 1 - automatic projection screen mounted above presentation board (chalkboard)
- 1 - wall-mounted chalkboard 4' x 12"
- 1 - credenza

**SPACE:** Meeting room  
Large

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 80

**SQ.FT. PER OCCUPANT:** 15

**TOTAL AREA:** 1200 sq.ft.

**FUNCTIONAL REQUIREMENTS:**

- to provide a space for group discussion
- to provide flexibility with partitions and movable seating
- to provide a large flexible space for meetings and lectures
- to provide a space that is acoustically isolated from generated noise and noise infiltration

Adjacent Spaces: meeting room, kitchenette, storage,  
public restroom

Activities Housed: group meetings

**TECHNICAL REQUIREMENTS:**

Space Enclosure: 5' x 5' projection booth, floor high resistant to handle high turnover of movable furniture, acoustically absorbant, high strength industrial carpet. Materials and furnishes should be esthetically appealing and comfortable. Tacking and wall attachments for movable partitions. Ceiling height 10 to 12 feet.

Lighting: ambient 70 fc adjustable, task lighting on presentation board, 150 foot candles, internal control

Furnishings/Equipment:

- 1 - podium
- 1 - automatic projection screen mounted above presentation board
- 1 - 16 mm projector
- 2 - 5'-0" x 20'-0" rectangular conference table
- 4 - 4'-0" x 9'-0" rectangular conference table
- 80 - stack chairs
- 1 - stack chairs
- 1 - wall-mounted presentation board 4' x 12'
- 1 - raised portable stage 12'-0" x 5'-0" x 1'-0'

**SPACE:** Meeting room medium

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** 50

**SQ.FT. PER OCCUPANT:** 15

**TOTAL AREA:** 750 each, 1500 total

### **FUNCTIONAL REQUIREMENTS:**

- to provide space for group discussion
  - to provide comfortable seating and writing surface for oral and visual presentation
  - to provide a space that is acoustically
- Adjacent Spaces: meeting room, kitchenette, lobby storage, public restroom
- Activities Housed: group meeting

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor acoustically absorbant durable short pile commercial carpet. Material and furnishings must facilitate a comfortable and relaxing atmosphere. Ceiling height 8'-0" to 10'-0".

Lighting: ambient 700 foot candles: task lighting on presentation board 150 foot candles internal control

Furnishings/Equipment:

- 1 - automatic projection screen mounted above  
presentation board
- 1 - wall-mounted presentation board 4'-0" x 12'-0"
- 4 - 4'-6" x 8'-0" conference tables
- 2 - 4'-0" x 12'-0" conference tables
- 45 - upholstered swivel chairs
- 75 - linear feet of 12" deep shelves
- 2 - wall-mounted folding partitions (acousitic)

**SPACE:** Meeting Room  
Small

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 30

**SQ.FT. PER OCCUPANT:** 15

**TOTAL AREA:** 450 sf.

**FUNCTIONAL REQUIREMENTS:**

- to provide for groups of 10 to 30 people to hold open discussion
- to provide a space for visual and oral presentation acoustically isolated for sound generation and noise infiltration

Adjacent Spaces: lobby, kitchenette, large and medium meeting rooms, storage, public restrooms

Activities Housed: group meeting

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material must be acoustically absorbent and durable. Material and finishes must facilitate a comfortable and relaxing atmosphere. Ceiling height: 8'-0" to 10'-0".

Lighting: ambient 70 fc., task lighting on chalk board 150 fc., internal control

Furnishings/Equipment:

- 1 - automatic wall-mounted projection screen
- 1 - chalk board, 4'-0" x 12'-0"
- 6 - 3'-6" - 7'0" conference tables
- 2 - 3'-0" - 6'-6" conference tables
- 26 - high back swivel chairs
- 2 - wall-mount folding partitions (acoustical)

**SPACE:** Meeting room  
Storage

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** -      **SQ.FT. PER OCCUPANT:**

**TOTAL AREA:** 200 s.f.

**FUNCTIONAL REQUIREMENTS:**

- to provide separation from public areas
- to provide a space for storage of furniture and electrical equipment that facilitates the meeting rooms
- to provide an orderly arrangement of table and chair stacking to maximize use of the storage area

Adjacent Spaces: meeting rooms

Activities Housed: equipment and furniture storage

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: hard, smooth, nonslip, and nonporous (on the same level with adjacent floor, no threshold. Secured from public/entrance double doors. Floor mounted racking system for table and chairs. Ceiling height 8'-0"

Lighting: ambient 50 foot candles, internal control

Furnishings/Equipment:

1 - 50 linear foot wall rack 18" deep

1 - handcart

**SPACE:** Kitchenette

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 80

**TOTAL AREA:** 80

**FUNCTIONAL REQUIREMENTS:**

- to provide a space for food and drink preparation to service the meeting rooms
- to control kitchen fumes, noise, etc.
- to provide adequate space for service amenities

Adjacent Spaces: meeting rooms, committee rooms

Activities Housed: food preparation and service

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor nonslip low maintenance with low maintenance water proof walls. Ceiling height: 8'-0" with provision to vent smoke and odors to the exterior of the facility

Lighting: 70 fc ambient, required 220V outlet behind oven placement

Furnishings/Equipment:

1 - 13.5 cubic foot refrigerator 30 1/2" x 24" x  
63"

1 - stainless steel double sink

1 - built-in oven 24 1/2" x 24" x 50"

