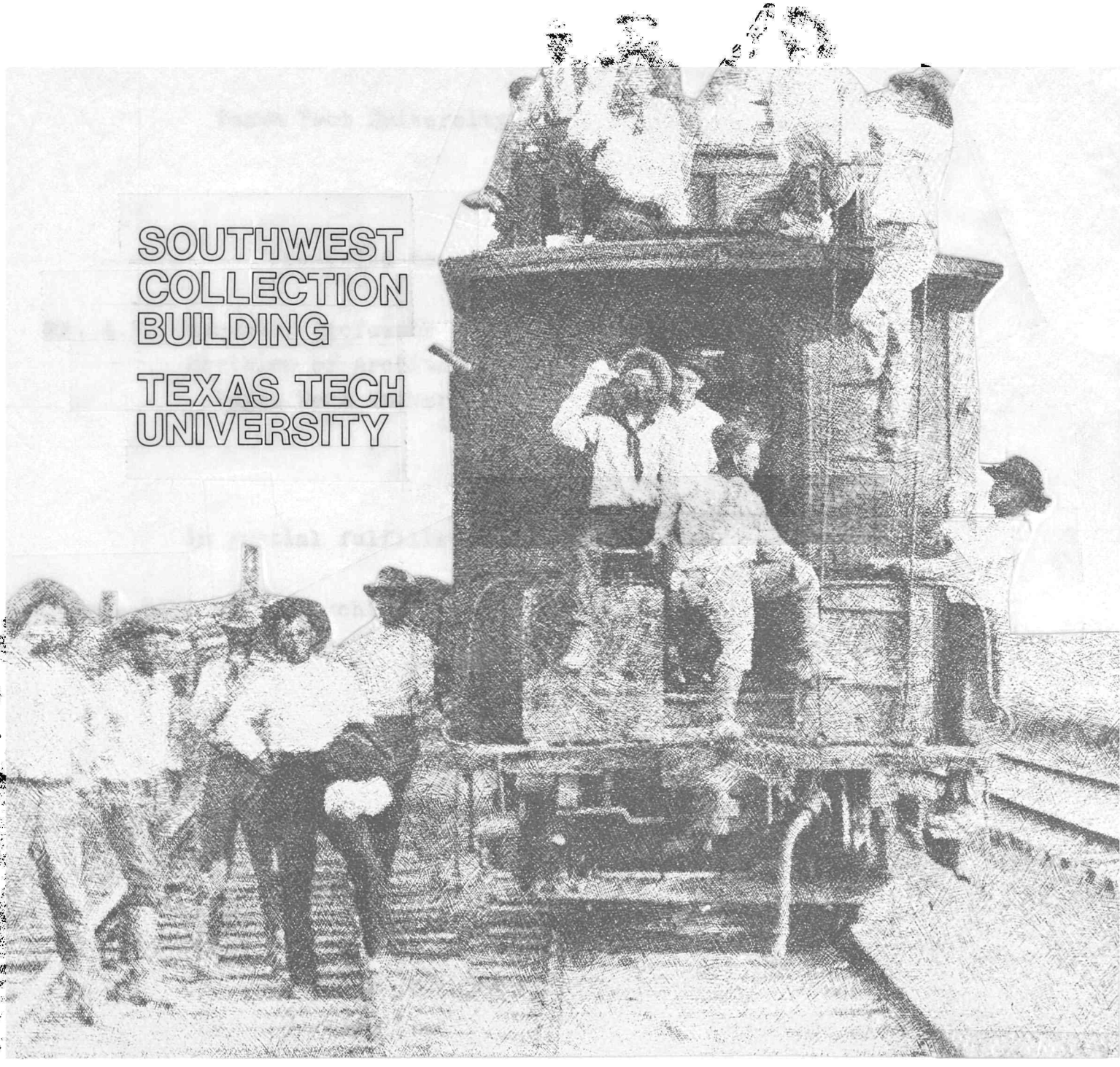
SOUTHWEST
COLLECTION
BUILDING
TEXAS TECH
UNIVERSITY

Special Thanks to Denise

"New Structure for Southwest Collection"

Texas Tech University

Presented to

Mr. A.N. Sengupta, Professor of Architecture
Division of Architecture
Texas Tech University

in partial fulfillment of

Bachelor of Architecture Degree

by:

Stephen Ralston

5/5/81

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INTRODUCTION

INTRODUCTION

Since earliest times, man has shaped his environment to meet his needs. Evolution of small villages into towns and cities was only possible because of an organizing force. This force is interpreted as governments managed by the people who created them. Throughout our lifespans we have learned of past civilizations and cultures through written documentation of history. Without this information we all could be doomed to a life full of misfortunes and be forced to travel a rocky path toward the future. Past information, so valuable, must therefore be preserved for future generations who should also record and store the events which shaped their world. Crucial to the storage of such materials is a facility that will protect valuable documents, artifacts, and papers, and one that enables people to retrieve such information with ease. Such a facility, or archives, should be an exciting challenge--an Architectural expression that represents the needs of generations of people who will use such a facility and at the same time, represent a visual statement about the civilization that demanded its existence.

PROBLEM STATEMENT

PROBLEM STATEMENT

Function:

A modern archive facility enables teachers, students, and the general population to retrieve vast amounts of documented information for research for educational purposes. As in the case of the Southwest Collection at Texas Tech, the array of material available consists of historical records and documents depicting the way of life in this Southwest region. The new facility for the Southwest Collection must provide an adequate protective storage area for its' present collection but must also have the capabilities to house an ever increasing collection. The new facility should be within easy access to the Texas Tech community and also the surrounding populace. Functioning as a resource retrieval facility, the resource should, as a necessity, be easily used for the purpose of locating and acquiring information while also being efficient in use. The new facility should promote a sense of excitement through its' architectural form and become a place of mental stimulation through color, texture, form and light.

Form:

The form of the new facility will be generated by the functions within a protective envelope from natural and man-made elements. Forms will be developed through the integration of site and existing architectural forms surrounding the site. Geographical location and energy considerations will also play an important role in the form development process.

BACKGROUND

Background

Archives - broadly defines "the noncurrent records of an organization or institution preserved because of their continuing value."[1]

Evolution of Archives

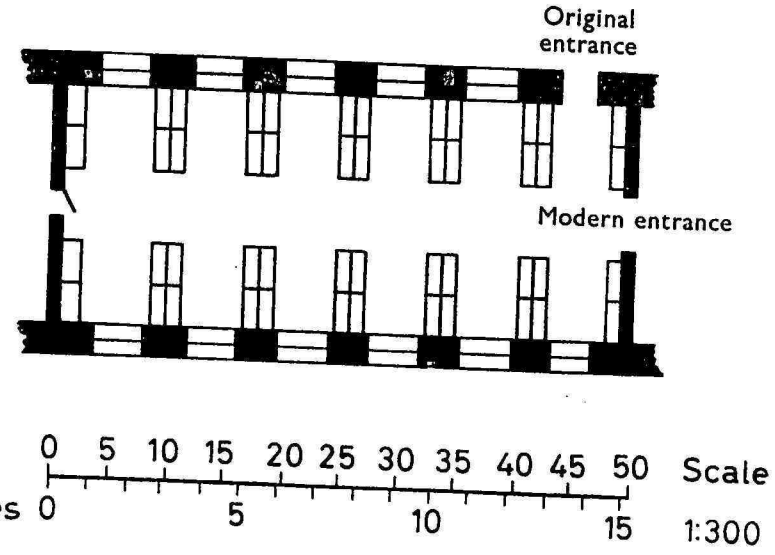
Archives have been maintained by government for more than 2000 years. The earliest greek civilizations kept records of governmental activities in tombs for safe keeping. Other ancient civilizations also tried to preserve important documents but most were lost in times of social unrest. Modern methods of arranging and maintaining important papers, date from about 1840, when the French established the principle of respect des fonds requiring that groups of documents created by one office be dealt with as a unit and not mixed with records from other offices. The French divided the files among various subject classifications dreamed up to try to satisfy research demands.[2] In the 1880's, the Prussians required that documents be arranged in order according to their origin which was called "provenance of their constituent parts." In modern usage the term "provenance" also means "the office of origin."[3] The idea of keeping and preserving old manuscripts and documents reached the United States around the turn of the century, but was not fully accepted until the 1930's, when the National Archives was formed.[4]

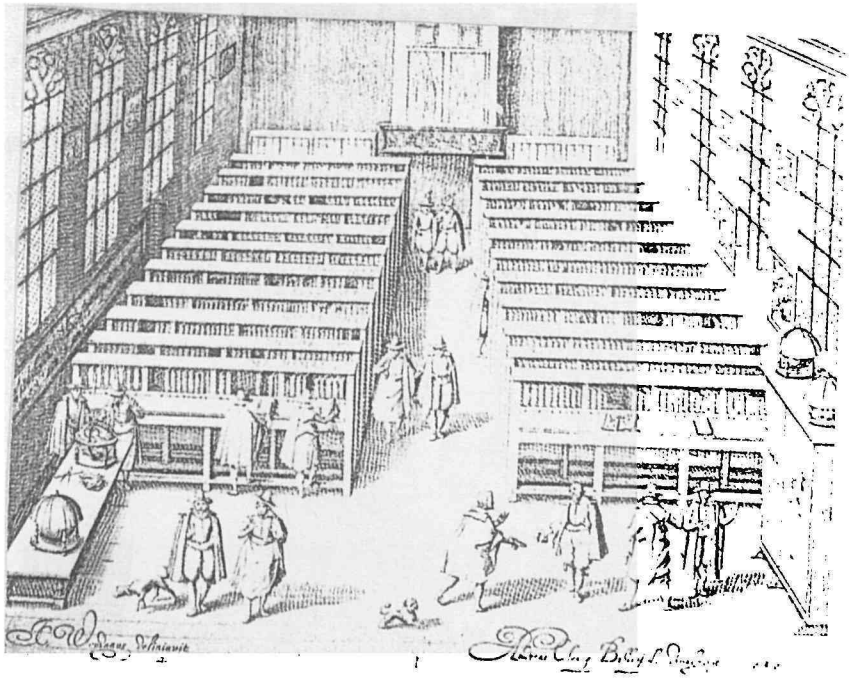
Basically there are four reasons to have archives. The first is to improve governmental efficiency. Years of documents that must be saved take up valuable space which could be used for office function. Great volumes of paper eventually clutter spaces which were not intended to house them and thus are subject to ruin. Not only is improper housing of such materials damaging, it is also detrimental to the efficiency of an office since retrivial of materials is chaotic and time consuming. A second reason is the purpose of preserving a civilization's culture. Every society has treasures of historical

significance; therefore it is a public obligation to save such material. Third, is the importance of public records in defining various social, economic, and political relationships. These papers are useful in substantiating the rights of the people and government alike, including civic rights and privileges. Fourth, records, even the older ones, are needed by a government for its work. They reflect the origins and growth of a government and are the main source of information on all its activities. They contain evidence of financial and legal committments that must be preserved to protect the government. They are the foundation upon which the government structure is built.[5]
Now that substantial reasons for the need for archives has been established, it is important to explain the different organizations of an archive. There is an endless way to arrange an archive system -- having to deal with personnel, budget resources, administration, independence, collecting goals, and so forth.

More primitive arrangement consisted of placing papers on shelves in a cool, dry place - arranged in either alphabetical order according to author or in chronological order. This method was not very efficient and the documents, exposed to air, eventually deteriorated. Other systems also had their pros and cons, but eventually a more standarized system of grouping materials evolved -- "a collection." This is any discrete body of material whether papers or records or an artificial collection of documents.[6]
Although this type of arrangement became more popular in recent modern times, it was used as far back as 1791 for the Massachusetts Historical Society Collection which kept important documents according to chronological order.[7] When any collection is stored and placed on file, a system or organization must be implimented. After a review of a collection has been made, a process of sorting begins. A series of organization may be developed from one of four systems: chronology,

topics, functions of the creator, and types of material. In creating these divisions, the retrieval of any given document can be put in but one place.[8] A efficient and inexpensive way to preserve documents is necessary in any archive. First, the archivest must perform various tests to determine the type and quality of paper. Next, a system of preservation must be decided according to the test results whether it be chemically treating the paper or some more extensive preservation technique.[9] Finally, the documents are usually in modern facilities, arranged in order and filed in cardboard boxes and placed in stacks much like a warehouse. Boxes are labeled corresponding with a filing system so that retrieval would be much like a library system. Since an archive is so similar to a library system, is will be important to understand the architectural development of this type structure. The earliest libraries and archives were connected with temples and palaces because they offered greater security than other types of buildings. During the Dark Ages, two things affected building types. The first was the change from clay tablets to a rolled type parchment for written materials. The rolled parchments took up less space than clay tablets, therefore buildings became smaller. At this time also, there were very few books (the second factor affecting buildings.)[10] As more written material was produced through the ages, a definite building type was needed specifically for the purpose of public access and storage. During the Middle Ages, a typical plan emerged.





It consisted of one long room lit by windows along either side, with alcoves formed by bookcases jutting out form the walls, and benches between the book-cases, each lit by one window.[11] This arrangement was used commonly with only slight variations for hundreds of years. With the development of the printing press, much more material could be produced, thus causing libraries to be expanded and also arising the need for storage of unused books, papers, and documents. As libraries took on more useful forms of architecture to accomodate larger volumes of materials, the archive, developed less rapidly in any particular architectural form. More often than not, archives were little more than glorified warehouses. In this age of information, amounts of printed material has exploded around the world. Due to this increase, the archive as an architectural statement has taken new meaning and purpose. More and more space is needed to adequately protect old documents and as a necessity the architectural form should reflect the importance of such buildings.

Southwest Collection Facility

Introduction

In 1973, Texas Tech University allocated $1 million to construct a new facility for the Southwest Collection. Due to other emergencies on the campus this money was siphoned into other areas. For the next few years no mention was made for any funding although the Collection was rapidly outgrowing its location in the Socail Science building. Past Tech President Cecil Mackey suggested to the Tech board to draw up plans for some type of funding, but no action was taken. The current Tech administration has no plans for a new structure at this time, but a program to receive private funds is currently under study. Immediate action is needed to secure funds due to the fact that the Collection has presently outgrown its facility.

BRIEF HISTORY

The Southwest Collection, as it is currently known, was started by Clifford Jones, Chairman of the Board of Directors at Texas Technological College, in 1929. Mr. Jones acquired records from the Spur ranch and later from the Matador ranch in Texas. In the 1940's, Mr. Holden (Holden Hall is named after him) and George DuPree conceived the idea of a historical research facility for Tech. It was not until 1955, though, that the facility gained much steam, at which time, Seymor Connor became the first director. During the 1950's and 1960's the collection grew steadily. In 1963 Mr Sylvan Dunn replaced Mr. Connor as director. At this time the collection housed two million leaves of material. (One leaf is equivalent of one page of printed paper.) Mr. Dunn remained the director until 1977, when Mr. David Murrah took over and is currently the director of the Collection. Manuscript papers are the heart of the collection but other materials include books, periodicals, newspapers, voice tapes, films, videotapes, and photographs--all from the Southwest region. This Southwest region roughly encompasses an area from Ft. Worth west to New Mexico and Arizona--defined by environmental boundaries and semi-arid conditions. The Collection was once a part of the Colleges' library and was housed in the basement of what is now Holden Hall. It was moved to its current location in the Social Science building in 1963. Currently the Collection has fifteen million leaves of material including one and one half million leaves of George Mahon records, all stored in a facility of 15,760 square feet.

Source: interview with David Murrah
Texas Tech Archivist

Existing Facility

The Texas Tech Southwest Collection, located in Room 103 of the Social Science building, is arranged within a five floor area. The processing and service area is on the main level where public reading areas are provided. Currently only eight tables are available for persons needing a work space for research. Often all of these tables are occupied, which restricts more people from using the facility to its fullest extent. The service area which includes the reading area, currently is limited to 2,860 square feet. This area also includes secretarial desks, card catalog files, voice tape storage, microfilm storage, stack storage files, and display cases. The space for all these functions is inadequate and noise from typewriters and phones is very disturbing to persons in the reading area, only a few feet away. Adjacent to this service area is the Tech Archivist office which is cluttered and disorganized since it is used to sort imcoming materials--a function which should be done in the processing area. Book cases are placed in a random order which appears to be inefficient, not to mention unsightly. The processing area is currently limited to 2,900 square feet. Due to the fact that the Collection is expanding more rapidly than once thought, the existing space needed to sort materials is inadequate. Since more space is always in demand for the sole purpose of sorting and analyzing materials, the staff is forced to expand into aisles in the stack area. Conditions like this increases the possibility of old valuable documents to be damaged or lost in the confusion. The only area somewhat adequate in the facility, is the stack storage area which currently is arranged within five floors with 10,000 square feet. Materials are stored in boxes on metal shelves 159"

high. Each box is marked for retrieval purposes, and the system works well. The problem, as with other areas, is the lack of space. Another problem is the construction of the shelves. The present shelves are integrated into the structural system of the building which limits flexibility. The arrangement of shelves cannot be changed to accommodate more boxes without the possibility of structural failure or extensive re-structuring of the building. Since the stacks are virtually more vertical than horizontal, much time and energy is used climbing stairs.

The Southwest Collection is without a doubt a great asset to Texas Tech University, despite it's problems, almost all which stem from inadequate facilities and a lack of space. A new structure will allow uninterrupted continuation of growth and service, insure practical use of the facility, and maintain accessibility of the Southwest Collection to students, faculty, and the public.

GOALS AND OBJECTIVES

GOALS AND OBJECTIVES

"It is hardly necessary to say that history, as it is understood now, has become very largely dependent on Archives." The growth in scope of materials needed for research purposes continues to expand and many times it is the archive that possesses such information. "With this in mind, it is clear that some of us should be concerned with the keeping of the Archives of the past and perhaps with the making of the Archives of the future."[12]

Goals

-To create a harmonous architectural statement which blends with existing surrounding structures.

-To create a flexible and expandable structure.

-To create an energy efficient facility.

-To provide a facility that serves the surrounding community.

-To provide a facility that can adapt to changing demands.

-To provide outstanding service through manipulation of spaces and functions.

-To serve as a link between the adjoining cultural facilities.

-To serve as a model for future archival facilities.

Objectives

-To create a facility able to preserve and protect historic materials.

-To create a facility that can expand its storage area by 50% for future demands.

-To create a facility that can reduce its energy consumption by one-third, using energy saving techniques.

FOOTNCTES

FOOTNOTES:

1. David Gracy, Archives & Manuscripts: Arrangement & Description, p. 2.
2. Ibid, p. 2.
3. Ibid, p. 2.
4. Ibid, p. 3.
5. T.R. Schellenberg, Modern Archives: Principles and Techniques, p. 8.
6. Gracy, p. 3.
7. Ibid, p. 3.
8. Ibid, p. 9.
9. W.H. Langwell, F.R.I.C., The Conservation of Books and Documents, p. 35.
10. Anthony Thompson, Library Buildings of Britain & Europe, p. 29.
11. Ibid, p. 65.
12. Hilary Jenkinson, A Manual of Archive Administration, p. 2.

ACTIVITY ANALYSIS

ACTIVITY ANALYSIS

Activities Analysis can be studied properly by breaking down the workings of the facility into two major headings- Activities of the User and Activities of the staff. These two headings make up a large network of individual and overlapping activities which is necessary for the smooth operation of the facility. In considering appropriate activities of the user group, it is important to understand the reasons why persons visit an archival facility. The main reason is for research purposes. The user-whether a student, faculty member, or private citizen, visits an archive to acquire information not readily available. Often the archive is the only public facility that offers non-circulated, documented information. It is for this reason that archives exist--to serve as information resource. Another function the archive serves is to display historic materials that are of interest to the public.

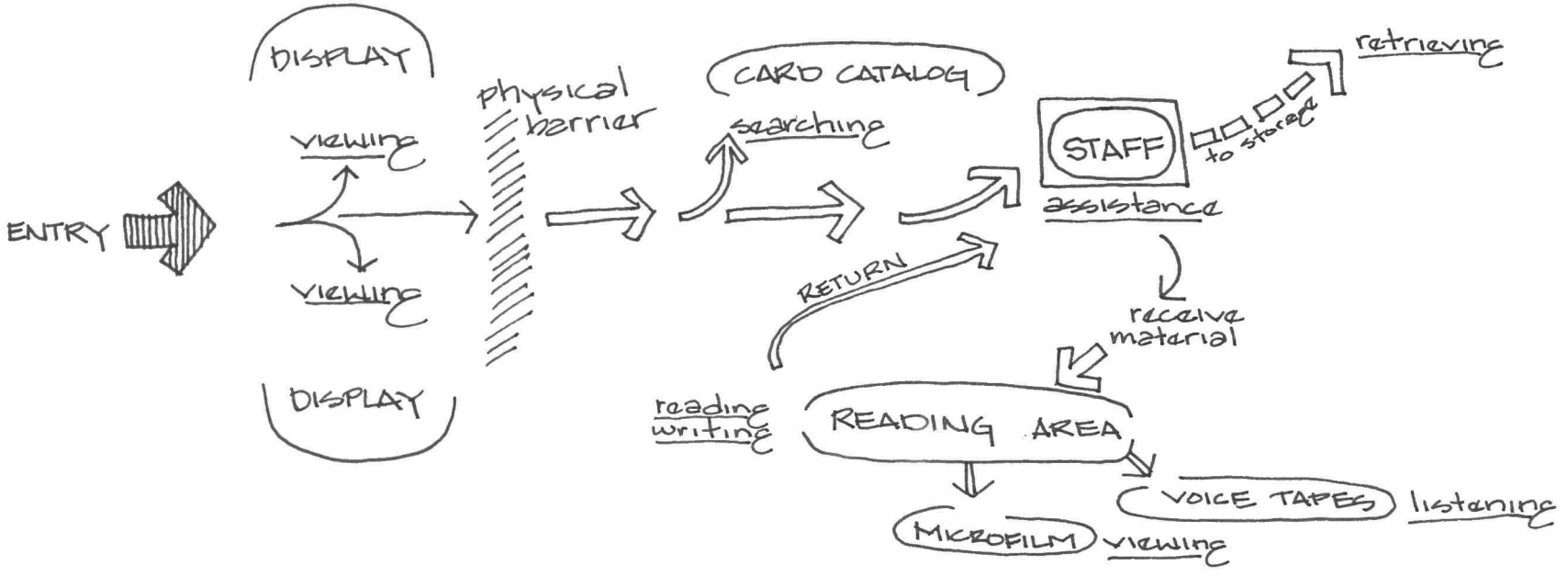
Activity: Visit

Analysis: As the user arrives at the facility, the first activity may vary, according to the users intended purpose for making a visit. These activities can be listed for better understanding:

1. Viewing displays
2. Obtaining materials for research

The user who just wants to view the display areas is not required to experience the total facility. This activity involves entering the building and looking at display cases and the display room which should be treated as a separate function physically but integrated visually.