1 - dishwasher

1 - counter top stove unit with 4 burners  
40" x 27 1/2"

base and wall storage units

1 - waste receptacle

**SPACE:** Student Offices

**NUMBER OF UNITS:** 5

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 100

**TOTAL AREA:** 500 (100 each)

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space for student administrators to do paperwork
- to control entry/exit with reception area

Adjacent Spaces: reception area, lobby, public restrooms

Activities Housed: administrative offices

### **TECHNICAL REQUIREMENTS**

Space Enclosure: floor material should be commercial type, high quality carpet. Walls should accoustically isolate the office. Ceiling height: 8'-0". Exterior view desirable with operable windows

Lighting: ambient 100 foot candles, internal control

Furnishings/Equipment:

- 1 - desk 7'-6" x 5'-6"
- 1 - work chair with casters
- 2 - waiting chairs
- 1 - table unit
- 1 - file cabinet 17" x 28" x 52"
- 1 - telephone
- 1 - trash receptacle

**SPACE:** Student Receptionist

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 5

**SQ.FT. PER OCCUPANT:**

**TOTAL AREA:** 200

**FUNCTIONAL REQUIREMENTS:**

- to provide a reception area and control for the student offices
- to provide storage for student offices
- to provide a space for secretary to do paperwork

Adjacent Spaces: lobby, public restrooms, student offices

Activities Housed: storage and administrative offices

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor commercial type high quality carpet. Adjacent storage enclosure. Ceiling height: 8'-0"

Lighting: ambient 100 foot candle, internal control

Furnishings/Equipment:

wall-mounted shelves 12" deep

photo copying machine 2'-6" x 4'-6"

1 - work chair with casters

1 - desk 2'-6" x 5'-0"

1 - telephone

1 - trash receptacle

3 - waiting chairs

1 - table (work)

**SPACE:** Snack bar  
(seating)

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 300

**SQ.FT. PER OCCUPANT:** 12

**TOTAL AREA:** 3600

**FUNCTIONAL REQUIREMENTS:**

- to provide a fast, mass feeding facility for quick lunchers and snack eaters
- to provide expansive unobstructed seating area for food consumption and social interaction
- to provide proper space allocations between seating units for human comfort
- to facilitate for noise control and physical comfort

Adjacent Spaces: kitchen, lobby, public restrooms,  
cafeteria

Activities Housed: snacking

**TECHNICAL REQUIREMENTS:**

Space enclosure: floor nonslip, low maintenance unglazed tile. Wall with pattern and colour for esthetic appeal. Ceiling height 10' to 13' with the consideration of natural lighting system.

Lighting: skylighting system should be incorporated with 30 foot candel ambient lighting

Furnishings/Equipment:

- 15 - 6'-0" diameter (round) dining tables
- 15 - 3'-6" x 3'-6" (square) dining tables
- 15 - 2'-6" x 5'-6" (rectangular) wall-mounted  
both tables
- 230 - 3'-0" x 3'-0" (square) dining tables
- 30 - bench seats for booths
- 240 - stack chairs
- 10 - trash receptacles
- 2 - food utensil and condiment tables
- 5 - tray racks

**SPACE:** Snack bar  
Kitchen and storage pantry

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 8      **SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 1800 (1000 kitchen)  
( 800 storage pantry)

### **FUNCTIONAL REQUIREMENTS:**

- to provide convenient delivery area
- to provide a space for hot food preparation
- to provide a space for cold and dry storage and participant self-service line
- to provide orderly ingress and egress through food and register line

Adjacent Spaces: snack bar seating, lobby, public restrooms

Activities Housed: snacking

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: nonslip low maintenance unglazed tile floor. Wall high resistant water repellent ceiling 8'-0" to 10'-0" with proper ventilation of smoke and odors to the exterior of facility

Lighting: kitchen 70 fc, cashier 10 footcandels, warming lamps over service line, exhaust fans, and required 220v outlets

Furnishings/Equipment:

food preparation

1 - 6 burner range

1 - griddle

2 - fryers

1 - high pressure steamer

1 - broiler

hot food wells

sandwich units

1 - microwave oven

1 - conventional oven

2 - sinks

Storage

1 - cold storage (commercial size)

1 - freezer (commercial size)

1 - dry storage vault

utensil and supple storage

commercial trash receptacles

Service area

- juice dispenser

- glass and cup storage

- coffee maker (commercial size)

- sandwich display

- display case

- cold food display

- hot soup wells and dish dispenser

- wall-mounted rack

2 - checkout lines

2 - registers

**SPACE:** Bookstore  
 1 Administrative Office  
 1 Storage

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 4,000 sf.

**FUNCTIONAL REQUIREMENTS:**

- to provide designated spaces for clothing and supplies
- to provide a space for book selection and purchases
- to provide an orderly ingress and egress through check out control area
- to provide legible directional signage

Adjacent Spaces: exterior, lobby

Activities Housed: commodities/book purchase

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be

commercial type, low maintenance carpet. Walls

acoustically treated. Ceiling height: 10'-0".

stock room: enclosed and isolated from public

with service entrance, 500 s.f. Administrative

office, 150 s.f.

Lighting: bookstore, 30 fc ambient; administrative office 100 fc, internal control; showcase, 200 fc

Furnishings/Equipment:

Administration Office

- 1 - desk, 2'-6" x 5' x 6"
- 1 - work chair with casters
- 2 - waiting chairs
- 1 - table unit
- 1 - file cabinet, 17" x 28" x 52"
- 1 - telephone
- 1 - trash receptacle

Bookstore

- 4 rows - 100 linear feet of bookshelves
- 2 - display counters
- supply racks
- 50 linear feet of clothes racks
- 1 - snack counter
- wall racks
- 2 - registers
- 2 - high back, 40" operational stools
- 2 - checkout counters
- 1 - paper cutter
- 2 - trash receptacles
- various shelves and display tables

**SPACE:** Cafeteria seating  
Public/private

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:**                      **SQ.FT. PER OCCUPANT:** 12

300 public  
140 private

**TOTAL AREA:** 3600 public  
1680 private

### **FUNCTIONAL REQUIREMENTS:**

- to provide a fast mass-feeding facility cafeteria style
- to provide an area for food consumption public and private
- to facilitate for noise control and physical comfort

Adjacent Spaces: kitchen, lobby, public restrooms,  
snack bar

Activities Housed: public and private dining

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor; acoustically absorbant,  
commercial carpet. Walls: enclosure for 1680 sf  
(140 seats) private dining. All walls with  
pattern and color. Exterior view desirable.  
Ceiling height 8'-0" to 10'-0".

Lighting: 30 footcandel ambient

Furnishings/Equipment: public 15 - 6'-0" diameter  
round dining tables  
15 - 3'-6" x 3'-6" (square) dining tables  
15 - 2'-6" x 5'-6" rectangular wall-mounted booth  
tables  
30 - 3'-0" x 3'-0" (square) dining tables  
240 padded dining chairs  
30 padded (2 occ.) bench seats  
condiments on each table  
Private 10 - 6'-0" diameter (round) tables  
10 - 3'-6" x 3'-6" (square) dining tables  
20 - 3'-0" x 3'-0" (square) dining tables  
140 upholstered dining chairs  
condiments on each table

**SPACE:** Cafeteria  
Kitchen and storage pantry

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 10      **SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 2640 (1440 kitchen)  
(1200 storage and pantry)

**FUNCTIONAL REQUIREMENTS:**

- to provide serviceable delivery area
- to provide a space for hot and cold food preparation and service
- to provide a purchase area
- to provide an orderly arrangement to maximize food preparation and distribution

Adjacent Spaces: cafeteria seating, lobby public restrooms

Activities Housed: public/private dining

**TECHNICAL REQUIREMENTS:**

Space Enclosure: nonslip low maintenance unglazed tile floor. Wall high resistant water repellent. Ceiling 8'-0" with proper ventilation of smoke and odors to the exterior of facility - delivery entrance

Lighting: kitchen 70 foot candels cashier 10 foot

candels, exhaust fans, and required 220V  
outlets

Furnishings/Equipment: 1 circular type dishwasher

1 - dry storage area

1 - cold storage

1- freezer storage

moble racks

2 - conventional ovens

1 - 6 burner range

1 -table tope kettle

1 - tilting skillet

spreader plate

work table

3 - sinks

2 - conventional steamers

portable dish truck

utensil rack

commercial waste receptacle

Food line

display counter fronted with glass

cold food display

sandwich display

hot food

roll warmer

bowl dispenser

glass dispenser

desert display

juice and coffee dispenser

tray rack

1 - salad bar

2 or 3 registers

**SPACE:** Gameroom

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** -

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 2250

**FUNCTIONAL REQUIREMENTS:**

- to provide a space for small scale recreation such such as billards, table tennis, video and cards
- to provide sufficient space for optional competition
- to treat acoustically

Adjacent Spaces: lobby snack bar

Activities Housed: games

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor nonslip low maintenance, absorbant quality. Walls patterned to absorb noise. Celing 10'-0". Enclosed 200 sf storage are isolated from public.

Lighting: 70 foot candel with 100 foot candel task over control area

Furnishings/Equipment:

2 - table tennis tables 5'-0" x 9'-0" x 2'-6"

5 - billiard tables 5'-0" x 9'-9" x 2'-6"  
4 - 3'-6" x 3'-6" card tables  
6 - varid video games  
30 chairs 22" x 22 1/2" x 30"  
2 waste recepticals  
1 display counter  
1 register  
1 highback 42" stool  
1 telephone  
2 - pool racks wall-mounted

**SPACE:** Vending room

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 30

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 456

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space for machine food purchase and consumption
- to provide adequate selection of a variety of packaged foods and candies
- to provide a space for social interaction
- to control noise level

Adjacent Spaces: lounge, public restroom

Activities Housed: dining, passive

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: non-slip tile or terrazzo  
easily cleaned and maintained. Walls should  
control sound transmission. Ceiling height:  
8'-0"

Lighting: 40 foot candles, ambient internal  
control/6 110 outlet servicing the machines

Furnishings/Equipment:

- 1 - hot beverage machine
- 2 - cold beverage machines
- 1 - sandwich machine
- 1 - hot food machine
- 1 - partry machine
- 1 - change machine (wall hung)
- 30 - stock chairs
- 3 - 4'0" x 11'0", rectangular dining table
- 2 - trash receptacles

**SPACE:** Workshop for Student  
Organization

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 8

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 850 sq.ft.