The user who intends to review stored materials must either locate the desired information through the card catalogue, or ask for assistance from a staff member. The staff member will locate the desired materials and retrieve them for the user. Next, the user takes information either microfilm, boxed papers, photographs, voice tapes, or books to the reading area. The type of information obtained will determine the users next activity. If the information is printed, the user can proceed to a desk to begin reading and/or writing. If the information if microfilm, the user will take this to a microfilm machine for viewing. If the information is a voice tape, then the user will place the tape in a machine for listening. (Some type of headsets or sound cubical will be needed.) After the user has finished with the materials, it should be returned to the retrieval desk.

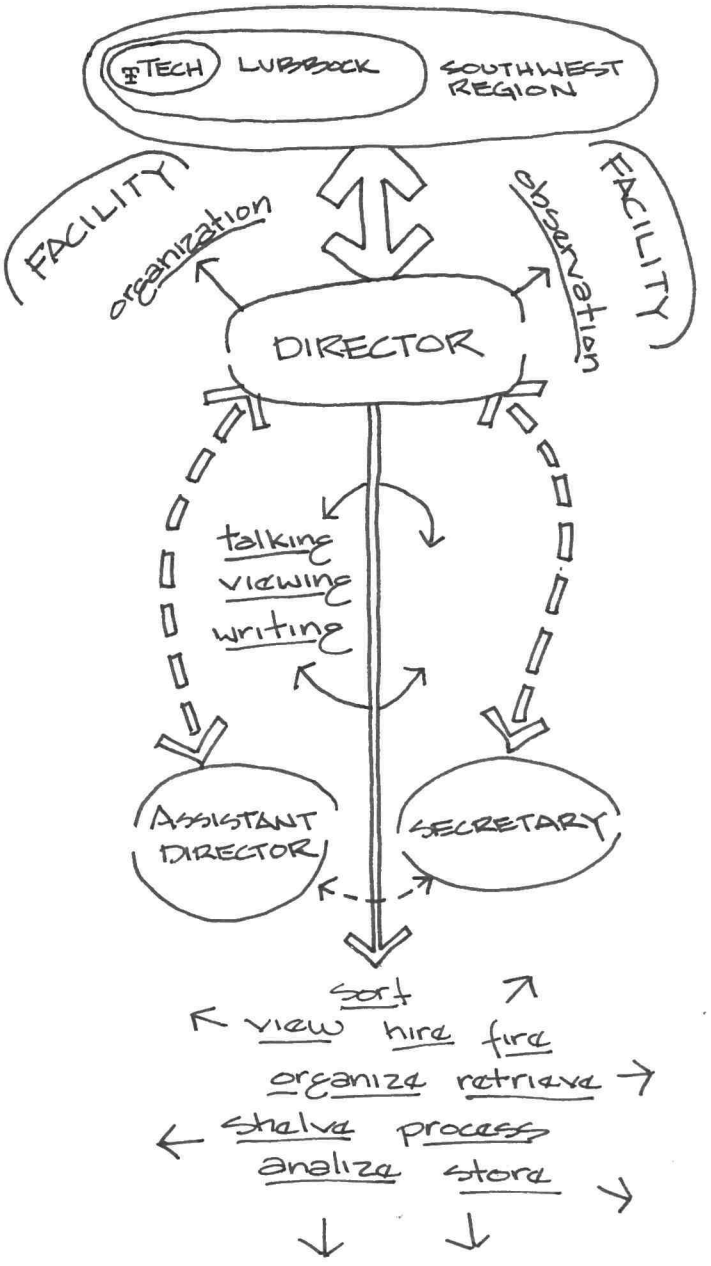

ENTRY
DISPLAY
viewing
viewing
DISPLAY
physical barrier
CARD CATALOG
searching
STAFF
to stacks
retrieving
assistance
RETURN
receive material
reading
writing
READING AREA
VOICE TAPES
listening
MICROFILM
viewing

Activity: Staff

Analysis: The staff is involved in numerous activities which are important in understanding the functioning make-up of an efficient archival facility. In order to better understand each activity performed, each individual staff position will be listed, proceeded by a pattern of activities performed by the employee. Each analysis will be accompanied by a representative diagram visually explaining relationships.

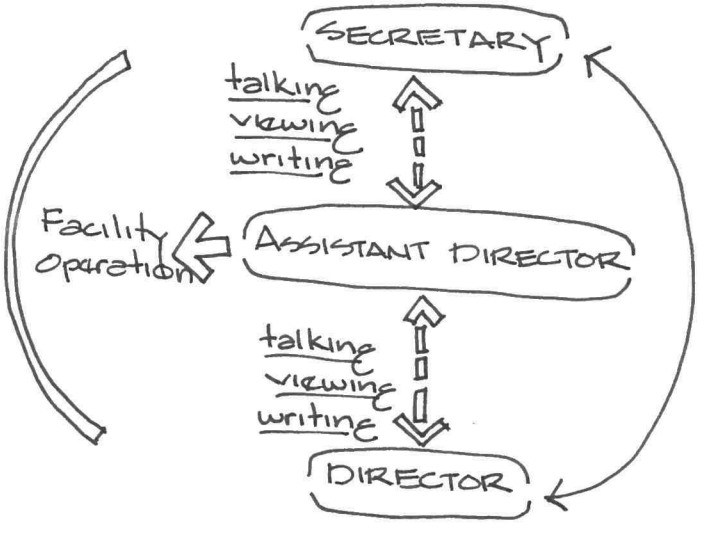
Director

Responsible for coordinating and organizing functions of the facility, the Director interacts closely with the assistant director and secretary, making close physical proximity a necessity. The Director oversees the entire operation. Activities include talking, writing, viewing, organizing, and meeting. The director provides a link to the Texas Tech Community, Lubbock Community, and the Southwest Region. This person is also responsible for hiring and firing the staff. The Director can be involved in any activity within the facility.



Assistant Director

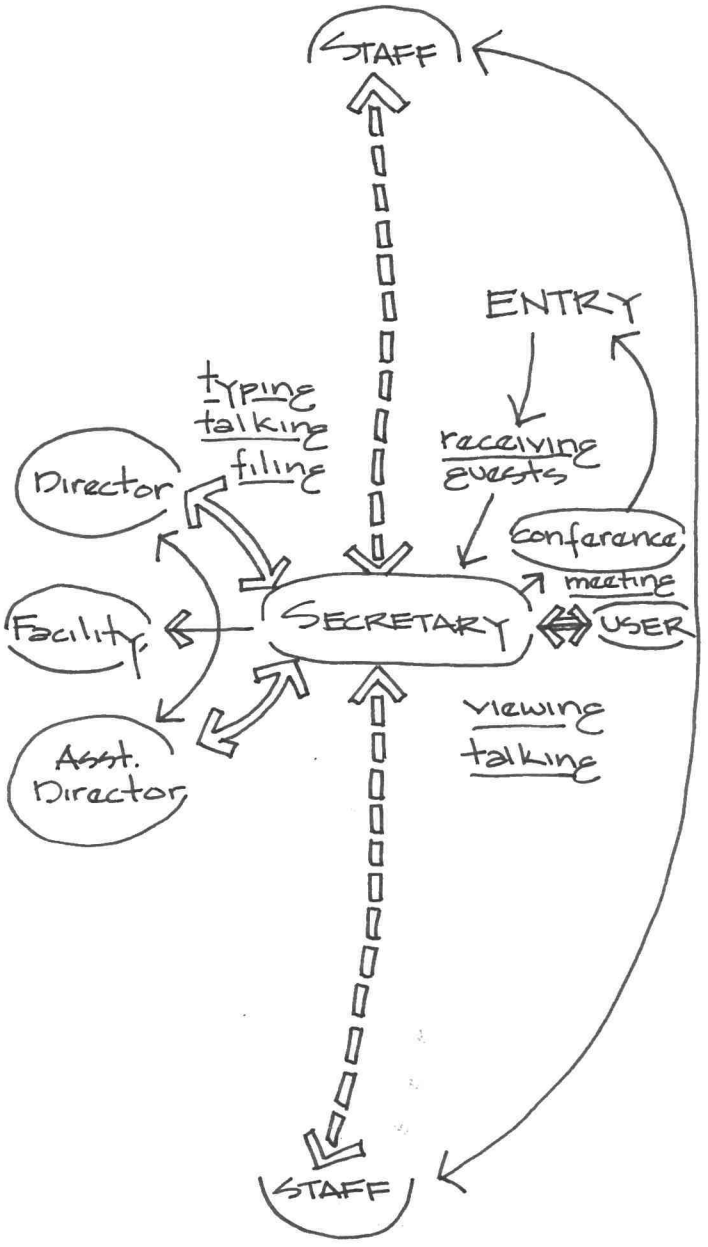
The assistant director helps the director with various operational functions of the facility: activities similar to the directors activities. The assistant directors office must be adjacent to the Secretary and Director's Office. (see adjacent chart)



Secretary

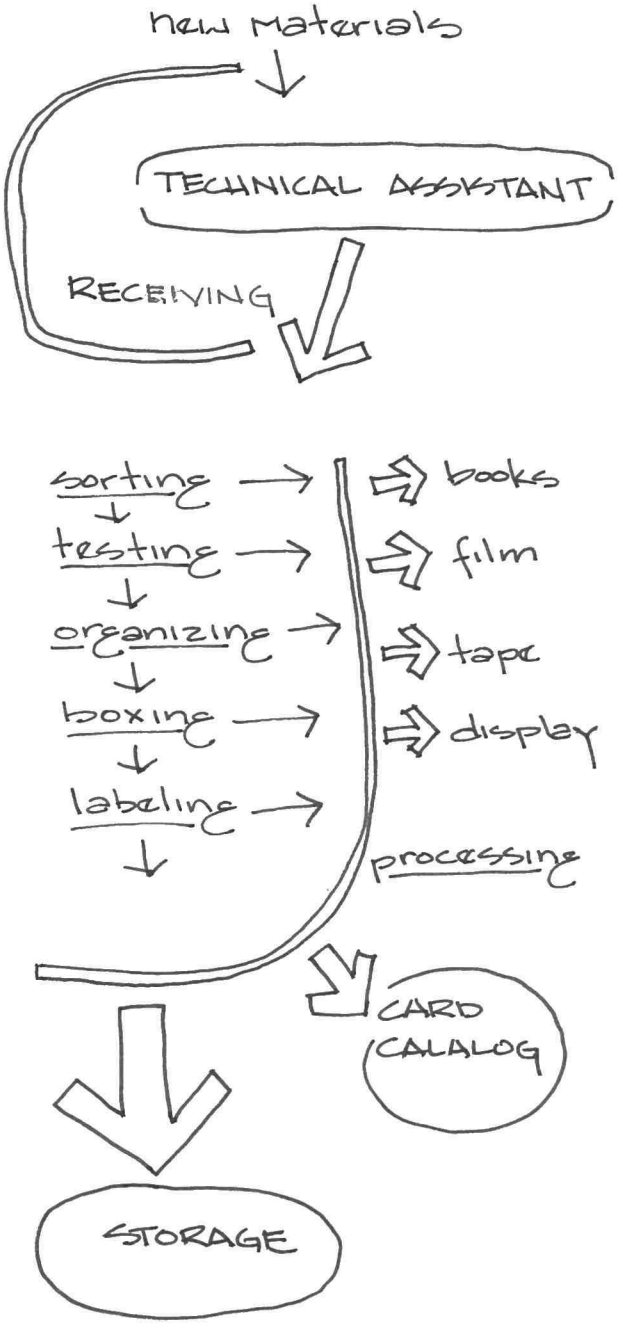
The secretary is responsible for clerical activities. This person assists administrators in all functions within the system. He/she is in charge of correspondence for the facility. Interaction between administrators and other staff personnel is necessary to provide superior service for the facility. The secretarial area should be centralized for convenience to other staff personnel.

The activities include typing, answering the phone, receiving guests, and filing.



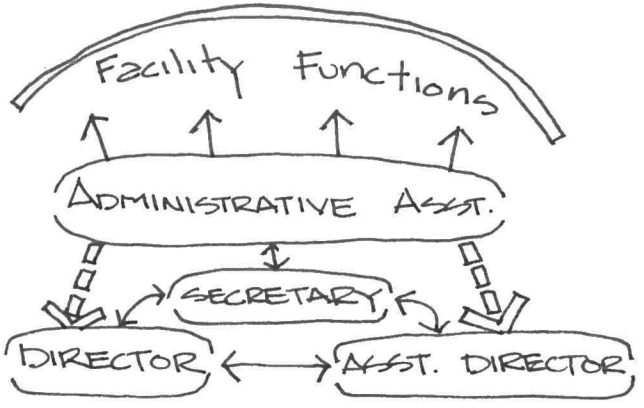
Technical Assistant

The duties of this assistant include sorting new materials and performing various chemical tests to determine paper make-up. The technical assistant is assisted by the student staff, and carries out his duties in the receiving area. The receiving area requires adequate lighting and numerous tables should be provided for material sorting. A separate area is required for testing. Since the testing equipment is a self-contained kit, no provisions are necessary for storage or set-up. An area within receiving, should be utilized for box and label storage. Activities include: viewing, talking, writing, testing, organizing, boxing, and labeling.



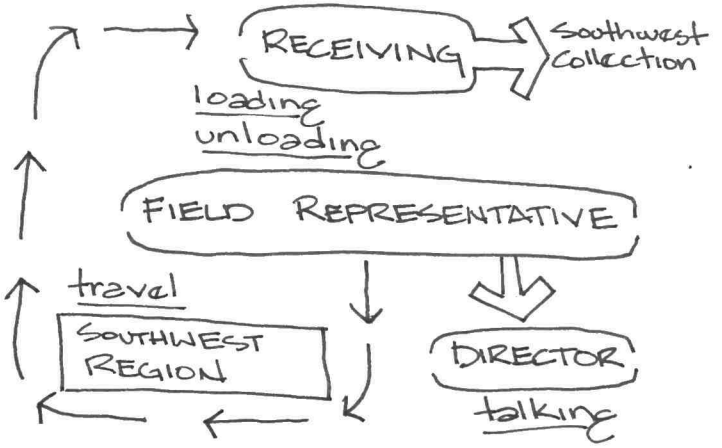
Administrative Assistants (2)

These two individuals help perform specific tasks recommended by the director and/or assistant director. The activities vary daily. Activities could include: talking, writing, viewing, sorting, analyzing, storing, retrieving, processing, shelving, meeting, and organizing. Although Administrative Assistants do not occupy a specific area in the facility, provisions should be made to accomodate these two mobile employees.



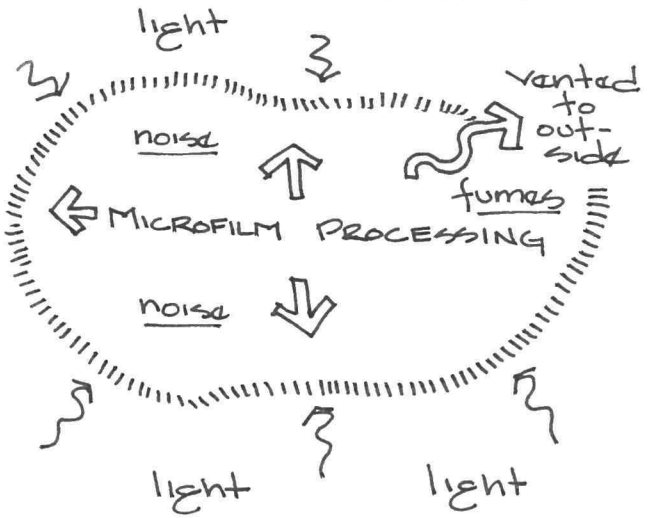
Field Representative

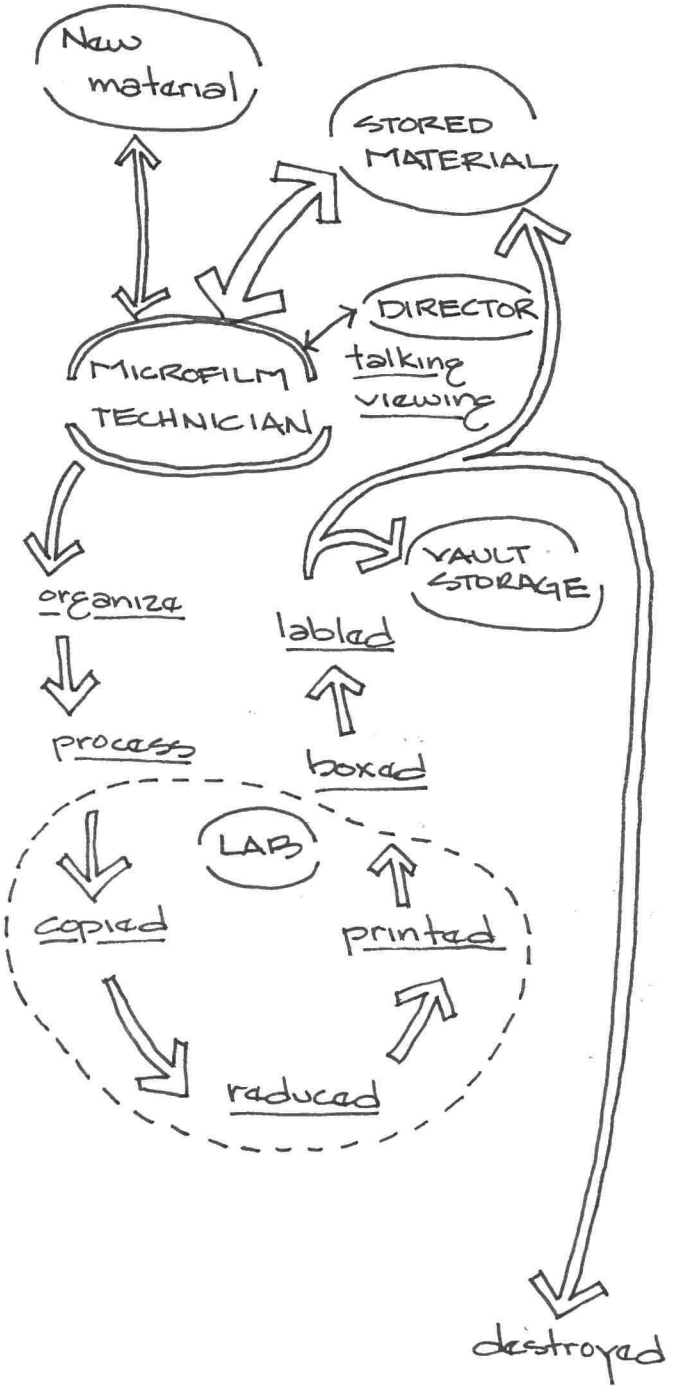
The duties of the field representative include traveling across the Southwest, soliciting new materials for the collection. After materials are gathered, they are brought back to the facility and unloaded in the receiving area. Activities include driving, viewing, discussion, and unloading. The field representative must have verbal contact with the Director, for efficient service. No provisions need to be made for field representatives, except to provide a loading and unloading area, adjacent to the receiving area.