### **FUNCTIONAL REQUIREMENTS:**

- to provide a general work area for printing and processing film with areas for layout/studio and storage
- to provide a secure light tight darkroom
- to provide a variety of lighting arrangements for studio area

Adjacent Spaces: student offices

Activities Housed: workshops

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: studio short pile commercial carpet. Well ventilated to dissipate processing heat and printing, non-slip, non-corrosive, easily maintained. Walls treated for noise control.  
Ceiling height: 8'-0"

Lighting: 100 fc ambient, 200 fc task for photographic safe and light 30 fc for darkroom

Furnishings/Equipment:

Studio

tri pods

light bars

booms

floor reflectors

2 - stools

1 - chair

1 - desk 2'-6" x 5'-0"

1 - photography equipment

1 - trash receptacle

1 - work bench

Film Processing and Printing

work table

acid resistant sinks

processing equipment

printing equipment

enlargers

4 - stools (swivel)

storage - variety of shelves and racks

safe lights

**SPACE:** Television and Film Lounge **NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 50 **SQ.FT. PER OCCUPANT:** 15

**TOTAL AREA:** 750

### **FUNCTIONAL REQUIREMENTS:**

- to provide good site lines
- to provide a space to relax and watch television
- to provide comfortable seating spacing with maximum number of seats
- to provide for noise absorption

Adjacent Spaces: lounge, food services

Activities Housed: audio visual entertainment

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: low maintenance, acoustically absorption. Material and finishes most facilitate and comfortable and relaxing atmosphere with acoustically and absorpant materials. Ceiling height: 8'-0" x 10'-0"

Lighting: 5 foot candle seating and screen with 50 foot candle sparatic spot task lighting.

Furnishings/Equipment:

- 30 - 27" x 28" x 28", padded lounge chairs
- 10 - 62" x 29" x 24", 2 seat sofas
- 1 - cable connection
- 1 - automatic wall mounted projection screen
- 1 - 3'-0" x 3'-0" large screen television unit
- 2 - waste receptacles

**SPACE:** Music Lounge

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 20

**SQ.FT. PER OCCUPANT:** 20

**TOTAL AREA:** 440

**FUNCTIONAL REQUIREMENTS:**

- to provide an area for public and private music listening
- to provide partition areas for individual participation
- to provide security for equipment
- to provide a music selection system both group and individuals
- to provide a comfortable and relaxing atmosphere

Adjacent Spaces: main lounge, TV lounge, public restrooms

Activities Housed: audio visual entertainment

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor low maintenance, commercial type carpet. Wall: colors and patterns for visual appeal: partitioned booths enclosed and acoustically isolated with headphone jacks. Ceiling height 8'-0"

Lighting: 70 foot candle ambient, natural lighting should be incorporated

Furnishings/Equipment:

- 1 - high fidelity sound system
- modular lounge furniture (seating for 10)
- 10 - padded 33" x 33" x 25", lounge chairs
- 2 - end tables
- 4 - high back lounge seats (for booths)
- 1 - trash receptacle

**SPACE:** Campus Newspaper Office      **NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 3      **SQ.FT. PER OCCUPANT:** 60

**TOTAL AREA:** 180

**FUNCTIONAL REQUIREMENTS:**

- to provide a space for newspaper layout and administration
  - to provide work areas for staff writers
  - to provide work space and for type and copy
- Adjacent Spaces: student offices
- Activities Housed: administration

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor low maintenance, commercial carpet. Walls provided with racks and mounted layout tables acoustically treated for sound generation and infiltration. Ceiling height 8'-0"

Lighting: 100 foot candle ambient internal control  
200 foot candle task over work station

Furnishings/Equipment:

- 2 - desk 2'-6" x 5'-6"
- 2 - work chairs with casters
- 1 - filing cabinet 17" x 28" x 50"
- 2 - typewriters
- 2 - telephones
- 2 - trash receptacle
- 2 - 4'-0" x 3'-0" work tables
- 50 linear feet of 12 deep wall racks

**SPACE:** Poster Room

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 3

**SQ.FT. PER OCCUPANT:** 50

**TOTAL AREA:** 150

### **FUNCTIONAL REQUIREMENTS:**

- to provide a work space for poster and announcement preparation
- to provide adequate work space for layout and development
- to provide adequate storage for supplies

Adjacent Spaces: student offices

Activities Housed: administration

### **TECHNICAL REQUIREMENTS**

Space Enclosure: floor material should be commercial type, easily maintained. Walls should acoustically isolate the office. Ceiling height: 8'-0"

Lighting: 100 foot candle ambient internal control,  
200 foot candle task over drafting area

Furnishings/Equipment:

- 1 - desk, 7'-6" x 5'-6"
- 1 - work chair with casters
- 2 - drafting tables, 4'-0" x 3'-0"
- 3 - trash receptacles
- 1 - telephone
- 2 - drafting stools
- various shelves and racks

**SPACE:** Postal Service

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 3

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 900

**FUNCTIONAL REQUIREMENTS:**

- to provide work space for postal sorting and filing
- to provide an office space for the director to do paperwork
- to provide an exterior loading platform for shipping and deliver
- to provide self-service postal entities: letter, drop, stamp machine, scales, change dispenser

Adjacent Space: lobby, commercial

Activities Housed: postal

**TECHNICAL REQUIREMENTS:**

Space Enclosure: office floor: commercial type

(high quality). Walls should acoustically isolate office. Ceiling height: 8'-0".

Work space: floor low maintenance, non-slip, secure from public access, service counter open to public space. Ceiling height: 8'-0".

Self-service lobby: floor tile, glazed or unglazed. Walls patterned and color with

wall mounted written surface. Ceiling 8'-0"

Lighting: 100 fc ambient office internal control

100 fc ambient work space. 50 fc public service,

150 task over service counter

Furnishings/Equipment:

1 - self-service coin soperated stamp machine

1 - change dispenser

1 - letter and bundle mail drop

1 - package scale

1 - mail letter box and parcel locker

office

1 - desk, 7'-6" x 5'-6"

1 - work chair with casters

2 - waiting chairs

1 - waste receptacle

1 - telephone

1 - filing cabinet, 17" x 28" x 52"

work space

5 - mail sorting bends (case and table) 4'-0" x

2'-6" x 6'-1"

2 - canvas basket carts, 36" x 28" x 26"

1 - 3' x 6' dispatcher table

**SPACE:** Bank

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 4

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 550

### **FUNCTIONAL REQUIREMENTS:**

- to provide quick self-service banking transactions  
(Atms)
- to provide security in money work area
- to provide walkup teller lines
- to provide a vault area for commerce
- to provide security for automatic tellers

Adjacent Spaces: postal, bookstore, entrance, lounge

Activities Housed: banking

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: short pile commercial type carpet. Vault and Atms reinforced concrete walls floor and ceiling and alarm door frame. Lobby and work space acoustically isolated for noise generation and infiltration. Color and pattern for pleasant appeal. Money work area will be secure from public access. Ceiling height: 8'-0" - 10'-0".

Lighting: lobby 30 foot candle ambient work area

50 fc and vault 10 foot candles

Furnishings/Equipment:

Lobby

check writing counter and tables

2 - lounge seats

1 - ash dispenser

2 - walk up teller wicket (bullet resistant glass)

camera/surveillance system

Money work area

2 - 42" work stools

2 - telephones

2 - signature monitor screens

2 - adding machines

1 - money counter

2 - cash trays

Vault

1 - coin roller

1 - currency counter

storage for cash trays

alarm system

(Atm's)

atm monitor box

camera/surveillance system

alarm safe door

**SPACE:** Rathskeller

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 65

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 34,000

### **FUNCTIONAL REQUIREMENTS:**

- to provide adequate space for back bar, work area and counter men's aisle
- to provide a seated counter space
- to provide spacious floor seating
- to incorporate natural lighting system

Adjacent Spaces: entrance lobby, snack bar and cafeteria

Activities Housed: lounging/drinking

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: bar, non-slip tile of terrezzo. Seating low maintenance commercial carpet.

Walls: color and pattern for relaxing atmosphere, acoustically isolated. Ceiling height: 8'-0" to 12'-0".

Lighting: environment lighting 10 foot candle, dimmer switch, task lighting over bar, 50 foot candle

Furnishings/Equipment:

Back bar work area

liquor and wine storage

3 - refrigerator units

ice container

liquor racks

3 - stainless steel sinks

glass racks

1 - blender

1 - cash register

1 - compressor beverage gun

1 - trash receptacle

Seating

counter

15 - 42" counter stools

Floor

12 - 36" - 36" (square) lounge tables

42 - padded lounge chairs

**SPACE:** Reading and Browse Library **NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 40 **SQ.FT. PER OCCUPANT:** 20

**TOTAL AREA:** 800

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space for seating, relaxing and reading
  - to provide an assortment of books for self-service selection
  - to incorporate natural lighting system
- Adjacent space: lounge, public restrooms
- Activities Housed: reading, quiet areas

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: commercial type, high quality. Wall colors and pattern for relaxing atmosphere, acoustically treated for noise infiltration, natural light is desired. Ceiling height: 10'-0"

Lighting: 70 foot candle

Furnishings/Equipment:

- assorted modular lounge couches and chairs
- 1 - waste receptacle

ash dispensers

9" deep book shelves (wall mount)

**SPACE:** Maintenance

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 75

**TOTAL AREA:** 150

### **FUNCTIONAL REQUIREMENTS:**

- to provide space for janitorial and maintenance equipment storage
- to provide sink shelves and racks
- to isolate from public areas

Adjacents spaces: lounge, main circulation spine

Activities Housed: maintenance

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: non-slip, non-porous with floor drain. Wall conducive to wall mount racks and shelves. Ceiling height: 8'-0"

Lighting: 40 foot candle ambient internal control

Furnishings/Equipment:

storage racks for hoses, extension wands pipes

etc.

wall mounted utility sink

shelves over utility sink 9" to 12" deep

floor stock (drums, cans, etc.)

accessories, fitting, tools mounted on peg  
boards

1 - bulletin board

2 - mops (4 in spacers, wall mounter)

2 - drip trays

1 - vacuum

**SPACE:** Theater Coat Room  
(Drama and Recital)

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** -      **SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 200 (Drama)  
200 (Recital)

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space for coat, garment and hat check
- to provide an organized hanging and racking system for expediency of item check
- to provide conveniency to lobby
- to reduce overcrowding at end of performance

Adjacent Spaces: entrance lobby, theater entrance

Activities Housed: coat and item check

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be high resistant commercial, low maintenance carpet. Walls must be conducive to rack mounting with 8'-0" ceiling height. Fronted with a checking counter and single entrance

Lighting: 70 fc ambient with 100 fc task over counter

Furnishings/Equipment:

combination coat, hat, umbrella, overshoe

racks, back to back and wall mounts

with 3 in oc hanger spacing

41" height front counter with storage below

1 - medium high work stool

**SPACE:** Entrance lobby  
(Drama and Recital)

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** 100  
Drama  
50 Recital

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 500 (Drama)  
300 (Recital)

### **FUNCTIONAL REQUIREMENTS:**

- to provide space for standing and seating before, after and during intermission
- to provide clear and informative directional guides for user
- to provide an inviting and comfortable space for people to enter, organize and exit the facility