Microfilm Technician

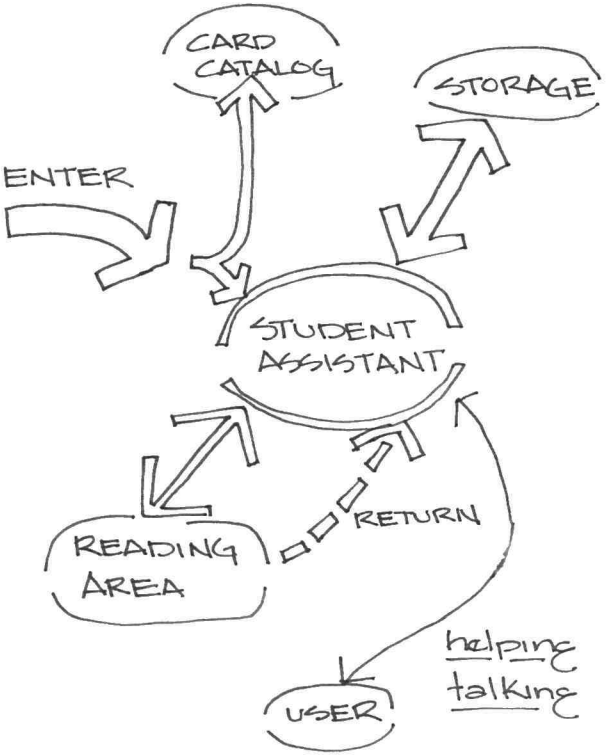
His/her activities include processing, organizing, labeling, and storing materials suitable for microfilm conversion. The microfilm technician should be located in the microfilm area close to storage, microfilm processing, and the vault. The pattern of activities is as follows: materials to be converted to microfilm is brought to the microfilm area and processed in a small microfilm lab. (This is similar to a typical photography lab.) Microfilm can be processed in two sizes--35mm and 16mm. Commercial microcopying usually employs a special camera with fixed shutter speed and automatic exposure control. The microfilm is 35mm or 16mm film, in lengths up to 30m. Reductions are generally between 10x and 30x. Reading is done on the ground glass screen of a special reader at least 300mm^2 in size which is lit from the rear. Reproduction requires a printing device which is in fact a diazo, photocopy, DTR or Electrostatic copying machine, integrated into the reader. The printer adds considerably to the cost of the equipment.[1] Light should not penetrate the microfilm processing area. Noise levels are higher in this area and should be buffered by sound absorption methods of construction. Ventilation should also be provided. The newly processed film is placed in boxes, labeled and stored in the vault (for fire protection). The original material is either destroyed or re-stored in the regular storage area.




New material
STORED MATERIAL
DIRECTOR
talking
viewing
MICROFILM TECHNICIAN
organize
VAULT STORAGE
labled
process
boxed
LAB
copied
printed
reduced
destroyed

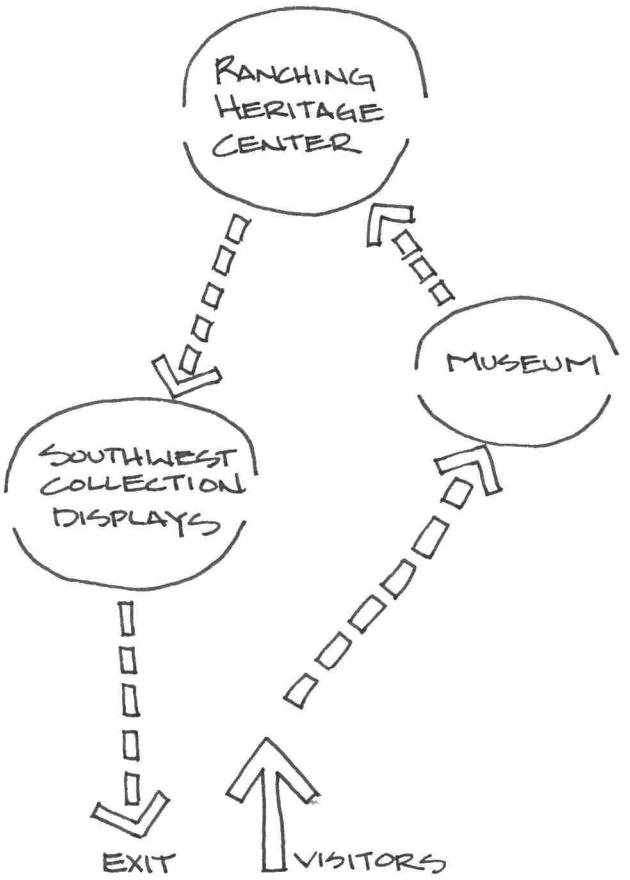
Student Assistant

The student assistant staff contributes to the overall efficiency of the system and could be considered the backbone of the facility in terms of user-staff relationships. It is the duties of the student assistant that significantly comprises and overview of activities necessary for operation. Activities include: talking, retrieving, shelving, viewing, helping, and organizing. The pattern of activities begin with retrieving materials for the user. This entails writing down the required card catalogue number and walking to the storage area where it can be found. After locating the material, it is removed from the shelf (a rolling ladder might be used if the material is stored on a shlef above human reach) and brought back to the student assistant area. The material is recorded on a check-out sheet and given to the user. After the material has been used, whether it is film, photo, paper or tape, it is brought back to the student assistant area. The next activity is to replace the material to storage and document its return on the check-out sheet. In addition to activities of retrieval, the student assistant is responsible for helping any user who has problems locating certain information. In order to better serve the user, the student assistant area should be located close to the card catalogue and reading area. The students performing these duties is to be regulated by the Director with assistance from the Assistant Director.


CARD CATALOG
STORAGE
ENTER
STUDENT ASSISTANT
READING AREA
RETURN
helping
talking
USER

Activity: Display Opening

On Saturday, the archive is open until 12:00 P.M. but the display area is open until 2:00 P.M. (For other operating hours, see Hours of Operation Sheet.) It is necessary to keep the two activities separate for security of the facility. It is the duty of the Director, or who he appoints, to open and close the display area including Sundays from 11:00 A.M. until 2:00 P.M. Many visitors who normally would not enter the archive, can be expected, due to the increased visitation of the Museum and Ranching Heritage Center on weekends. These two magnet attractions should encourage visitation to the archive if proper planning of pedestrian circulation is implemented into the design.

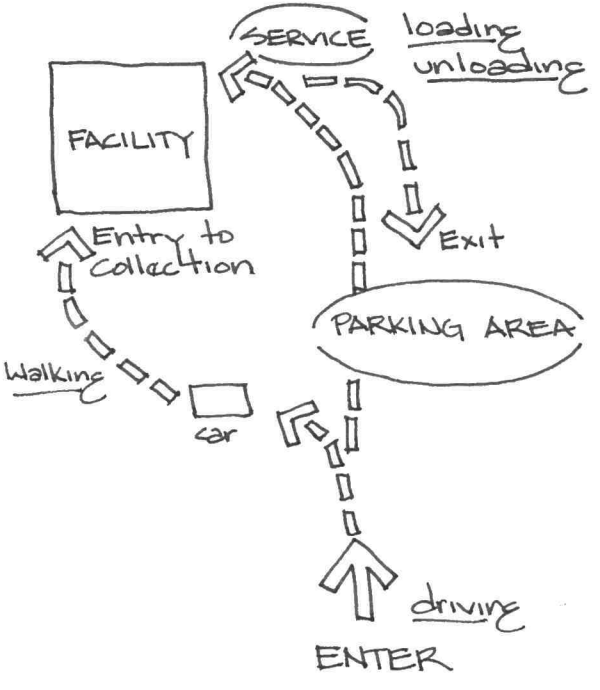


HOURS OF OPERATION

Monday	8:00 A.M. til 5:00 P.M.
Tuesday	8:00 A.M. til 7:00 P.M.
Wednesday	8:00 A.M. til 5:00 P.M.
Thursday	8:00 A.M. til 5:00 P.M.
Friday	8:00 A.M. til 5:00 P.M.
Saturday	8:00 A.M. til 12:00 P.M. (Display until 2:00 P.M.)
Sunday	(Archive closed-display open 11:00 A.M. - 2:00 P.M.)

Activity: Circulation

a) Vehicular: (parking) Entry to the site is explained in the site analysis section, but it is important to understand the circulation pattern after the user enters the parking area. Also, service patterns need to be considered.



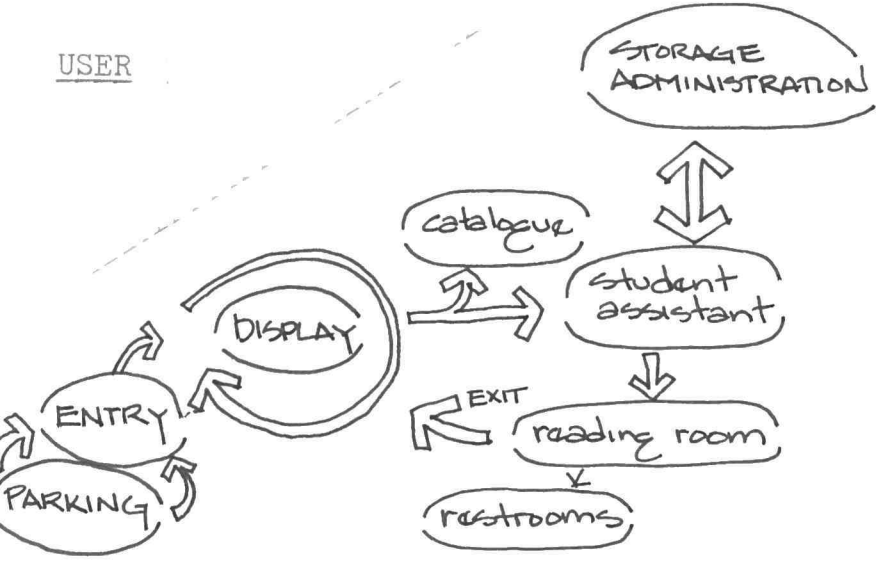
b) Pedestrian: Circulation within the facility can be divided into two areas:

1) staff
2) user

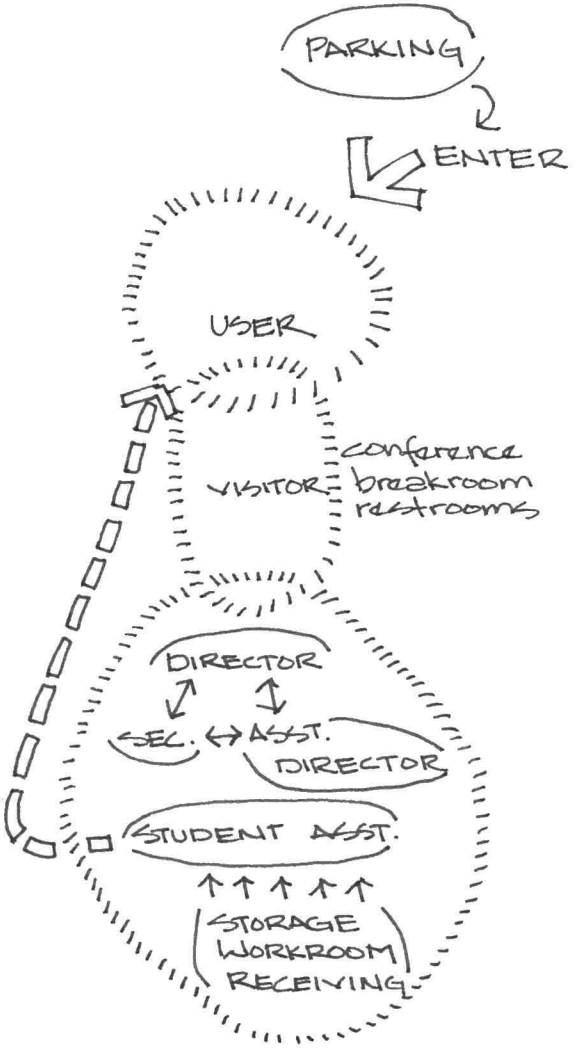
Staff- an internal system of circulation is needed to promote efficiency.

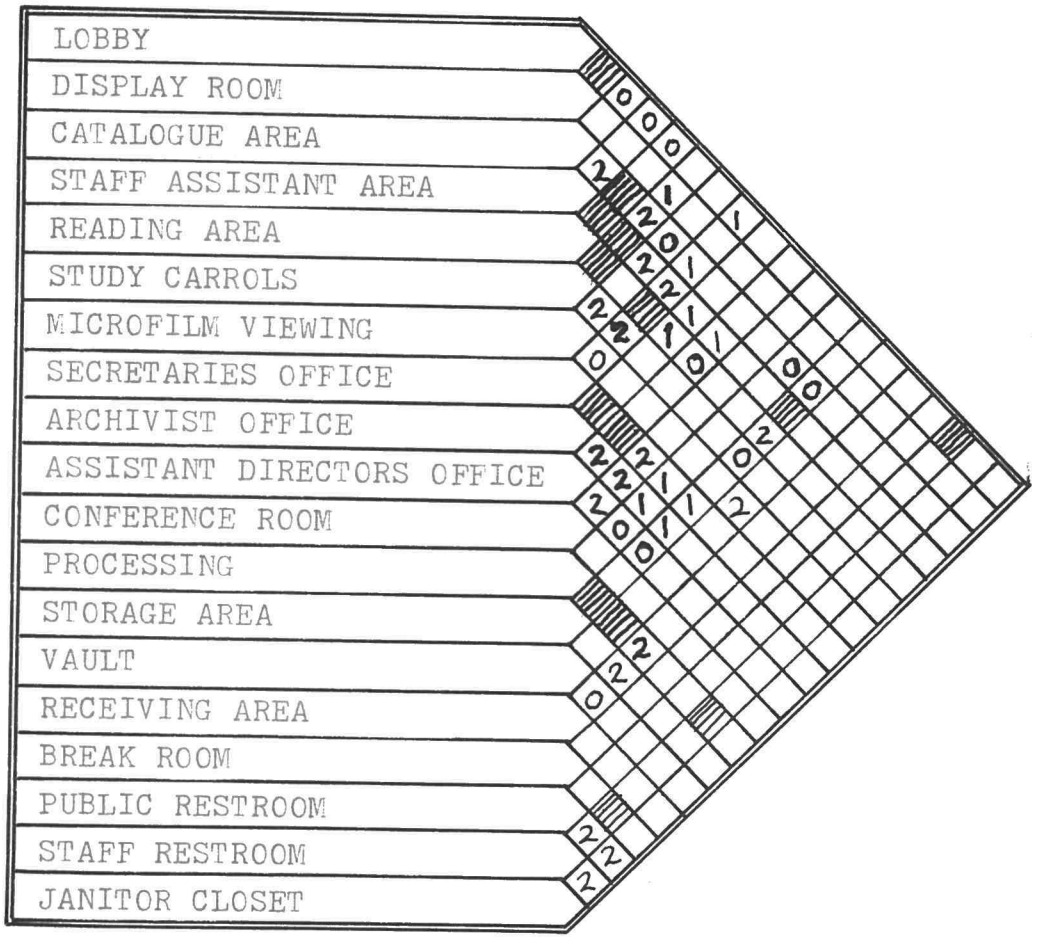
User- an external system within the facility-users are not allowed into storage area.

USER



STAFF





ADJACENCIES CHART

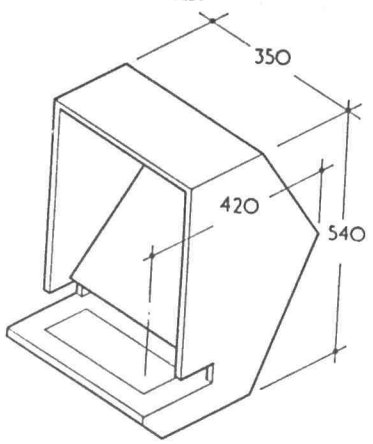
Separate

Min. Conn. 0

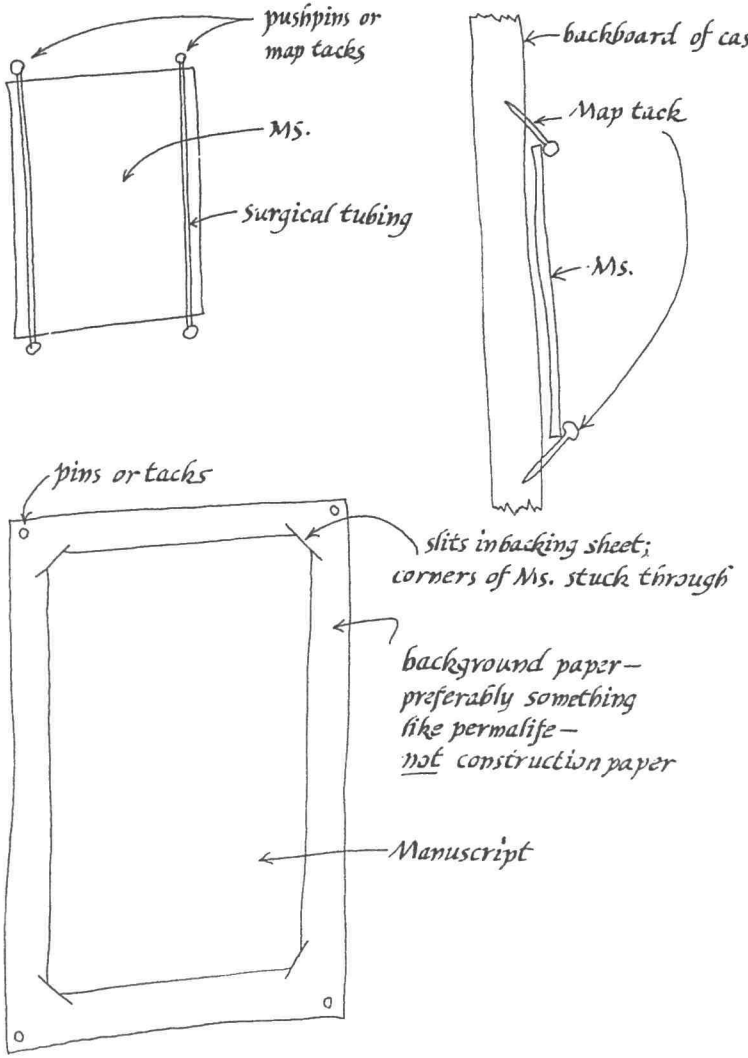
Med. Conn. 1

Max. Conn. 2

Joined

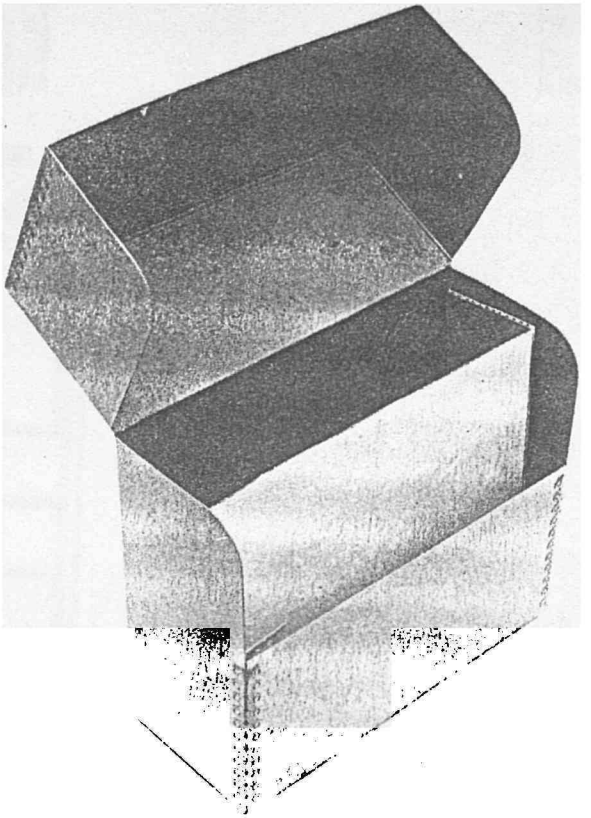


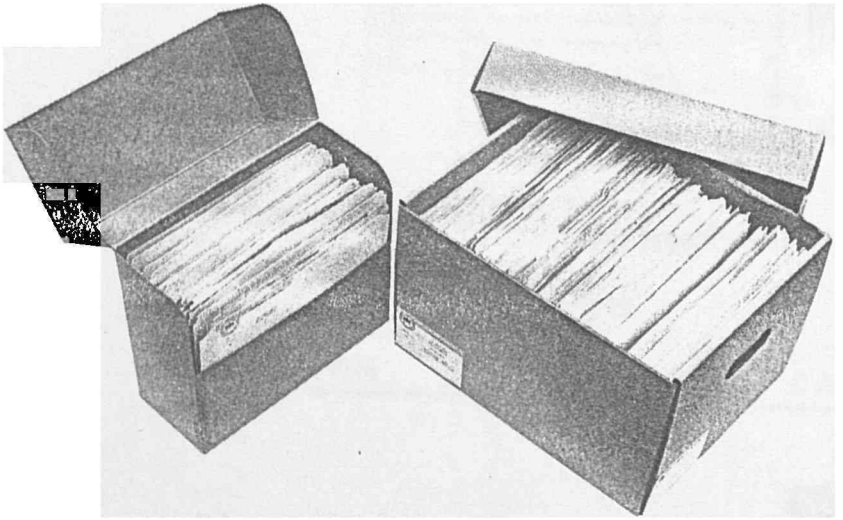
*Typical microfilm reader



* Methods of displaying manuscripts recommended

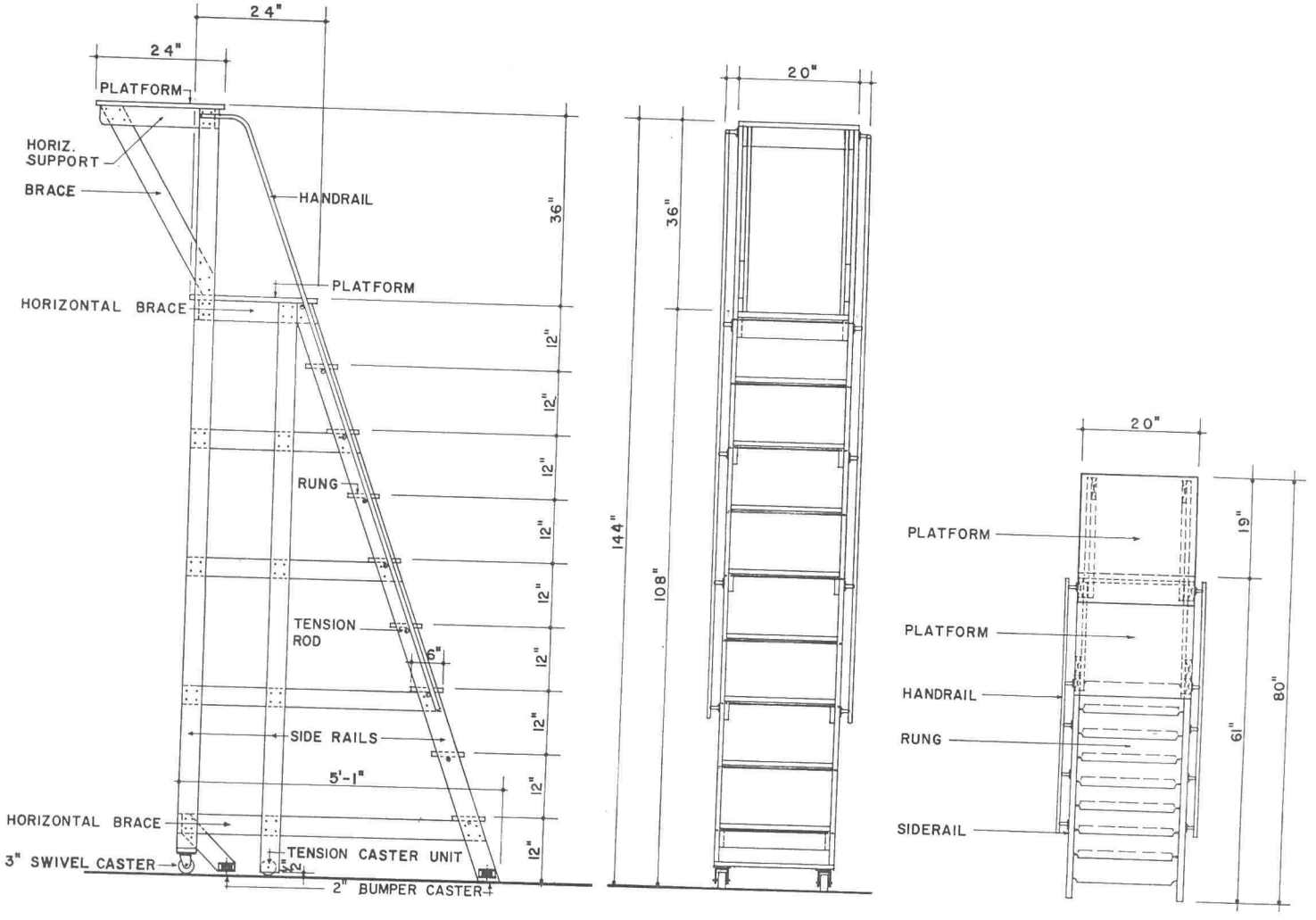
Source: Designing & Space Planning for Libraries