Adjacent Spaces: vestibule, public restrooms, coat and item check

Activities Housed: departure and arrival, theaters

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor material should be high traffic, non-slip and low maintenance. Walls should be expressive of the performance facility with color and patterns to express inviting appeal. Ceiling height: 10' minimum

Lighting: 30 fc ambient

Furnishings/Equipment:

low traffice lounge seating

wall mount and table top ask dispensers

2 - trash receptacles

2 - water coolers

directional signage

1 - beverage service bar

**SPACE:** Theater (Drama) seating      **NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** 1200      **SQ.FT. PER OCCUPANT:** 8  
Drama  
300 Recital

**TOTAL AREA:** 9,600 Drama  
2,400 Recital

**FUNCTIONAL REQUIREMENTS:**

- to provide unobstructed sight lines to the stage
- to provide staggered conventional or continental method of seating arrangement
- to provide a free and direct isle circulation system
- to provide a number of fire exists in addition to the main entrances, with anti panic hardware
- to accoustically isolate exterior noise
- to provide sound reflectant and absorbent panels as needed

Adjacent Spaces: entrance lobby, stage, parking

Activities Housed: theaters

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: sound absorbent, high quality carpet. All interior finishes should conform acoustical plan with reflectant and absorbant material. Ceiling height: as designed

Lighting: during intermission, 5 during performance  
1 foot candles, floor lights on isle ways

Furnishings/Equipment:

acoustically absorbent auditorium seating for  
Drama 1,200 people (continental or  
conventional)

directional signage (exit)

Recital 300 people (continental or conventional)

directional signage exit

**SPACE:** Orchestra Pit (Drama)

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** -

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 900

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space for various size orchestras to perform
- to provide additional seating when not in use
- to incorporate a lift system if needed

Adjacent Spaces: seating, stage costume and storage

Activities Housed: theater

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor : non-slip conducive to portable fixtures. Inset outlets and controlled by hydrolic lift

Furnishings/Equipment:

- 1 - movable podium
- 60 - partable chairs (conducive for instrument playing)
- 1 - 4 leg hydrolic lift

**SPACE:** Ticket booth and Office      **NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 5      **SQ.FT. PER OCCUPANT:** 80

**TOTAL AREA:** 400

### **FUNCTIONAL REQUIREMENTS:**

- to provide an office for director to do paperwork
- to provide a small meeting room for staff and actors
- to provide a space for ticket distribution and sell

Adjacent Space: lobby

Activities Housed: theater

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: commercial type, high quality. Walls to acoustically isolate from noise generation and infiltration. Ceiling height: 8'-0"

Lighting: ticket booth, 50 fc ambient  
office 100 fc ambient meeting 50 fc ambient  
all internal control

Furnishings/Equipment:

## Office

- 1 - desk 7'-6" x 5'-6"
- 1 - work chair with casters
- 2 - waiting chairs
- 1 - table unit
- 1 - telephone
- 1 - trash receptacle

## Meeting room

- 2 - 3'-6" x 7'-0"
- 8 - high backed swivel chairs
- 1 - trash receptacle
- 1 - lavatory

## Ticket Booth

- 1 - adding machine
- 1 - 41" high counter with glass window
- 1 - working stool
- 1 - cash box



Furnishings/Equipment:

- 1 - table top sound control panel
- 1 - table top light dimmer panel
- 2 - working chairs
- 2 - adjustable baby spot lamps
- 1 - projector
- 1 - trash receptacle
- 2 - telephones
- intercom system

**SPACE:** Stage (Drama)  
(Recital)

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** -

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 3,500 Drama  
1,700 Recital

**FUNCTIONAL REQUIREMENTS:**

- to provide a functional space for props, fixtures and performances
- to provide fly loft space for concealing and storing screens and back drops
- to incorporate a conforming cyclorama
- to provide adequate light and racking system with back stage and projection booth control

Adjacent Spaces: seating, orchestra pit, vom,  
back stage

Activities Housed: theaters

**TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: pieced hard wood, open to audience with 2 side voms and cyclorama, fly loft 40' minimum

Lighting: variety of lighting tracks and 70 foot candle (white) stage lights, dimmer panel in back stage

Furnishings/Equipment:

retractable projection screen (loft)

fly, draw or travse curtain

fly equipment

light dimmer panel

**SPACE:** Green room (Drama)  
Recital

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** -

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 400 Drama  
300 Recital

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space for receptions, retiring and robing room for dignitaries
- to provide a space to wait for curtain call
- to provide a space to check coats, assemble choruses, etc.
- to provide a small food service area

Adjacent Spaces: stage, dressing rooms

Activities Housed: theater

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: should be commercial type, high quality. Walls: decorative with pattern and color sound absorbent for sound transmission.