* Different types of storage boxes

Source: Libraries for Professional Practice



SIDE VIEW

END VIEW

PLAN

PLATFORM LADDER ON CASTERS

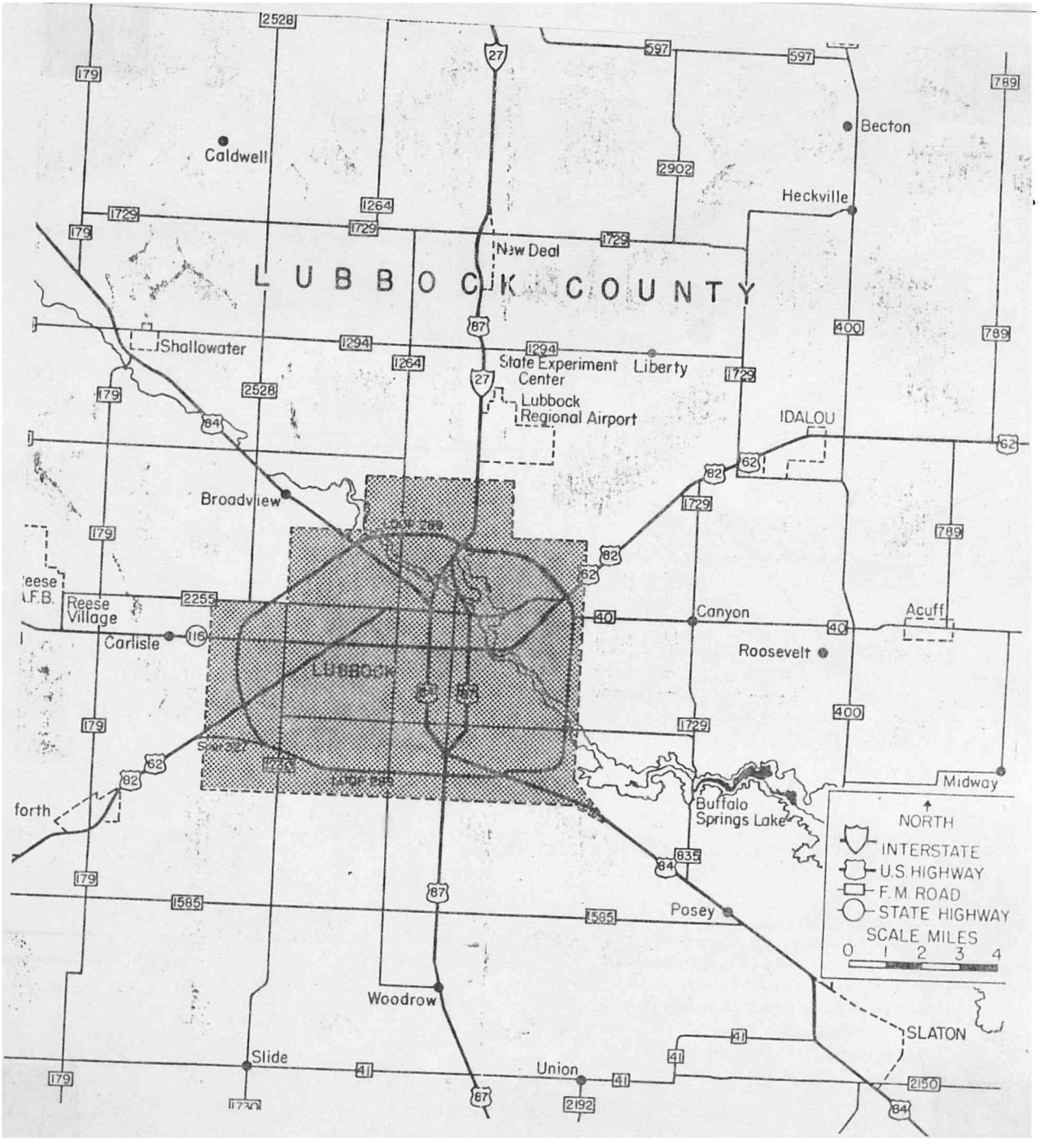
FOOTNOTES

FOOTNOTES:

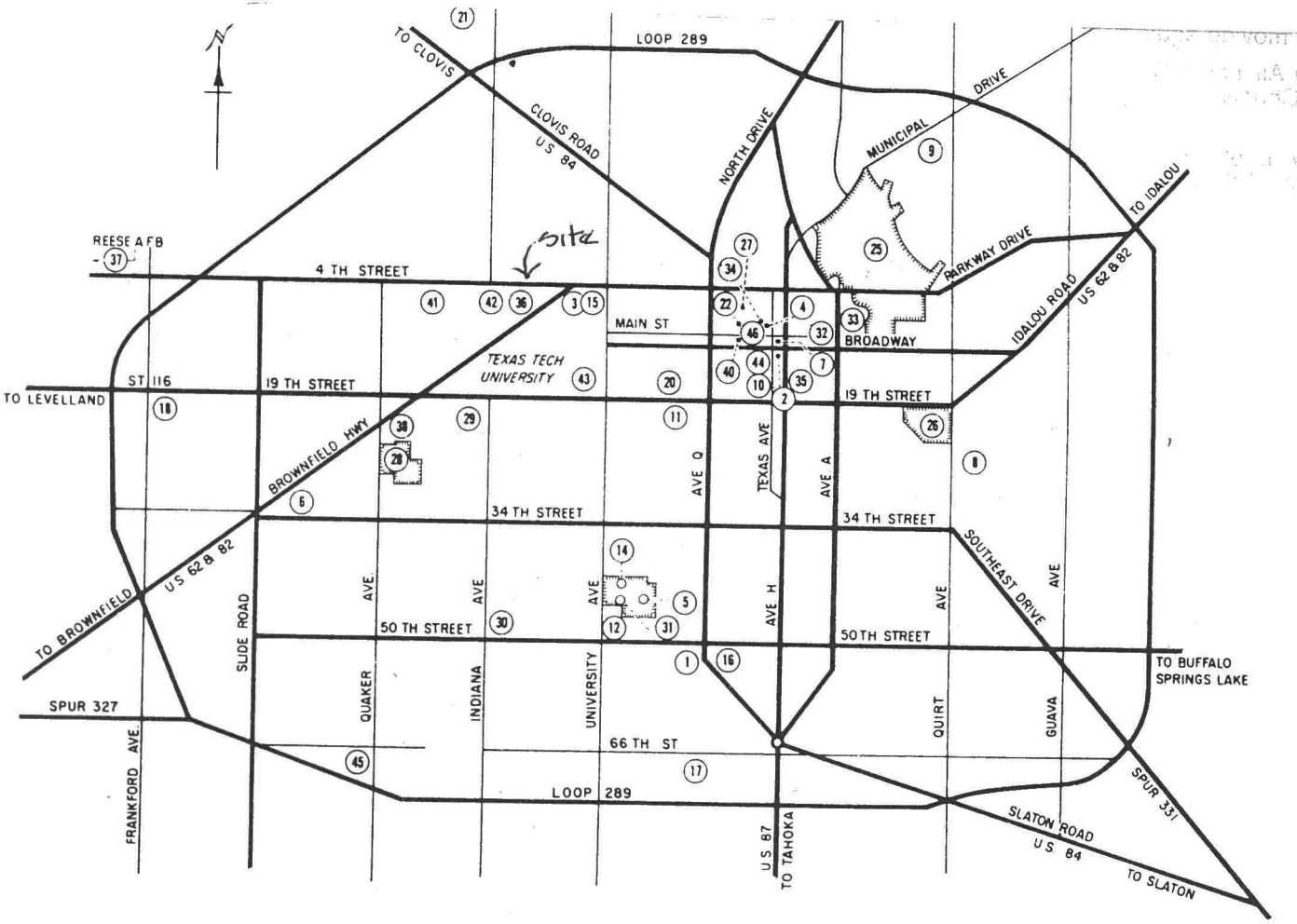
1. Patricia Calderhead, Libraries for Professional Practice, p. 81.

SITE ANALYSIS

Map of Texas showing Lubbock County

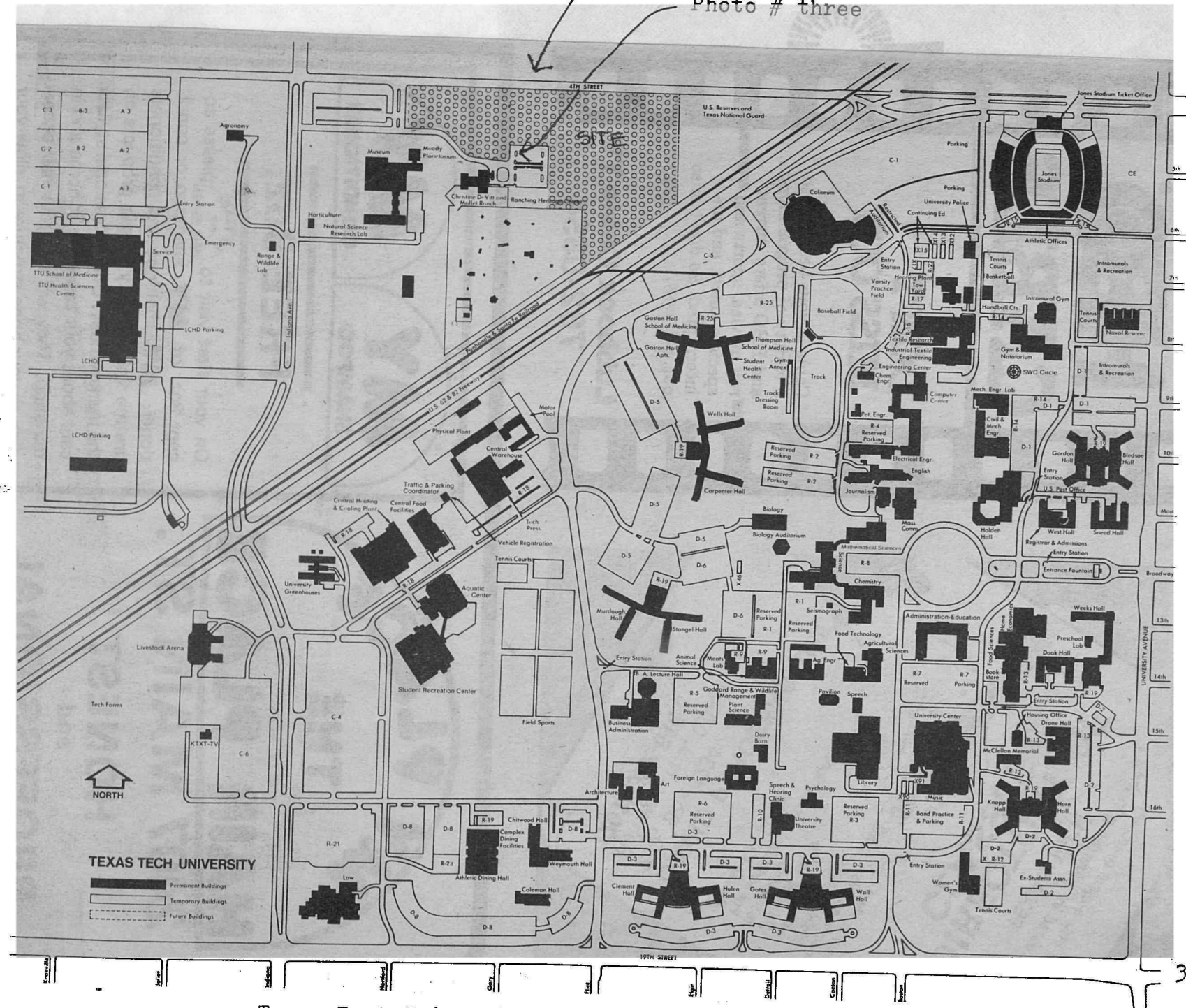


Lubbock County map showing Lubbock city limits



KEY TO MAP of LUBBOCK

1. Briercroft Collection
2. Chamber of Commerce
3. City Auditorium-Coliseum
4. City Hall
5. Clapp Park & Swimming Pool
6. Coronado High School
7. County Court House
8. Dunbar High School
9. Estacado High School
10. Federal Building
11. Godeke Branch Public Library
12. Highland Hospital
13. Hillcrest Country Club
14. Hodges Community Center
15. Jones Stadium
16. KoKo Palace Convention
17. Lowrey Field
18. Lubbock Christian College
19. Lubbock Country Club
20. Lubbock High School
21. Lubbock Lake Site
22. Lubbock Memorial Civic Center
23. Lubbock Regional Airport
24. Lubbock State School
25. Mackenzie State Park
26. Mae Simmons Park & Swimming Pool
27. Mahon Public Library
28. Maxey Park & Swimming Pool
29. Methodist Hospital
30. Monterey High School
31. Municipal Garden-Arts Center
    Lubbock Memorial Arboretum
32. Panhandle & Sante Fe Depot
33. Panhandle South Plains Fair Grounds
34. Police Station
35. Post Office
36. Ranch Headquarters—Texas Tech
37. Reese Air Force Base
38. St. Mary of the Plains Hospital
39. State Experimental Farm
40. Telephone Building
41. Texas Tech Medical School
42. Texas Tech Museum
43. Texs Tech University
    Administration Building
44. Union Bus Station
45. University Hospital
46. West Texas Hospital



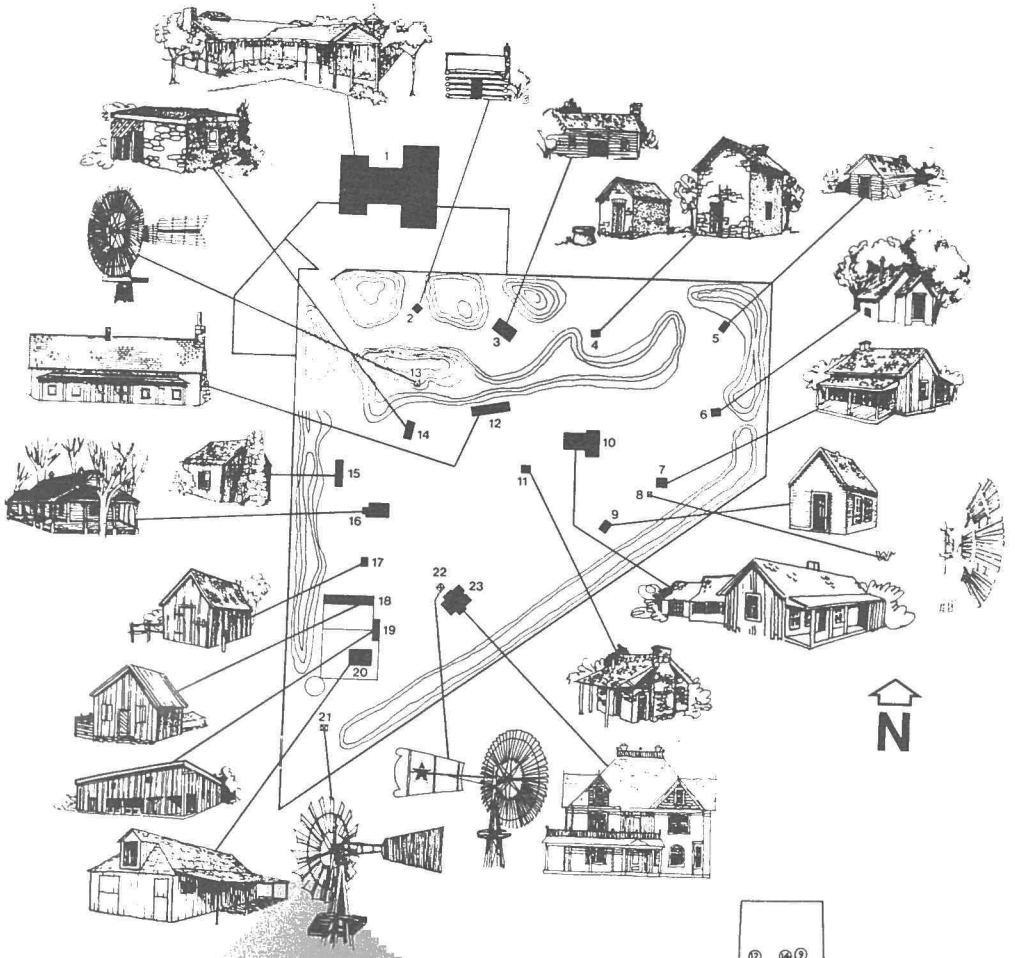
Texas Tech University in relation to site

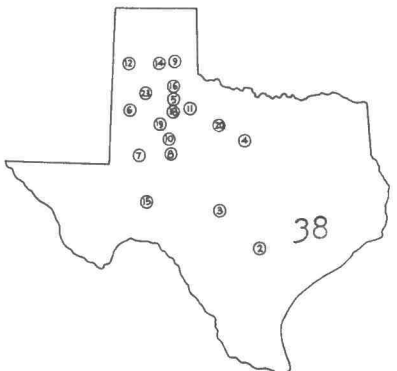
CHING HERITAGE CENTER

Ranching Heritage Center is an
hentic outdoor exhibit depicting
real story of the history of
ching in America's West, through
restoration and furnishing of
able historic ranch structures
ch have been moved to a 12-acre
e adjacent to and as a part of
Museum of Texas Tech University.

Source: University News & Publications

The Ranching Heritage Center





PRINCIPAL FACTORS

The site chosen for the Southwest Collection encompasses approximately twenty-four acres of land located in Lubbock, Texas on the Texas Tech University Campus. The site fronts Fourth Street and is bounded by the Ranching Heritage Center on the South, National Guard Armory on the East, and the Texas Tech University Museum (parking area) on the West.

This particular site has been chosen for a number of reasons. The most important reason is to locate the new building in an area with similar type functions--thus creating a true "center" where patrons can visit the Museum, Ranching Heritage Center and Southwest Collection with its displays, all in one area. Although the architecture of the two existing major attractions (Museum and Ranching Heritage Center) do not share common design elements, they do share a common theme. This theme "the Southwest", is vital when choosing an appropriate site for the Collection.

Another reason for the site selection was the easy accessibility from either Indiana Avenue or Fourth Street, to the site. This location will allow Lubbock citizens to use the facility without traveling through the central campus. Since the site is located adjacent to the Ranching Heritage Center, the new facility can share its' 148-space parking lot without planning a new parking area.

CLIMATE

The climate of the Lubbock area is semi-arid with an average yearly temperature of 60°. The average maximum temperature is 74°, and the average minimum temperature is 46°. The average rainfall per year is 18" with 9" of snow. Humidity rarely exceeds 20% which would not warrant a de-humidification system for the new facility. The materials in the Collection can be damaged by excessive humidity rates.

Solar radiation on the site plays an important role when considering orientation on the site, landscaping, construction techniques and material usage. Since the Southwest Collection building, as a necessity, needs to shield materials from the harmful effects of the sun, the new structure needs to deal with sun control. While most (gross sq. footage) of the facility will be storage and thus need only artificial light, there will be a need for natural light particularly in the service area. With this in mind, concern must be made to adequately light these areas, while providing energy savings through orientation and other sun control methods. Although most of the facility will be lit by artificial light, (and in doing so, remove the possibility of energy savings through using natural light) energy savings can be achieved in the areas of heating and cooling by using construction techniques and materials. One possibility would be a partially underground structure or earth bermed structure, which would keep the interior temperature at a more stable level.

In order to apply considerations dealing with solar radiation, the angle and altitude of the sun most be determined. Figure 1-1 gives these calculations for several times throught the year. This information will help determine overhangs, landscaping, and material usage.

The wind characteristics of an area are very important in determining orientation, landscaping and site usage. The facility should be designed to allow for fresh air ventilation during the summer months. However, measures should be taken to reduce the amount of direct wind involvement in the winter months to help decrease energy consumption in the heating of the structure. Such protection can be obtained through the use of landscaping, earth bermes, or other structures on the site. Figure 1-2 gives the monthly breakdown of wind speed and direction in this area. The entry and receiving areas should be protected from excessive winds. Great protection should be made so that dust will not infiltrate storage areas, since dust can damage stored materials over long periods of time.

SOIL

Amarillo Fine Sandy Loam is the major soil type on the site. The topsoil is reddish-brown in color, and approximately eight (8) inches thick. The subsoil is also reddish-brown, and extends approximately two (2) feet below the surface. Below the subsoil, the color varies from light red to yellowish-red and has a texture of loose, fine, sandy loam. This is approximately one (1) foot thick. Caliche is located about four (4) feet below the surface. This soil type has adequate bearing capacity at a level between three (3) and four (4) feet below the surface.

TRAFFIC

Fourth Street, which runs parallel to the site, carries 13,580 vehicles in a twenty-four hour week day. Indiana Avenue carries 8,860 vehicles north of Fourth Street, and 8,200 vehicles south of Fourth Street.

ZONING

The entire Texas Tech University campus, including the site, is zoned R-1, which is for residential construction. Tech is not restricted by Lubbock city ordinances concerning new construction.

Texas Tech stadium

F/ Lubbock coliseum

National Guard Armory: "negative view"

developing skyline "improving view"

Tech Biology Bldg.

Business . . . . Admin

live oaks

dotted line outlines general site area.

- basically flat site
- slope toward 4th st.

EAST

PHOTOGRAPH #1 (one) SOUTHWEST COLLECTION BUILDING SITE

Ranching Heritage Center: berms & roof line clustering defies the natural flatness of the larger undeveloped site.

rock facade w/ heavy timber

Ranching Heritage Center

Texas Tech Museum

white glazed brick dk. glass

Tech Med - dk. glass & dk. alum. skin

School

UTH

adequate parking for both ranching heritage center and proposed southwest collection building.

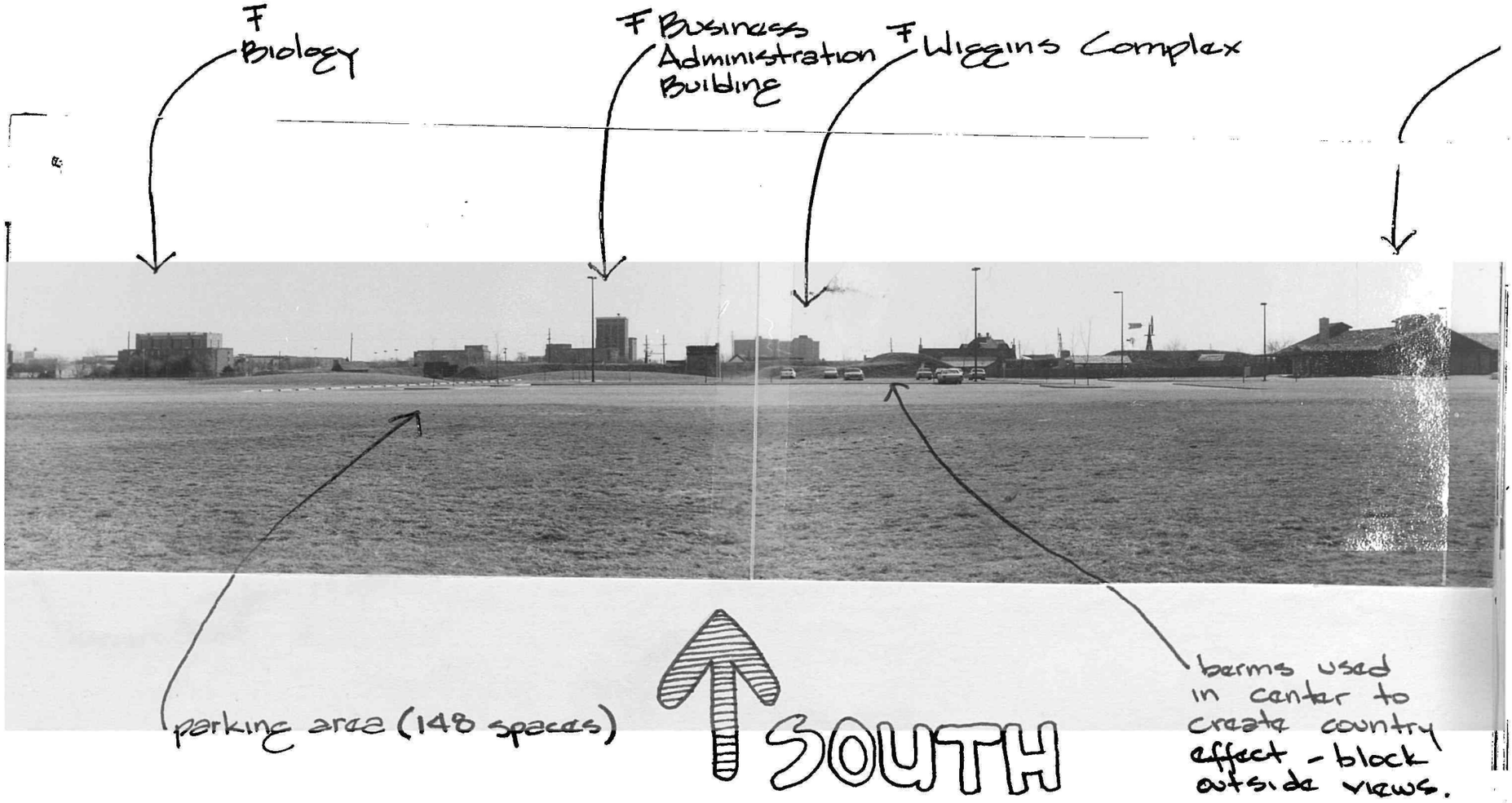
WINDS: coming from Southwest in Spring/Summer

4th street: moderate to heavy during peak periods generally light to moderate.

entry to site

WEST

• photograph taken from North side of site (Varsity Village Apts.)



PHOTOGRAPH #2 (two)

SOUTHWEST COLLECTION BUILDING SITE

Ranching Heritage Center

Texas Tech University Museum

Tech Medical School

playa lake area (run-off drainage from site)

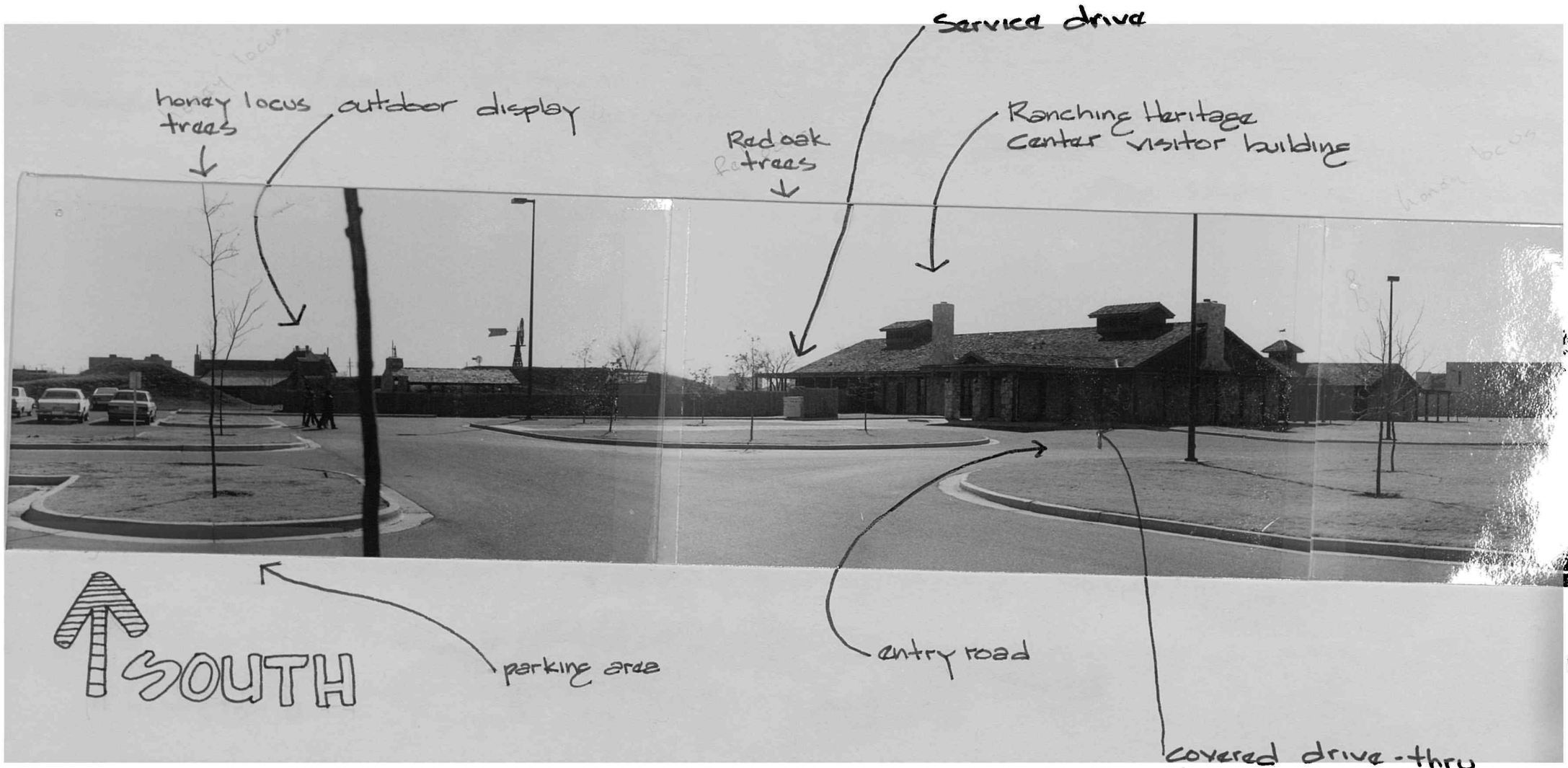
4th street
13,580 vehicles in 24 hour weekday.

prevailing winds from the southwest

berm treatment

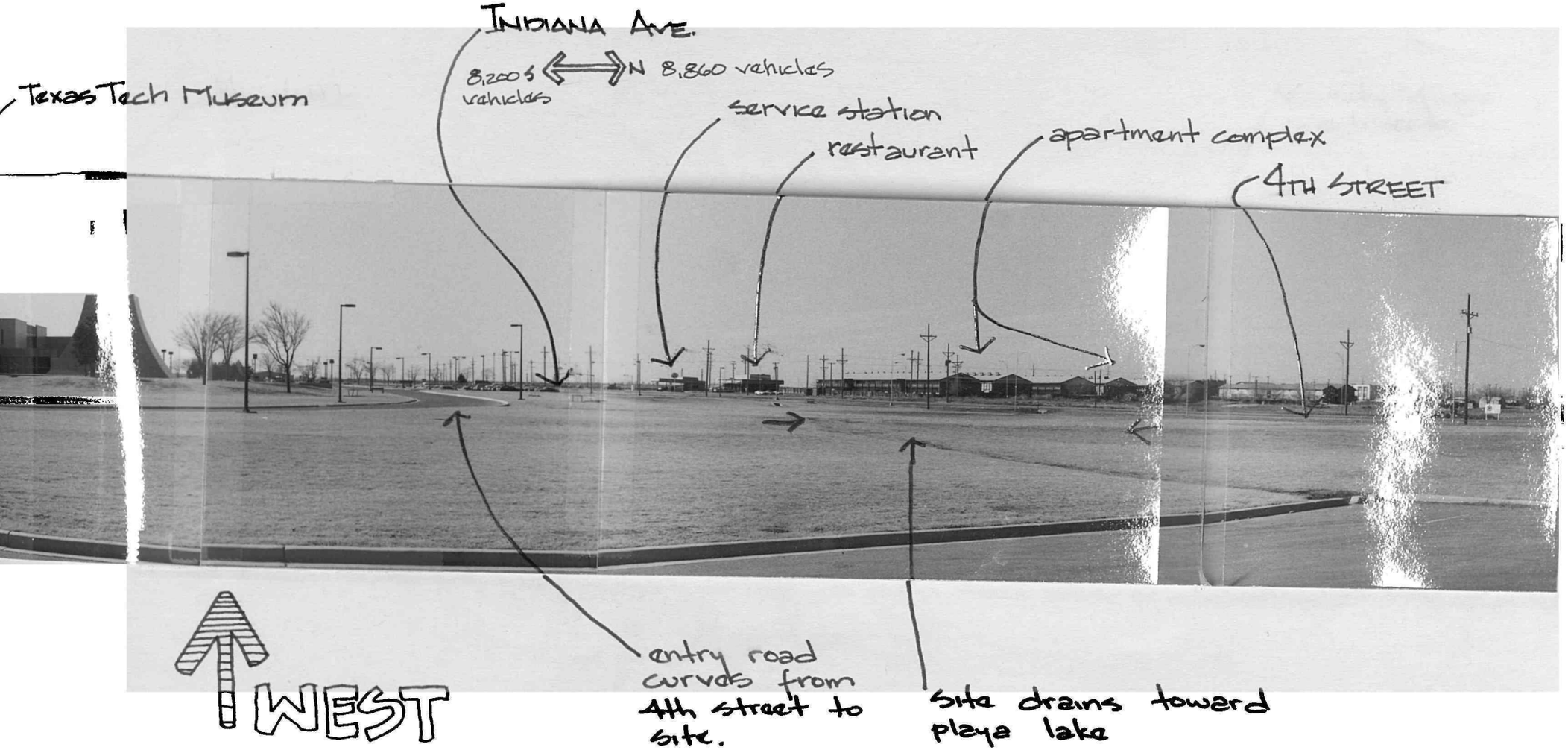
WEST

• photograph taken from East side of site.



PHOTOGRAPH #3 (three)

SOUTHWEST COLLECTION BUILDING SITE



- photograph taken from parking lot.

↑ 26 spaces (parking)

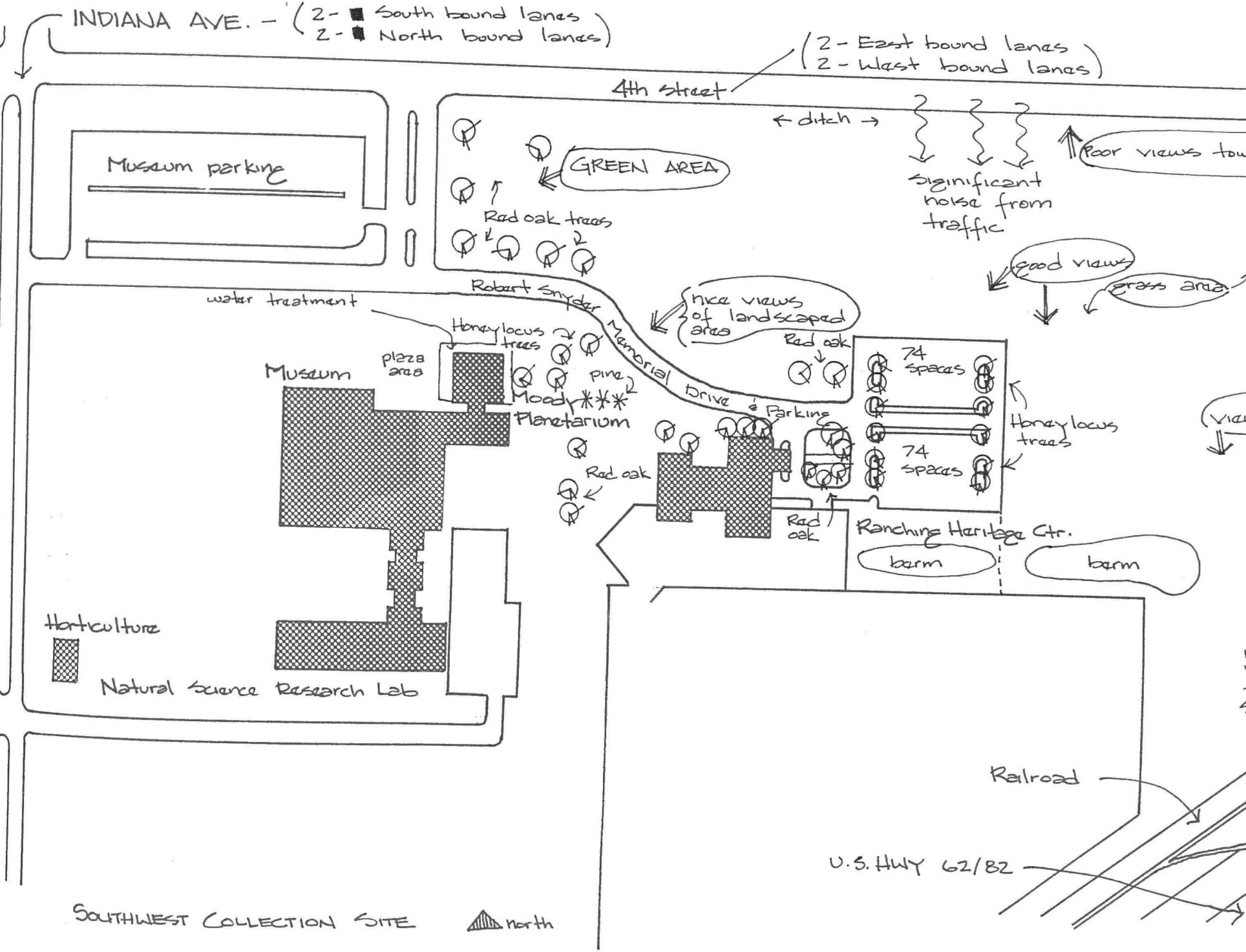
NORTH

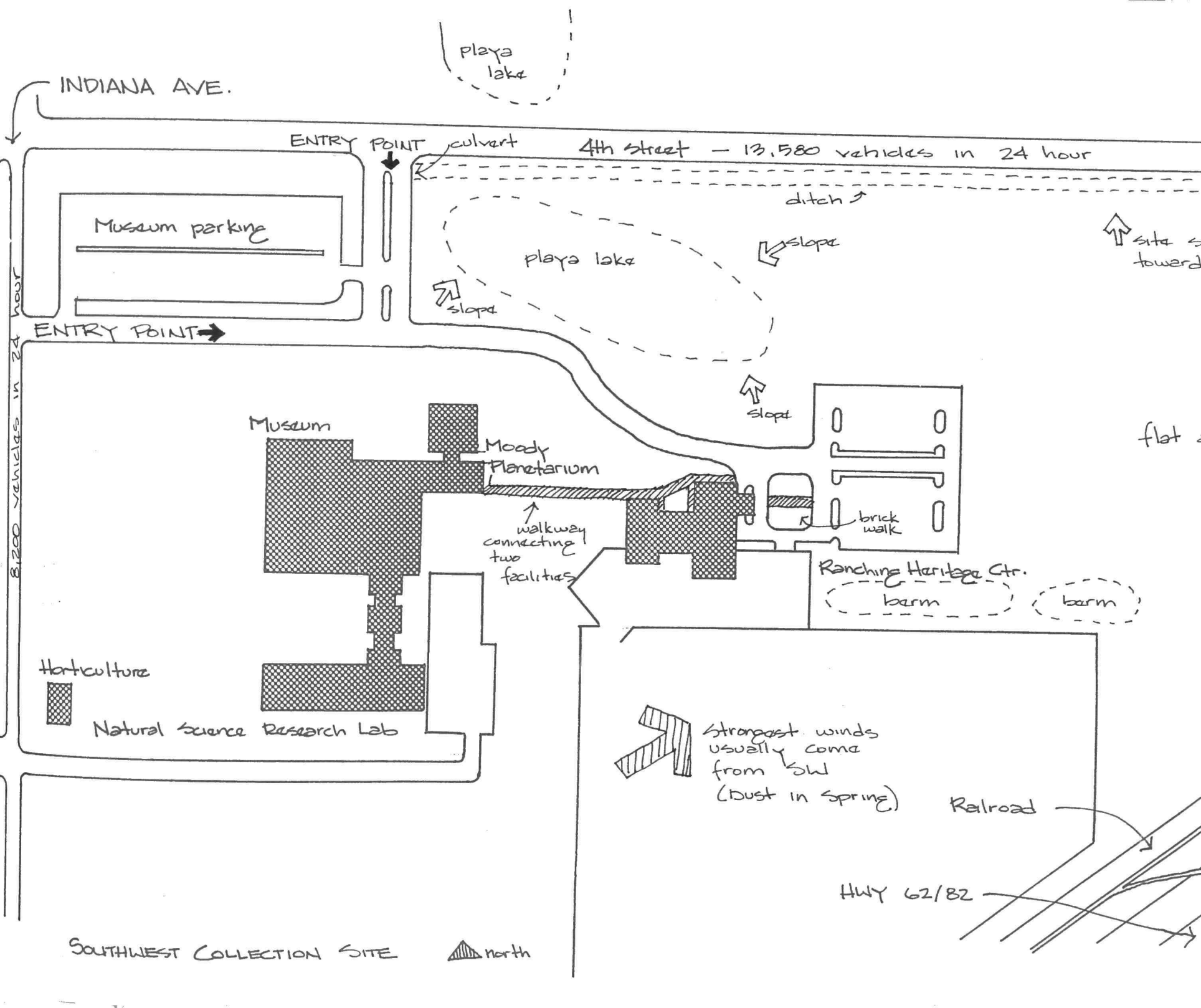
- parking for Ranching Heritage Center & proposed Southwest Collection Building. (total of 148 spaces)