Ceiling: 8'-0"

Lighting: 30 foot candles

Furnishings/Equipment:

modular lounge furniture  
assorted end and coffee tables  
2 - ash dispensers  
1 - full-length mirror  
1 - call system outlet  
1 - telephone  
monitor sytem loud speaker  
sink  
beverage bar  
refrigerator (bar) unit

**SPACE:** Dressing room (Drama)  
large (star)

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 120

**TOTAL AREA:** 120

### **FUNCTIONAL REQUIREMENTS:**

- to provide space for the star or guest artist to robe and derobe, put on make up, and wash
- to provide a space for the star to relax before a performance
- to provide pleasant decor

Adjacent Spaces: stage, green room, dressing rooms

Activities Housed: personal hygiene, theater

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: commercial type, high quality material and furnishings must facilitate a comfortable and relaxing atmosphere. Ceiling height: 8'-0"

Lighting: 50 fc ambient, 70 fc diffused light on mirror

Furnishings/Equipment:

2 - lounge chairs

1 - dressing table

1 - three part mirror

1 - padded work chair with casters

shower

water closet

lavatory

10 - linear feet of covered clothes and costume

rack

1 - full-length mirror

**SPACE:** Dressing Room  
Medium (Drama)

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** 5

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 80 (each)  
160 (total)

### **FUNCTIONAL REQUIREMENTS:**

- to provide a group space for actors to robe and disrobe, put on make up, and personal hygiene
- to provide hanging and rack space
- to provide adequate diffused light mirrors, lavatory's and counter space for 5 participants

Adjacent Spaces: green room, restroom, star dressing room

Activities Housed: theater

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: low maintenance, commercial carpet. Walls must be conducive to wall mount racks and counters. Ceiling height: 8'-0".

Lighting: 50 fc ambient, 70 fc diffused lights on mirror

Furnishings/Equipment:

5 - work chairs

50 linear foot of combined hanger and storage  
racks (open)

wall length counter

3 - sinks

1 - full counter length mirror

2 - showers

water closet

1 - full length mirror

2 - waste receptacle

**SPACE:** Small Dressing Rooms  
(Drama)  
(Recital)

**NUMBER OF UNITS:** 11

**NUMBER OF OCCUPANTS:** 1

**SQ.FT. PER OCCUPANT:** 50

**TOTAL AREA:** 250 Drama  
300 Recital

### **FUNCTIONAL REQUIREMENTS:**

- to provide individual space for actors to robe and disrobe, put on make up and personal hygiene
- to provide hanging and rack space
- to provide adequate space, mirror, lavatory's and counter

Adjacent Spaces: green room, restroom

Activities Housed: theater

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: low maintenance, commercial type carpet. Walls conducive to wall mount

hangers and rack. Ceiling height: 8'-0".

Lighting: 50 foot candle ambient, internal control,

70 fc diffused lights on mirror

Furnishings/Equipment:

- 1 - counter chair
- 1 - lavatory
- 1 - central water closet to every two dressing  
rooms
- 1 - shower in each
- 5 - linear feet of open clothes and costume rack
- 1 - full length mirror
- 1 - waste receptacle

**SPACE:** Costume  
(Drama)  
(Recital)

**NUMBER OF UNITS:** 2

**NUMBER OF OCCUPANTS:** -      **SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 900 (Drama)  
400 (Recital)

### **FUNCTIONAL REQUIREMENTS:**

- to provide interior partition dressing areas
- to provide a space for costume preparation, alteration, and storage
- to provide adequate storage and portable hanger space
- provide designated alteration areas with raised platforms and task lighting

Adjacent Spaces: flat storage, orchestra pit,  
dressing rooms

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: low-maintenance, high resistant commercial carpet. Walls: light in color and conducive to wall mount hanger units. Ceiling height: 8'-0". Enclosed dressing areas

Lighting: 50 foot candle and 70 foot candle, task over alteration areas

Furnishings/Equipment:

wall mounted and back to back costume storage

units

6' portable aluminum close racks with casters

assorted full length mirrors

work chairs

lounge chairs

end tables

trash receptacles

**SPACE:** Shop (Drama)

**NUMBER OF UNITS:** 1

**NUMBER OF OCCUPANTS:** -

**SQ.FT. PER OCCUPANT:** -

**TOTAL AREA:** 2,000

### **FUNCTIONAL REQUIREMENTS:**

- to provide a space for machinery and finishing props
- to provide and space for flat storage
- to provide a space conducive to wood construction

Adjacent Spaces: exterior service entrance, flat storage, stage

Activities Housed: theater

### **TECHNICAL REQUIREMENTS:**

Space Enclosure: floor: non-slip, non-porous, high resistant floor. Walls finished high resistant acoustically isolated for noise generation. Ceiling height: 12'-0".

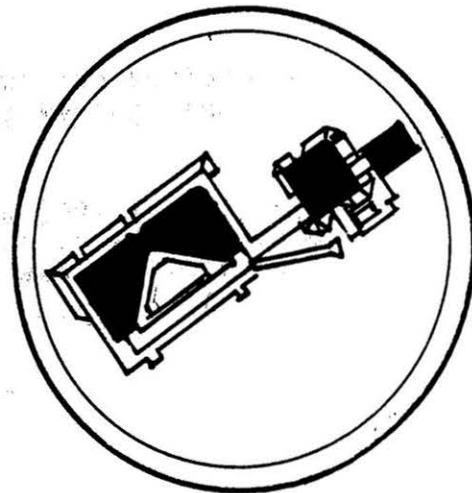
Lighting: 70 foot candle ambient internal control  
6 220v outlets, table outlets 110v

Furnishings/Equipment:

storage racks for wood  
cabinets for hand tool storage  
1 - non-corrosive sink  
work benches  
1 - table saw  
1 - jointer  
1 - band saw  
1 - lathe  
1 - drill press  
1 - table sander  
1 - compressor  
1 - radial arm saw  
assorted tools