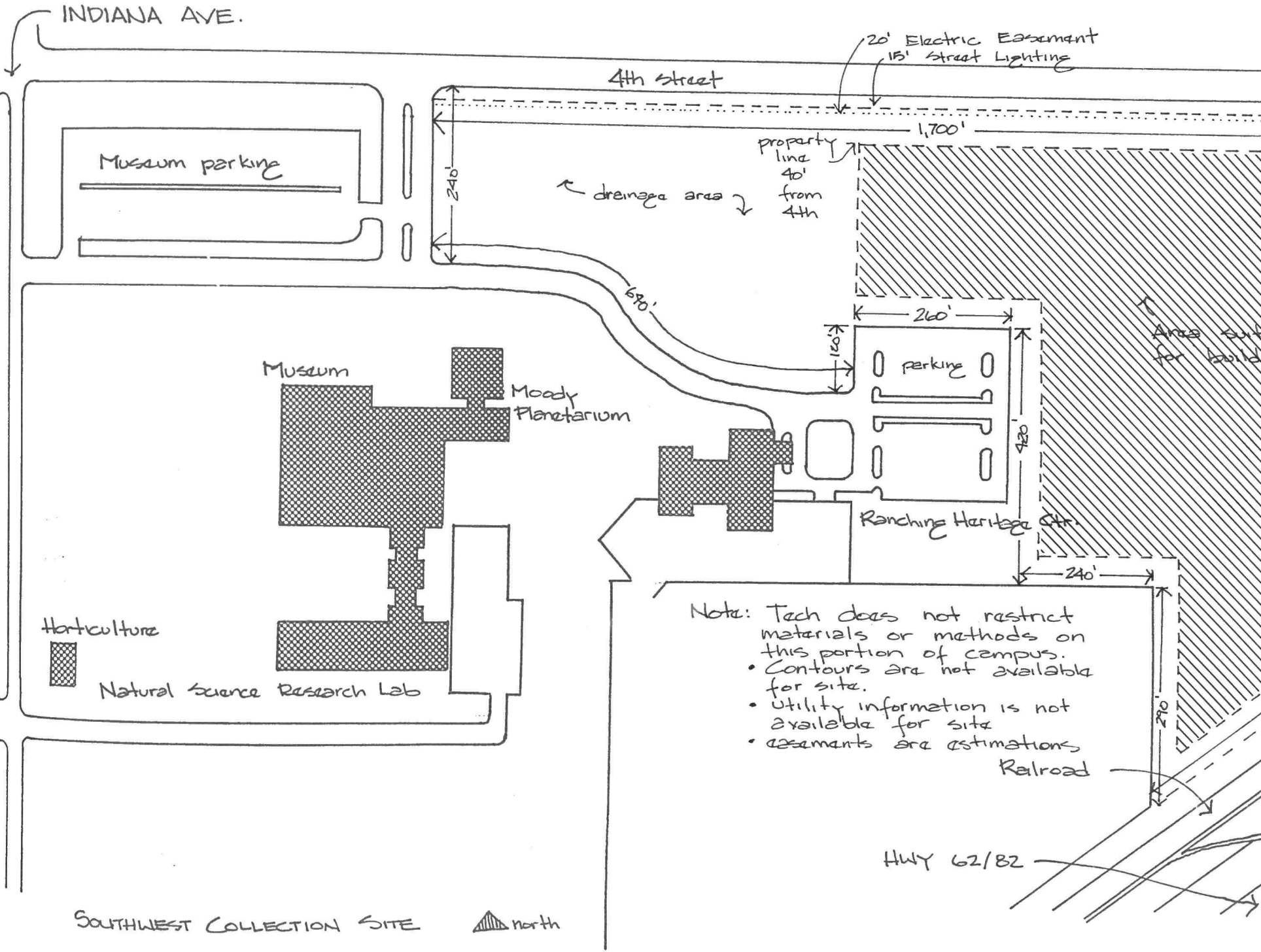
PHOTOGRAPH #3 (three)

SOUTHWEST COLLECTION BUILDING SITE

• photograph taken from parking lot.


INDIANA AVE. – (2- ■ South bound lanes 2- ■ North bound lanes)
4th street (2 - East bound lanes 2 - West bound lanes)
Museum parking
GREEN AREA
Red oak trees
← ditch →
significant noise from traffic
Poor views tow
Good views
grass area
water treatment
Robert Snyder Memorial Drive & Parking
Honeylocus trees
plaza area
Museum
Moody Planetarium
pine
nice views of landscaped area
Red oak
74 spaces
74 spaces
Honeylocus trees
Red oak
Red oak
Ranching Heritage Ctr.
barn
barn
Horticulture
Natural Science Research Lab
Railroad
U.S. HWY 62/82
SOUTHWEST COLLECTION SITE
north

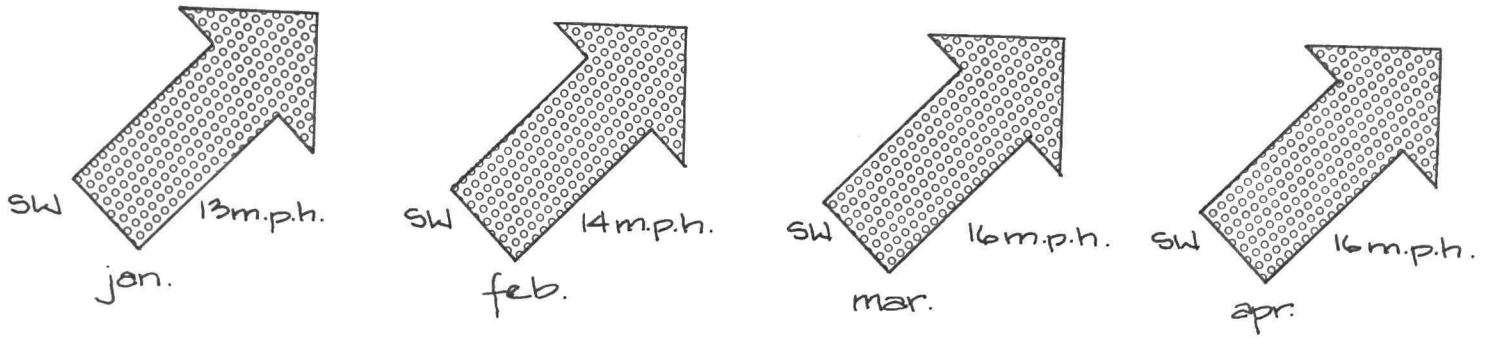

playa lake
INDIANA AVE.
ENTRY POINT
culvert
4th street — 13,580 vehicles in 24 hour
ditch
Museum parking
playa lake
slope
slope
site s
toward
ENTRY POINT
8,200 vehicles in 24 hour
slope
flat
Museum
Moody Planetarium
walkway connecting two facilities
brick walk
Ranching Heritage Ctr.
barn
barn
Horticulture
Natural Science Research Lab
Strongest winds usually come from SW (Dust in Spring)
Railroad
HWY 62/82
SOUTHWEST COLLECTION SITE
north


INDIANA AVE.
4th Street
20' Electric Easement
15' Street Lighting
1,700'
Museum parking
240'
property line 40' from 4th
drainage area
680'
260'
120'
parking
420'
Area suit for build
Museum
Moody Planetarium
Ranching Heritage Ctr.
240'
Horticulture
Natural Science Research Lab
Note: Tech does not restrict materials or methods on this portion of campus.
• Contours are not available for site.
• Utility information is not available for site
• easements are estimations
240'
Railroad
HWY 62/82
SOUTHWEST COLLECTION SITE
north

SUMMARY

In order to determine if the site is a suitable location for the desired facility, it must be looked at in terms of location, size, and accessibility. It is located on campus in a very appropriate area in relation to surrounding "complementary use" buildings. The size of the site, although somewhat irregular, is adequate for a 42,000 sq. ft. building. With the importance of future expansion of the facility, it is critical that the site be able to handle such expansion.

To determine the accessibility to the site, the user group must be considered. The majority of the users will be Tech students and faculty, with a small percentage of Lubbock citizens. Since the site is located on campus, it is easily in range of most students and faculty, although not as convenient as the present central campus location. Existing parking is ample and makes the area a choice location when considering site selection.



AVERAGE WIND SPEED (each month) & PREDOMINATE DIRECTION

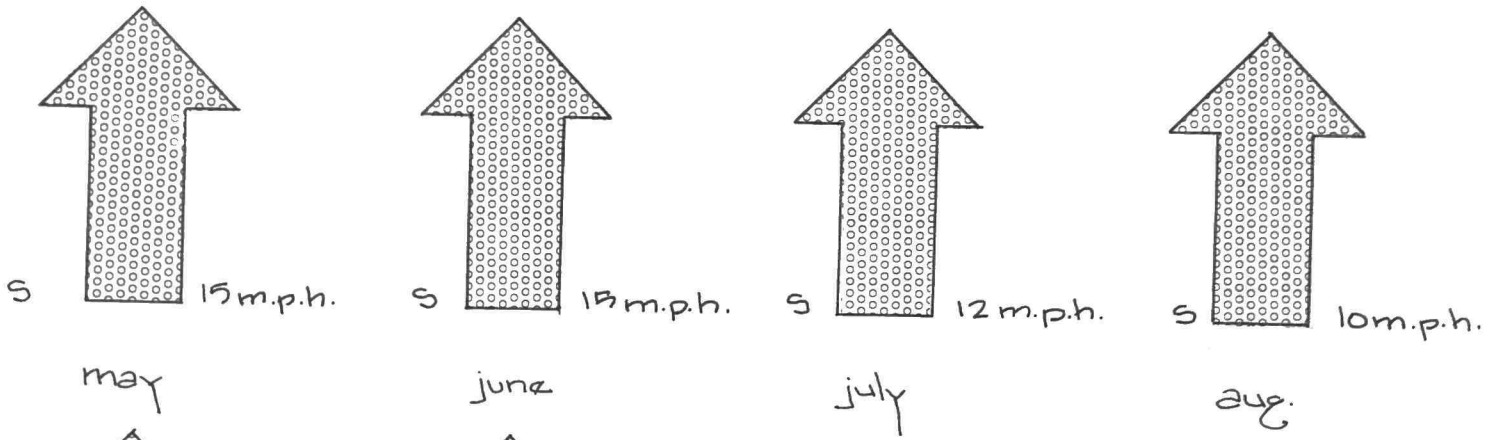


Fig. 1-2

SOLAR ALTITUDE AND BEARING

Table 1-1

DATE	8 A.M.		12 NOON		8 P.M.	
	ALT.	BRNG.	ALT.	BRNG.	ALT.	BRNG.
JULY 21	3°	116° E. of S.	66°	77° E. of S.	10°	111° W. of S.
AUG. 1	11°	104°	61°	68°	8°	107°
11	9°	102°	59°	63°	8°	104°
21	9°	99°	58°	57°	4°	101°
SEPT. 1	7°	96°	55°	53°	3°	98°
11	6°	92°	54°	47°	***12°	88°
21	4°	88°	50°	41°	***8°	85°
OCT. 1	3°	84°	47°	38°	***6°	82°
11	3°	80°	45°	34°	***4°	79°
21	1°	77°	43°	30°	***1°	77°
NOV. 1	11°	65°	43°	10°	*10°	66°
11	9°	63°	40°	9°	*8°	63°
21	6°	62°	37°	10°	*8°	60°
DEC. 1	4°	60°	35°	11°	*7°	58°
11	4°	59°	34°	11°	*6°	58°
21	2°	61°	34°	13°	*8°	56°

#=7 A.M.

*=5 P.M.
**=6 P.M.
***=7 P.M.

SOLAR ALTITUDE AND BEARING

Table 1-1

DATE	8 A.M.		12 NOON		8 P.M.	
	ALT.	BRNG.	ALT.	BRNG.	ALT.	BRNG.
JAN. 1	2°	61° E. of S.	33°	13° E. of S.	*8°	55° W. of S.
11	2°	63°	33°	15°	*10°	56°
21	2°	65°	34°	17°	**2°	65°
FEB. 1	3°	67°	36°	18°	**3°	67°
11	5°	70°	38°	19°	**5°	70°
21	7°	73°	41°	21°	**7°	73°
MAR. 1	9°	75°	45°	22°	**8°	76°
11	11°	78°	47°	23°	*10°	80°
21	14°	81°	52°	25°	*12°	82°
APR. 1	17°	84°	56°	25°	***1°	95°
11	#6°	96°	60°	28°	***2°	98°
21	#9°	98°	64°	30°	***3°	102°
MAY 1	#11°	101°	67°	35°	***5°	105°
11	#12°	104°	70°	39°	***6°	107°
21	#3°	113°	73°	70°	7°	109°
JUNE 1	#4°	115°	64°	76°	9°	112°
11	#4°	115°	66°	76°	9°	112°
21	#3°	116°	66°	77°	10°	111°
JULY 1	#3°	116°	64°	77°	10°	111°
11	#3°	114°	63°	75°	9°	110°

existing paths to the Ranching Heritage Center and the Museum. The linking of the three centers for pedestrians will help to visually draw together the different areas.

Bus service to the site is provided by the Tech bus system, which runs approximately every hour to the Museum entrance. (This could possibly be extended to the entrance of the new facility.) Also, Citibus has a route every thirty minutes which stops on Fourth Street at the main entrance road. Although bus service is provided, the majority of visitors drive their own automobiles. Considerations should be made to aid handicapped persons so they can use the facility with minimum restrictions.

pine, and Honeylocus trees. The views along the entrance drive are pleasing and could be further manipulated by orientation of the proposed building and by further landscaping. The other entry point is used by persons traveling North on Indiana. This entry road (Robert Snyder Memorial Drive) empties directly into the Ranching Heritage Center (& proposed Southwest Collection) parking area.

The South side of the site runs next to the access road, to the parking area and back to the Panhandle and Santa Fe Railroad embankment. Views toward the South are promising with a developing skyline of Tech and the Ranching Heritage Center. The combination of new with old is exciting and views should be incorporated into the design, if possible. At present, noise from the railroad is minimal, with few trains running during daylight hours. Beyond the train tracks, runs U.S. 62 and U.S. 82 Freeway (Brownfield Highway) but poses no threat to noise level to the site.

ACTIVITIES

Currently a 148-space, lighted and landscaped parking area is used by the Ranching Heritage Center. This lot is usually sparcely occupied, only partially filling the South Side. The Ranching Heritage Center conducts a special program two weeks before Christmas every year, which is the only time presently that parking becomes a problem. During this time, many people park on the site but this would not warrant the construction of more parking spaces. The parking area is fully capable of handling up to seventy-four vehicles for the new facility, well below use estimates. It is imperative that the entrance and service area adjoin the existing lot for convenience of entering the proposed building.

Pedestrian circulation could be controlled from the parking area to the new facility by using pedestrian walkways. This walkway should connect

ANALYSIS

The site is basically flat with only a slight slope toward the Northwest corner. This depression is used for water run-off during heavy rains and rarely fills up except during rainy periods. This playa lake compliments a much larger depression directly across Fourth Street, which usually holds some water. This area of the site is not suitable for construction and has many possibilities as an entrance green area with minimum landform alterations. The entire site is covered by grass with few planted trees. Shadows cast by surrounding structures have no affect on the site.

The East border of the site adjoins the National Guard Armory. Views in this direction are unsatisfactory and should not be viewed from the new facility. The Armory complex presently consists of several small one story brown brick buildings with adjoining parking areas for army vehicles. The background contains Jones Stadium lights and the Lubbock Coliseum. (See photo #3.) Landscaping and/or landform alterations could improve views toward this area. The East end of the site does offer the largest expance of buildable land, while extending far enough back from Fourth Street to extinguish traffic noises. The North side of the site, which runs parallel to Fourth Street, could accomodate a linear type structure. Factors influencing location on this part of the site include noise from Fourth Street, poor views across Fourth Street toward several two story apartment complexes, and the drainage area in the Northwest corner. One entry point to the site is on the North side from Fourth Street. This road split by a median, turns East toward the parking area. This road is adequate for future traffic generated by the new facility, with only light traffic created from persons going to the Ranching Heritage Center. The road curves toward the parking area and is landscaped with red oaks,

SPACE SUMMARY

SPACE SUMMARY

The following spatial summary is based upon a report of space needs for a new facility prepared by Sylvan Dunn (Southwest Collection Director) in 1977. The total square footage required is based on current growth patterns of the collection and takes into account the need for expansion. Currently the collection storage area uses low-cost metal shelves that are 159" high. The new facility can increase storage capacity by utilizing taller shelves which would not increase the square footage required.

PARKING

Existing parking area is adequate to meet employee and visitor parking requirements for the new facility. There are 148 regular spaces provided with approximately one half being used by the Ranching Heritage Center. Provisions should be made for handicapped persons.

Alterations should be made in the parking area to accomodate two reserved spaces near the proposed building entry to serve the handicapped.

Provisions for one service vehicle should also be provided. This service area should be constructed near the service area and also connect to the existing parking/circulation area.

One Service Space

1 x 9 x 19 = 171 sq. ft. (not including turn-around and connecting service road)	171 sq. ft.

Storage

stack storage	16,956 sq. ft.
vault storage	144 sq. ft.
receiving room	150 sq. ft.
Total	17,250 sq. ft.

Processing

Microfilm lab	200 sq. ft.
Microfilm work area	600 sq. ft.
Sorting area	9,554 sq. ft.
Total	10,354 sq. ft.

Service

Reading room	7,600 sq. ft.
Staff assistant area	200 sq. ft.
Secretaries office	400 sq. ft.
Directors office	400 sq. ft.
Assistant Directors office	400 sq. ft.
Break room	150 sq. ft.
Display room	150 sq. ft.
Lobby	200 sq. ft.
Conference room	600 sq. ft.
Total	10,100 sq. ft.

General Spaces

Total (Net)	37,875 sq. ft.
Mechanical: (5% of net area)	1,885 sq. ft.
Circulation: (5% of net area)	1,885 sq. ft.
Auxillary Spaces:	
Restrooms (4) 4 x 120 sq. ft.	480 sq. ft.
Janitor closet	80 sq. ft.
Total	560 sq. ft.

Net total area. . . . . 37,875 sq. ft.
Gross total area. . . . 42,205 sq. ft.

Net to Gross Ratio is 7:8

SYSTEMS PERFORMANCE

Structural Systems

The structural system of an archival facility derives its needs from four factors: (1) the strength of the materials used (especially if an earth sheltered building is used); (2) the image provided by the structural system; (3) the ability for it to be flexible, and (4) the possibility for expansion (adding to the system). Any structural system used must be of conventional materials and be cost efficient due to limited funding of the project.

Since future expansion is of great importance in this project, the structural system chosen must be flexible enough to accommodate new additions without elaborate re-structuring. This flexible structural system is mandatory in the free span storage area since this is the most likely area for future expansion. Design proposals for this expansion should be planned at the same time as the rest of the facility to avoid possible problems concerning expansion.

Structure:

-Since a large open space is preferrable in the storage area, the chosen system needs to be able to accommodate larger spans.

-Flexibility of the system is a necessity.

Materials and Systems:

-Materials that lend themselves to this kind of construction are long span steel construction, tresses, space frames, concrete or masonry bearing walls.

Exterior Finish:

Exterior finishes are important in providing energy efficiency and as a means of portrayirg a specific image of the facility. When considering the contrasting images of the two existing structures adjacent to the site, (Museum and Ranching Heritage Center), the task of somehow visually joining the new facility becomes a challenge. Texas Tech does not restrict the designer in using brown brick, red tile, and smoke glass on this portion of campus, so a wide variety of materials could be used. Materials chosen should express the necessity to block natural light from the storage area and could possibly dictate an earth sheltered structure for this area. The materials used for the entry area should be inviting, while portraying a Southwestern theme. To reduce post-construction costs, materials should be durable and as maintenance free as possible.