**UTPB**

**BIBLIOGRAPHY**



## BIBLIOGRAPHY

- "Activism in Concrete." Progressive Architecture, (March, 1978), 66-69.
- Alder, Jim. Guide to Services Selection: Alder. Nichols Publishing Company (New York, 1983).
- Architectural Rules of Thumb. Guidelines Publications (Orinda, California, 1975).
- Association of University Architects Building Project Survey. Student Unions/Student Service Buildings. University of Wisconsin (Menomonie, Wisconsin, 1984).
- Berry, Chester Arthur, ed. Planning A College Union Building. New York Bureau of Publication, Teachers College, Columbia University (1960).
- Butts, Port. "The College Union Story." Association of College Unions (March, 1964), 58-63.
- Coordinating Board, Texas College and University System. 1983 Statistical Supplement, Annual Report.
- "Cost Projection System with Regional Modifiers." Design Cost and Data. (January-February, 1984), 4.
- DeChiara, Joseph and Callender, John. Time-Savers Standards for Building Types. McGraw-Hill Book Co. (New York, 1980).
- "Edward Larrabee Barnes Design for the Performing Arts at Purchase." Architectural Record (August, 1981), 64-71.
- Godfrey Robert Sturgis. Building Construction Cost Data 1984. 42 Edition. Robert Snow Megis Company, Inc. Construction Consultants and Publication. (Kingston, MA. 1984).

- Jerkins, Jack and McQueen, Sidney. Administration and Operation of the College Union. Association of College Unions-International. (Stanford, California, 1973).
- Jesser Associates Inc. The University of Texas of the Permian Basin. (Austin, Texas, n.d.).
- Klepper, William M., ed. The Impact of College Unions and Their Programs on Today's Students. Association of College Unions-International (Stanford, California, 1981).
- Marvin Springer and Associates. Comprehensive Development Plan, City of Odessa, Texas. (Odessa, Texas, January, 1980).
- McGraw-Hill Information Systems Company. McGraw-Hill's Dodge Construction Systems Costs 1984. (Princeton, New Jersey, 1983).
- McGiness, Stein and Reynolds. Mechanical and Electrical Equipment for Buildings. John Wiley and Sons, (New York, 1980).
- Odessa A Twenty Year Plan. Texas Tech University, Division of Architecture (Lubbock, Texas), May 1978.
- Packard, Robert T. Ramsey/Sleeper Architectural Graphic Standards. John Wiley and Sons, (New York, 1981).
- Palmer, MickeyA. The Architects Guide to Facility Programming. McGraw-Hill (New York, 1981).
- Planning College Union Facilities for Multiple Use. Association of College Unions-International, (Madison, Wisconsin, 1964).
- "Student Center for Small New Jersey Campus." Architectural Record, (August, 1978), 101-106.
- "University Center, Cleveland State University in Downtown Cleveland." Architectural Record, (August, 1975), 90-92.
- U.S. Department of Agriculture. Soil Conservation Service in Cooperation With Texas Agriculture Experiment Station. Soil Survey of Ector and Crane Counties. (1978).
- U.S. Department of Commerce. 1980 Census of Population, Texas. (October 1983).

The University of Texas of the Permian Basin Strategic Plan  
1984-1998. The University of Texas of the Permian  
Basin. (Odessa, Texas, March 15, 1984).

This chapter is devised to give a comprehensive understanding of the design process of the UTPB Student Union. The theory will be delineated in three major categories; concept, exterior form, and interior relationships.

The basic concept for site selection and building placement was on the precept that the Student Union was the center or living room of the campus. The existing administrative and athletic complex was the prime support structure to contend with. The Student Union had to have some coherence with the existing building on the assumption that the Union would be the next or even the last structure built on campus, as well as being a start in a devised master plan for the University. The Union was designed to penetrate and not control the central court in front of the administration, thus utilizing the bi-level concept of the existing structures. The Union was subtly placed offset from the dominate directionals as an attempt to grow from the earth, not as a structure, but as a fragment penetrating into the court creating smaller and more intimate courts and plazas.

Understanding the ramifications of the area and climate, the design fortified the need for large interior and exterior social interaction spaces as well as small private nooks and nodes with more of an intimate feel. The building as a whole was devised as a sculptural piece within itself. It thrusts out at offsetting angles and is comprised of three individual forms all meeting the ground in different ways. The three forms are interlocked at lower and upper levels with two bands of pedestrian traffic way. The forms are multifunctional-- interior to exterior-- with functional interior spaces and outer shells creating amphitheaters and shaded plazas. The dominate form is pleasing and visually understandable and at the extremities it becomes broken up and carved away in

more complex detailed areas all functional to the user. The underlining theory for the exterior shape was not only to create an art form rising from the ground, but also to introduce shaded, open, intimate, and large exterior interaction spaces for student and users alike.

The transformation from sculpture to architectural function posed a very interesting solution. The interior functions became sculptural elements in themselves. The Student Union was developed on a series of terraces, all interconnected with one another following the lines of the exterior form with a free standing elevator shaft and a horse shoe shaped stairwell connecting and penetrating the four main levels, acting as free forms from level to level. A third element is introduced as a cone thrusting through the top two levels at an angle creating and completing an interior sculptural garden effect on each level. The interior is devised mainly of circulation and open interaction spaces with all enclosed partitioned areas exhibiting unconformity and uniqueness from room to room. The interior theme is to promote a uniqueness of space at every turn creating an excitement of the total enclosed space.

The Student Union as a whole was designed for the students and their daily activities. All design criteria was developed to enhance chain of experiences and social interaction as well as for study and quiet spaces. The building was devised and built on the precept that it would be the hub and the living room of the entire campus.