Interior Finishes:

-Finishes should be durable and eaily maintained.
-Superior acoustic materials for sound absorption
-Warm, comfortable color scheme (Southwest theme)
-Clay tile areas for durability and Southwestern theme

Acoustical quietness is a necessity when planning an archival facility, especially in the reading area, where researchers demand total concentration. Besides limiting noise levels, considerations should also be made to minimize visual distractions. In areas of high noise generation such as secretaries offices and microfilm processing, sound absorption materials should be used excessively to reduce noise transmission. Although noise generated in the reading area is at a minimum, materials used should still absorb any noise while at the same time, display a comfortable, inviting atmosphere. Controlled views are important in this area--to provide visual relief without distractions.

Mechanical Systems

The mechanical system should be energy efficient while still providing the proper service needed. The system should be centralized. The storage area temperature and humidity level should remain constant--preferable 68° F., and not in excess of 50% relative humidity. Storage area should be a self-regulated system.

-System should provide overall air supply of 14 c.f.m. of outside air/ occupant in service, processing, and auxiliary areas.

-System should be quiet.

Mechanical chases need to be accessible from a central point.

Energy conservation techniques implimented into the facility design could include an earth sheltered structure with possible passive solar collectors for domestic hot water usage. Orientation of the building on the site and limited glass openings could further reduce energy consumption. Landscaping used as wind blocks and sun shields could also contribute to lessen heat loss/gain.

Electrical Power and Lighting

-Facility needs to be linked with traditional power source.

-Extra receptacles should be included in service and processing areas for future electrical needs. (computers)

-Receptacles needed in display areas, offices, and break room.

Lighting throughout the facility should be bright enough for reading except in mechanical room.

-Exterior should be well lit for visual notability and security,

Water System/Plumbing/Sewage

-Plumbing needs to be easily maintained.

-Plumbing system needs to be water efficient.

-Storm drains to handle water run-off need to connect to existing system.

-Ventilation stacks should vent only to outside.

Communications/Alarms

-Intercom system should link staff areas together.

-Alarm system should be provided in storage area. All openings into this area should be considered.

-Telephone service should be provided.

-Temperature and return air humidity should be monitored by an alarm system to detect and alarm off-normal conditions.

Code Requirements

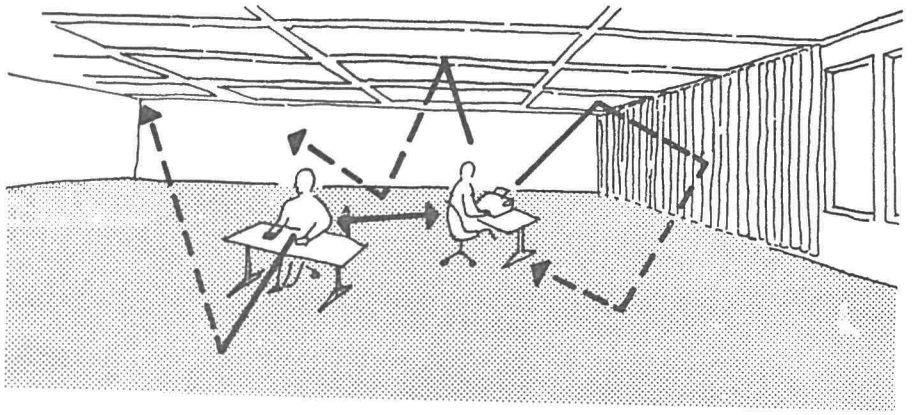
The state of Texas uses the Uniform Building Code as it applies to archival facilities, Building Type I. Beyond the standard code requirements for this type of facility, only two ordinances need to be considered.

The first ordinance deals with the inclusion of sprinkler and smoke detection systems. It states that fire warning and detection systems, such as sensors and smoke detectors must be included in the facility. Also an on-site supply of water must be available to run the sprinkler system as an added precaution.

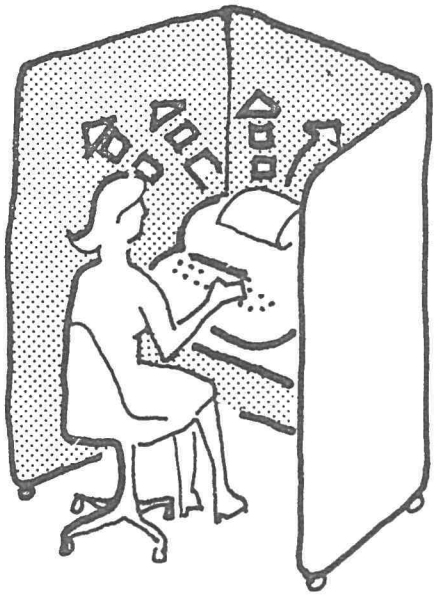
The second ordinance concerns the use of emergency lighting. It states that emergency lighting must be included in the facility and that an emergency supply of fuel, needed to run the system, must be located on the site.

Special Considerations

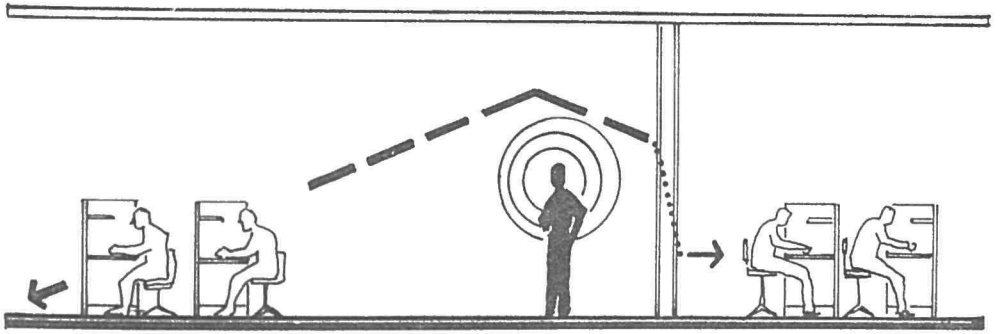
-Facility should be as air tight as possible as to protect materials from dust infiltration.



*It is essential to use acoustical tile on the ceiling, carpeting on the floor, and absorbent materials on the walls in a totally open plan.

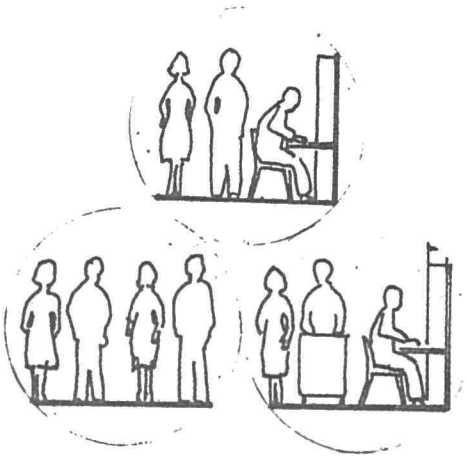


*Enclose noisy equipment in carrels made of sound absorbing materials.

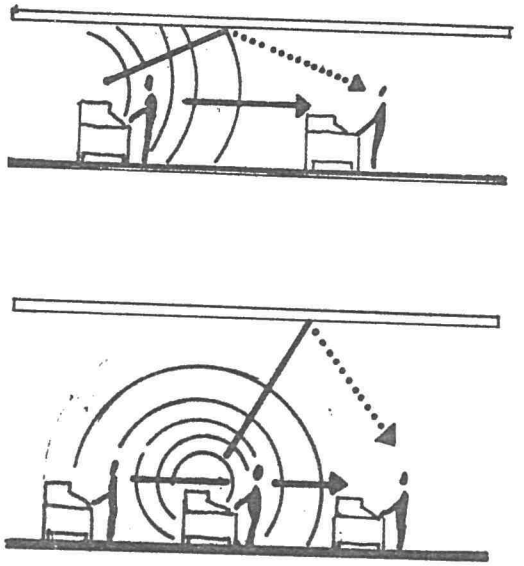


*Walls can transmit some sound. The more surface weight the wall has, the less sound will be transmitted.

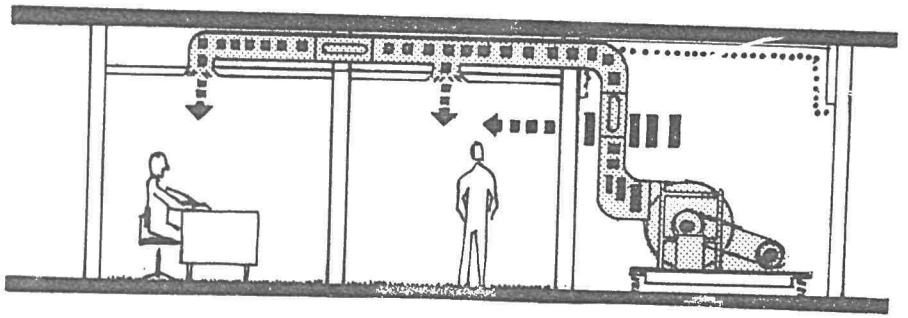
Source: Design & Space Planning for Libraries



*By clustering people together, the sound levels do not increase arithmetically, but by gradual degrees.

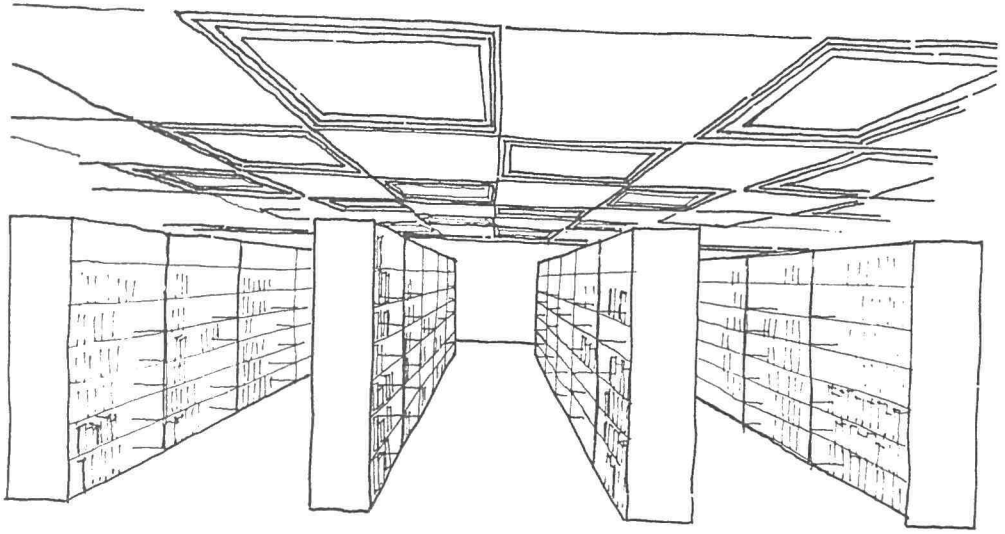


*Rooms with low ceilings have higher noise levels. Rooms with high ceilings have lower noise levels.

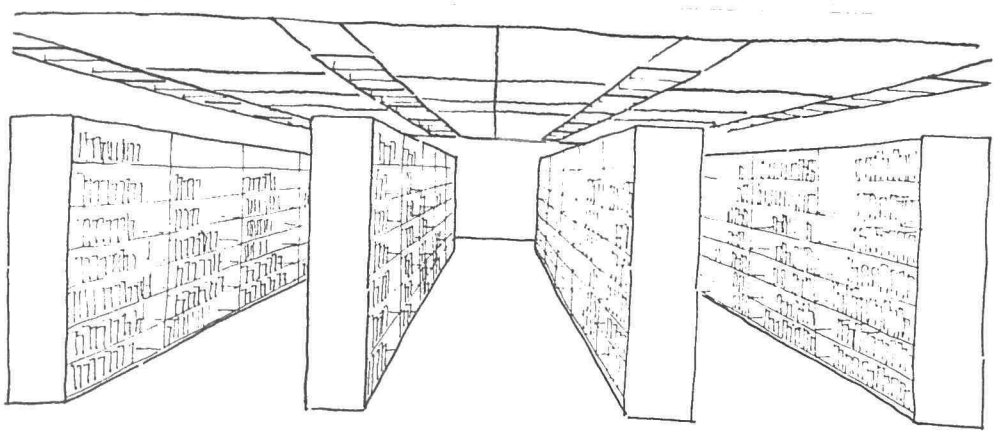


*Mechanical system noises can be prevented by lining the mechanical room with sound-absorbing materials.

Source: Designing & Space Planning for Libraries

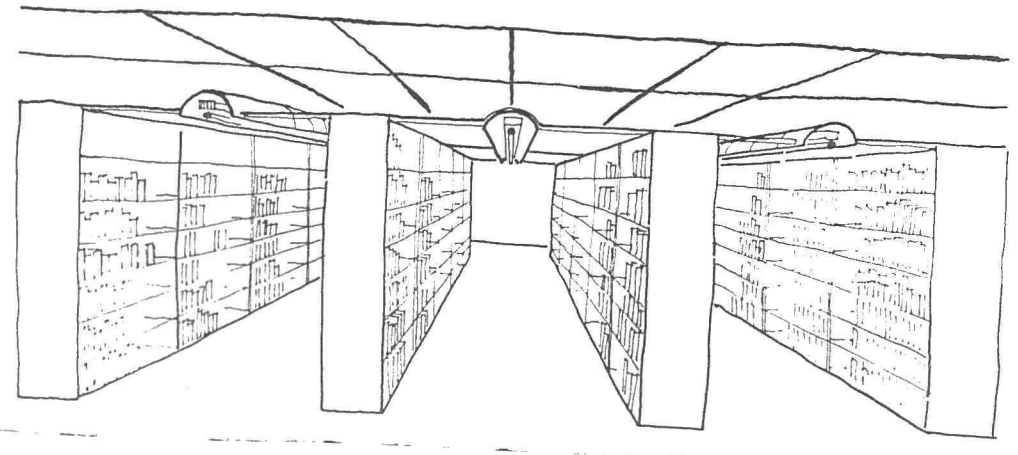


*Fluorescent fixtures affixed to ceiling in a 2nd pattern. This configuration offers the ultimate in flexibility. Not recommended for low ceilings.

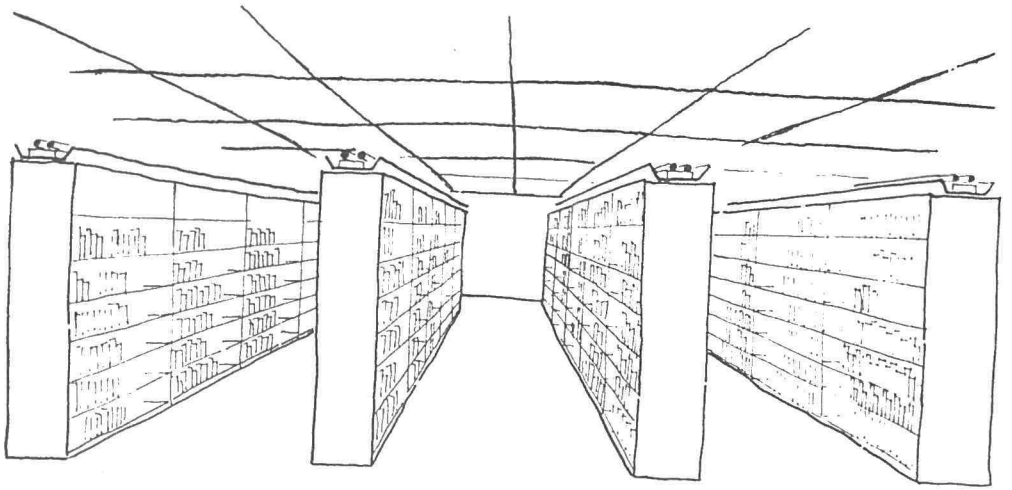


*Ceiling-hung fluorescents in batwing fixtures running parallel to and directly above the stacks. This configuration is designed for stacks fixed in place. Light tends to be reflected sideways and is not recommended for stack lighting.

-Source: Designing & Space Planning for Libraries



*Fluorescents running parallel to stacks down the center of the aisle. The most energy-conserving configuration, stacks must be fixed in place.



*Fluorescents affixed to stack tops, which illuminate the ceiling. The ceiling acts as a secondary light source and illuminates the stacks. Installation is relatively inexpensive.

Source: Designing & Space Planning for Libraries

COST ANALYSIS

COSTING

The cost analysis for an archival facility is based on cost information from similar building types. A higher cost per square feet is not a true reflection of the facility cost because a good portion of the cost often comes from expenditures that are incurred because of the need to facilitate future expansion or project enlargement. Taken from the costs of similar projects, an allowance of $50.60 per square feet will be used as the initial project cost.

Inflation factor computed at 1% per month. Starting with a base construction price of $50.60 per square foot for an archival building type. (information source dated June 1, 1979) The inflation factor is taken midway into construction, allowing three months design phase and twenty-four months construction time.

32 months X 1% = 32% inflation rate on a cost of $50.60 per sq. foot = $66.79 sq. ft.

TOTAL BUDGET

Building Costs

Storage Area:
17,250 sq. ft. X $66.79 sq. ft. =
$ 1,152,127.50

Processing Area:
10,354 sq. ft. X $66.79 sq. ft. =
$ 691,543.66

Service Area:
10,100 sq. ft. X $66.79 sq. ft. =
$ 674,579.00

Mechanical Area:
1,885 sq. ft. X $66.79 sq. ft. =
$ 125,899.15

Circulation Area:
1,885 sq. ft. X $66.79 sq. ft. =
$ 125,899.15

Auxiliary Area:
560 sq. ft. X $66.79 sq. ft. =
$ 37,402.40

$ 2,807,450.86

Special Equipment

(built-in provisions, 10% approximation)

$2,807,450.86 X 10% = $ 280,745.08

Site Development

(utilities, site preparation, etc. . . use 6% approximation)

$2,807,450.86 X 6% = $ 168,447.05

Subtotal $3,256,642.99

Allowance for Construction Contingencies

(Unforeseen construction costs, use 10% approximation)

$3,256,642.99 X 10% = $ 325,664.29

Subtotal $3,582,307.29

Professional Services

(allow 8% fee charge)

$3,582,307.29 X 8% = $ 286,584.58

Subtotal $3,868,891.87

Project Bidding Contingency

(allow 10% approximation)

$3,868,891.87 X 10% $ 386,889.19

Subtotal $4,255,781.06

Project Preliminary Budget Costs

$4,255,781.06

DETAILED SPACE LIST

The following section deals with basic requirements for the design of the spaces in this facility. The ultimate goal of this project is to design the 'perfect' facility but problems are likely to occur. If questions develop, the basic rule is one of common sense. Although an attempt has been made to educate the designer about each space, it is not necessarily 'fixed'--but can be altered if more appropriate design solutions are discovered.

Each space is broken down into the following:

NAME OF SPACE

FUNCTION: (i.e. service, reading, typing)

AREA: (sq. footage, usually minimum)

OCCUPANTS: (the number of people who will probably use the space)

ENVIRONMENT:

LIGHTING: ARTIFICIAL (ft. candles)
NATURAL

VENTILATION: (representative of natural and artificial-a/c; except where otherwise stated)

ACOUSTICS: (probable noise level in area)

FURNISHINGS: (representative sizes of major articles to be used in the space)

STORAGE:

DESIGN: (major concerns about the space)

ADJACENCY: (location representative to other spaces)

STORAGE AREA:

Function: storing loose printed materials in boxes and bound books.

Area: 17,250 sq. ft. (including vault)

Occupants: 1-5

Environment:

Lighting: Artificial 100 ft. candles. No natural light.

Ventilation: artificial

Acoustics: moderate quiet

Furnishings:

	W	D	H
metal shelves	204	30	180
work table (1)	72	36	29
chairs (2)	19	21	29

Storage: major portion of space

Design: must include 12'0" X 12'0" walk in fireproof vault for microfilm and rare valuables. Shelves must be movable and not connected to structural system. Storage space must be secure and protected from fire by sprinkler system and smoke detectors as required by codes. All 15'-0" shelves will be utilized with the use of fixed sliding ladder or mechanical lift. Humidity to be kept at no more than 50%. Due to area climate, no special system is necessary.

Adjacency: next to service and processing areas

SERVICE AREA: 10,100 sq. ft.

SECRETARY OFFICE:

Function: writing, filing, phoning, screening calls and guests, typing

Area: 400 sq. ft.

Occupants: 1

Environment:

Lighting: Artificial 100 ft. candles
Natural 1/10th floor area to none

Ventilation: artificial and/or natural

Acoustics: Moderate

Furnishings:

	W	D	H
desk (1)	72	36	29
chairs (2)	19	21	29
file cabinet	18	24	48

also---shelves, microfilm machine, flexible furniture used as work space.

Storage: for supplies (pencils, paper, etc.)

Design: office as a flexible unit- must be able to oversee reading area and lobby. Possibility of movable glass partitions for visability and noise control.

Adjacency: central location-access to other offices, storage area, processing area, and other service areas.

ARCHIVIST OFFICE:

Function: meetings, talking, writing, viewing facility

Area: 400 sq. ft.

Occupants: 1-5

Environment:

Lighting: Artificial 100 ft. candles;
Natural 1/10th floor area to none

Ventilation: artificial and/or natural

Acoustics: Moderate quiet

Furnishings:

	W	D	H
desk (1)	72	36	29
chairs (5)	19	21	29
file cabinet	18	24	48

also---shelves, small table

Storage: none

Design: Comfortable; access to secretary; views toward service area

Adjacency: next to secretary, close to assistant directors office, conference room, service area.

ASSISTANT DIRECTORS OFFICE:

Function: meetings, talking, writing

Area: 400 sq. ft.

Occupants: 1-5

Environment:

Lighting: Artificial 100 ft. candles; natural 1/10th floor area to none

Ventilation: artificial and/or natural

Acoustics: Moderate quiet

Furnishings:

	W	D	H
desk (1)	72	36	29
chairs (5)	19	21	29
file cabinet	18	24	48

also---shelves, small table

Storage: none

Design: comfortable; access to secretary

Adjacency: next to secretary, close to archivist office, conference room.

CONFERENCE ROOM:

Function: meetings, writing, talking, viewing

Area: 600 sq. ft.

Occupants: 20 or less

Environment:

Lighting: Artificial 50-100 ft. candles; natural 1/10th floor area

Ventilation: natural and artificial

Furnishings: 2 large tables (4'x12'), 20 chairs (W-24,D-22,H-29), audio/visual equipment, chalkboard, projection screen, tack board, small tables (4)

Storage: area to store audio/visual euqipment, coat closet

Design: comfortable, quiet, views toward outside

Adjacency: close to secretaries office, archivist office, assistant directors office.

READING ROOM:

Function: reading, writing

Area: 7,200 sq. ft. (including sq. ft. required for catalogue area, study carrols, movable displays

Occupants: 5-40

Environment:

Lighting: Artificial 120 ft. candles; natural 1/10th floor area to none

Ventilation: artificial and/or natural

Acoustics: quiet

Furnishings:

	W	D	H
desks (20)	72	36	29
chairs (30)	19	21	29

also---movable study carrols (10) with voice tape capabilities, movable card catalogue files, movable display cases

Storage: minimal

Design: comfortable, well lit, quiet area, flexible space with possible view toward outside.

Adjacency: next to staff assistant area, lobby, public restrooms, display room.

STAFF ASSISTANT AREA:

Function: retrieve materials from storage for patrons of the facility.

Area: 200 sq. ft.

Occupants: 1-6

Environment:

Lighting: artificial 100 ft. candles; natural 1/10th floor area to none

Ventilation: artificial and/or natural

Acoustics: Moderate quiet

Furnishings:

	W	D	H
desks (3)	72	36	29
chairs (6)	19	21	29
file cabinet	18	24	48

also---microfilm machine, voice tape files

Storage: for supplies, voice tapes

Design: space must be flexible

Adjacency: next to reading area, storage area, close to secretaries office

---

DISPLAY ROOM:

Function: permanent display of George Mayhons desk and other personal office items from his 44 years in Congress.

Area: 150 sq. ft.

Occupants: 0

Environment:

Lighting: Artificial 100 ft. candles; no natural light

Ventilation: artificial

Acoustics: quiet

Furnishings: desk (1), chairs, files other office items.

Storage: none

Design: area to be for viewing only--may be open to public while the rest of the facility is closed.

Adjacency: next to lobby, close to reading area.

LOBBY:

Function: transitional space from outside to inside, establishes impression and "feel" for facility, circulation space, may contain some displays.

Area: 200 sq. ft.

Occupants: always different
Environment:
Lighting: Artificial 100 ft. candles; natural 1/10th floor area
Ventilation: artificial and/or natural
Acoustics: moderate
Furnishings: display cases, planters
Storage: none
Design: space for transition, pleasing, must dictate circulation.
Adjacency: next to secretaries office, close to staff assistant area, reading area, public restrooms.

MICROFILM-VIEWING:
Function: space to view microfilm
Area: 150 sq. ft.
Occupants: 0-10
Environment:
Lighting: artificial 50-100 ft. candles; no natural light
Ventilation: artificial
Acoustics: Moderate quiet
Furnishings: microfilm viewing machines (10)
Storage: none
Design: room should be dark for better viewing-lights on dimmer switch
Adjacency: next to reading room, close to staff assistant area

---

PROCESSING:
Function: sorting materials, writing, filing, labeling, talking, viewing
Area: 14,000 sq. ft.
Occupants: 1-12
Environment:
Lighting: artificial 100 ft. candles; no natural light
Ventilation: artificial
Acoustics: Moderate

Furnishings:

	W	D	H
tables (20)	72	36	29
chairs (12)	19	21	29
file cabinets	18	29	48

also---microfilm viewing machine, supply lockers, office equipment

Storage: for supplies, boxes, tables, miscellaneous

Design: space must be flexible and easily maintained

Adjacency: next to storage area, close to secretaries office, staff assistants area, next to staff restrooms

---

BREAK ROOM:

Function: talking, sitting, eating, reading, viewing

Area: 150 sq. ft.

Occupants: C-10

Environment:

Lighting: Artificial 100 ft. candles; natural 1/10th floor area

Ventilation: artificial and/or natural

Acoustics: Moderate Loud

Furnishings:

	W	D	H
tables (2)	36	36	29
chairs (10)	19	21	29

also---built in cabinets and counter, vending machines

Storage: as provided in cabinets and under counter for food stuffs, equipment

Design: friendly, relaxing, atmosphere, views toward outside

Adjacency: next to staff restrooms, close to staff assistant area

---

RECEIVING:

Function: area where field manager can drop off newly acquired materials before they go to processing

Area: 150 sq. ft.
Occupants: 0-2
Environment:
Lighting: Artificial 100 ft. candles; natural 1/10th floor area to none
Ventilation: artificial and/or natural
Acoustics: Moderate
Furnishings:

	W	D	H
table (1)	72	36	29
chairs (2)	19	21	29

also---shelves
Storage: none
Design: opening to outside but with considerations for blowing wind control
Adjacency: next to processing area

CIRCULATION:

should permit ease of movement and as divisions between different areas; the circulation spaces must be well lit with exits marked: clocks and drinking fountains should be located here.

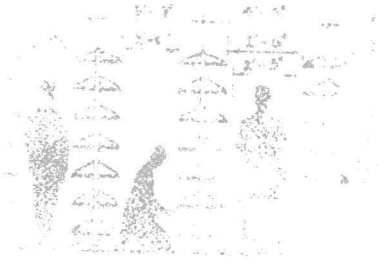
RESTROOMS:

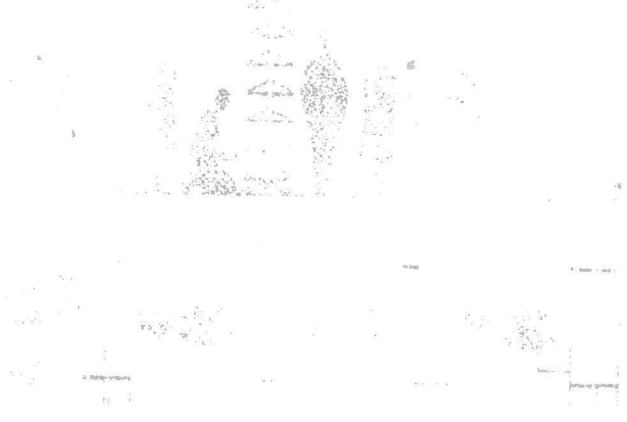
facilities should be provided for both sexes; one toilet and one sink per 8 people; lighting 20 ft. candles with spot lighting by mirrors; artificial ventilation is required by codes but may be supplimented by natural ventilation; at least one toilet and one sink should be provided for the handicapped.

MAINTENANCE:

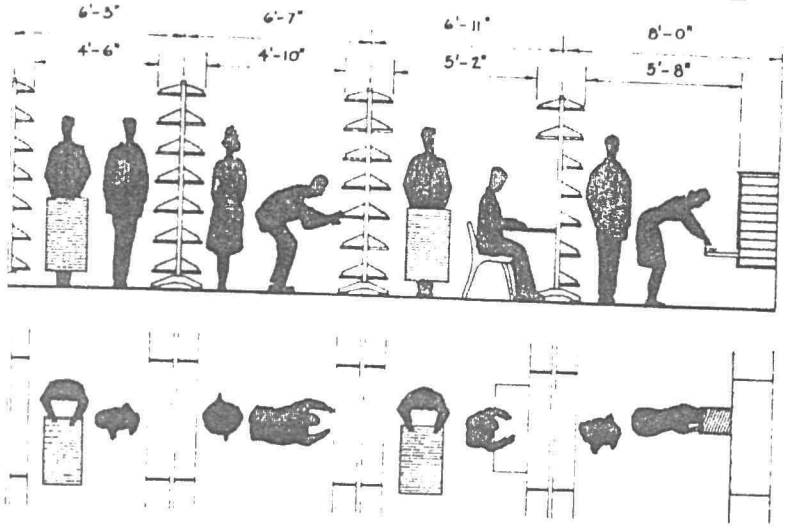
janitors closet (80 sq. ft.) with sink and water hook ups; storage for vacuum cleaner, mop, brroms, cleaning aids; located next to or near restrooms.

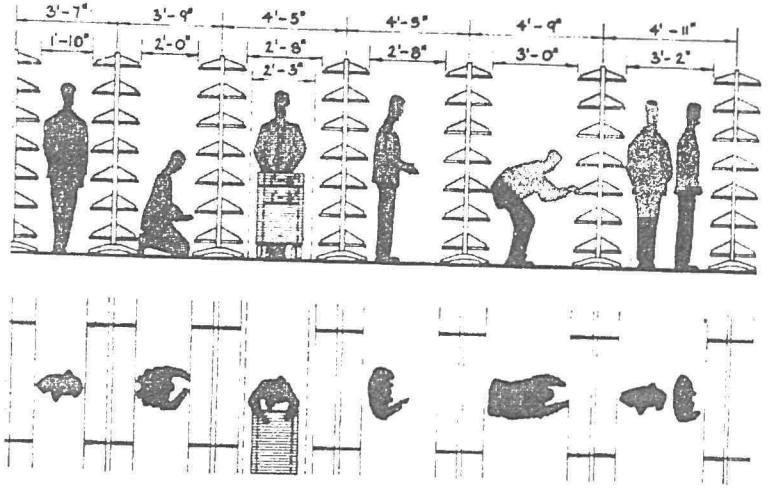
DETAIL SPACE LIST

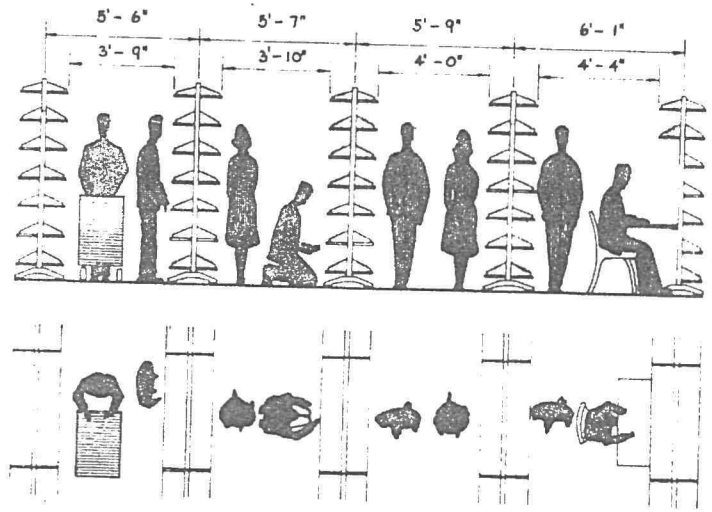




REFERENCE DIMENSIONS

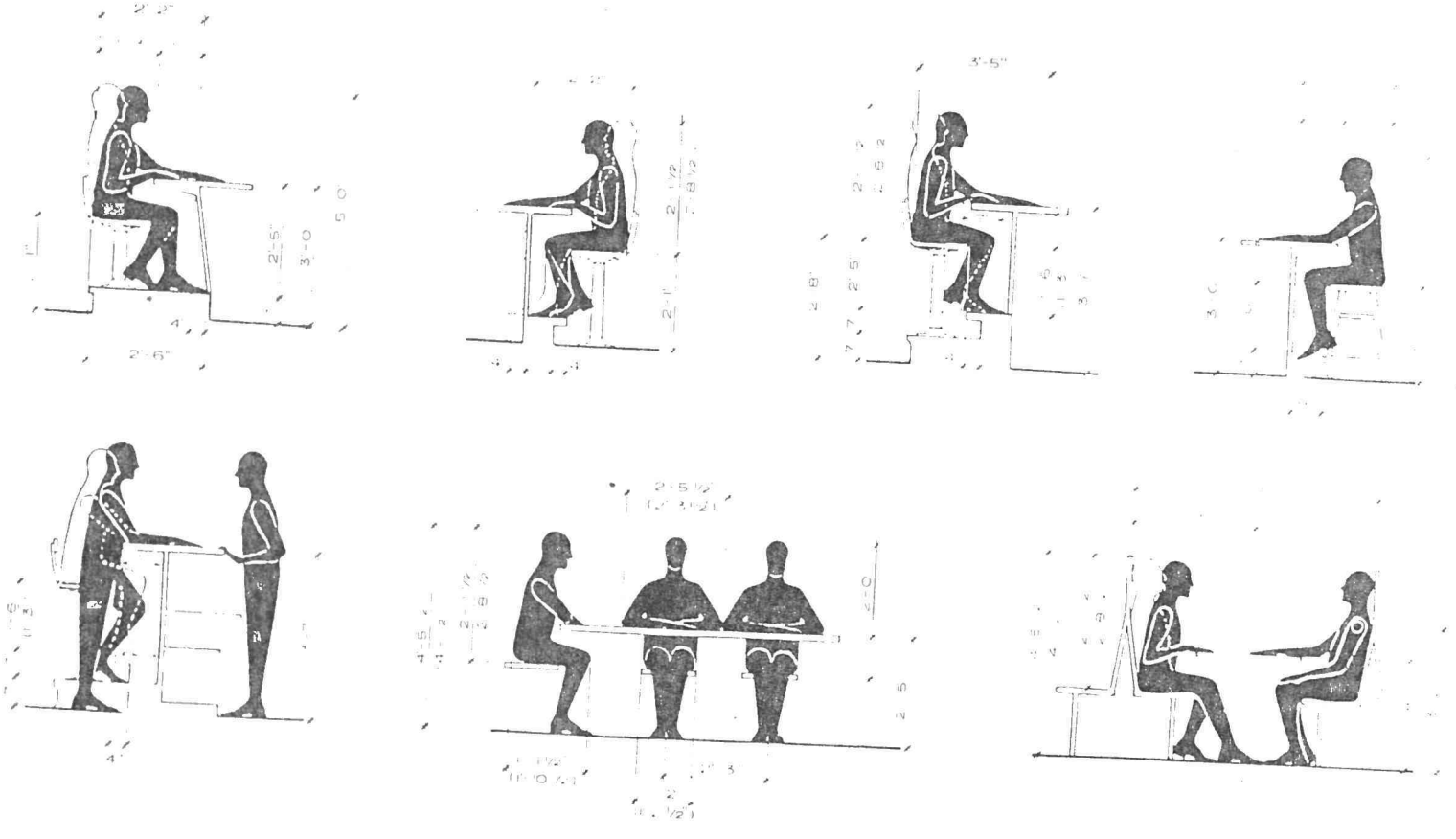






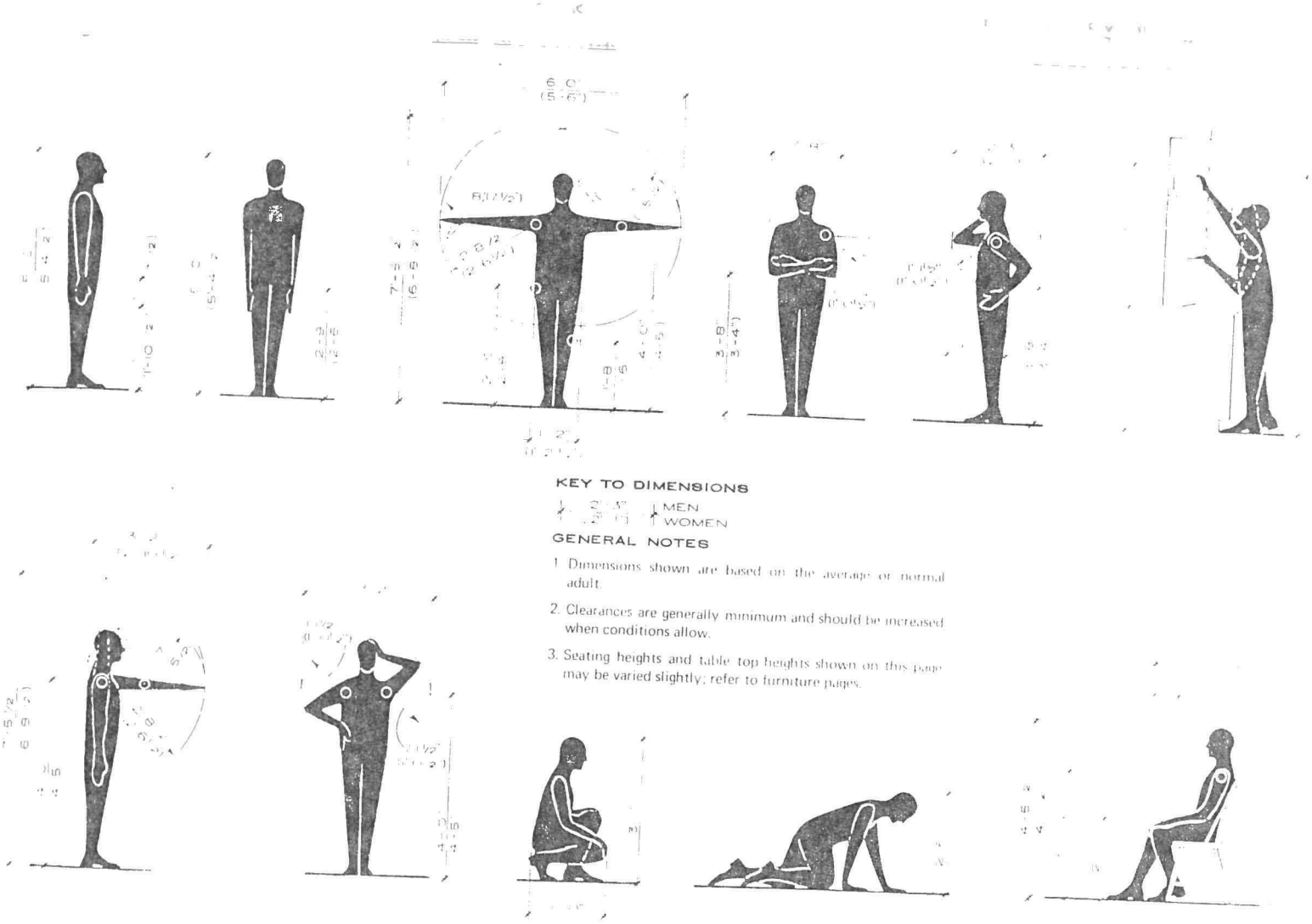
*Minimum clearances for various body positions in library stack areas.

Source: Designing & Space Planning for Libraries



DIMENSIONS OF THE HUMAN FIGURE

ARCHITECTURAL GRAPHIC STANDARDS p. 2.



KEY TO DIMENSIONS

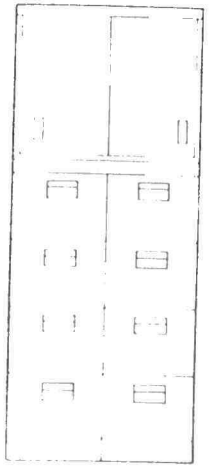
MEN
WOMEN

GENERAL NOTES

1. Dimensions shown are based on the average or normal adult.
2. Clearances are generally minimum and should be increased when conditions allow.
3. Seating heights and table top heights shown on this page may be varied slightly; refer to furniture pages.

DIMENSIONS OF THE HUMAN FIGURE

ARCHITECTURAL GRAPHIC STANDARDS p. 2.



TYPICAL OVERFILE STORAGE

DESCRIPTION	WIDTH	HEIGHT	DEPTH
OVER 2 LETTER	29 3/4	25 5/8 OR 36 3/4	28 9/16
OVER 2 LEGAL	35 3/4		
OVER 3 LETTER	44 5/8		
OVER 3 LEGAL	53 5/8		

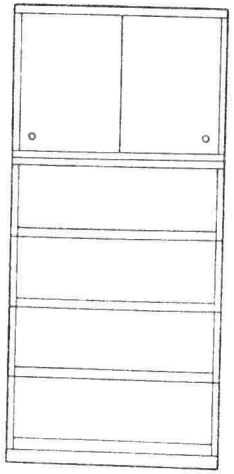
TYPICAL VERTICAL FILES

DESCRIPTION	WIDTH	HEIGHT	DEPTH
5-DR. LETTER	14 7/8	59 1/4	28 9/16
LEGAL	17 7/8	59 1/4	
4-DR. LETTER	14 7/8	50 1/2	
LEGAL	17 7/8	50 1/2	
3-DR. LETTER	14 7/8	41 1/4	
LEGAL	17 7/8	41 1/4	
2-DR. LETTER	14 7/8	29 3/4	
LEGAL	17 7/8	29 3/4	

INSIDE DRAWER DIMENSIONS

DESCRIPTION	WIDTH	HEIGHT	DEPTH
LETTER	12 1/4	10 1/2	26 3/4
LEGAL	15 1/4	10 1/2	26 3/4

TYPICAL VERTICAL FILES



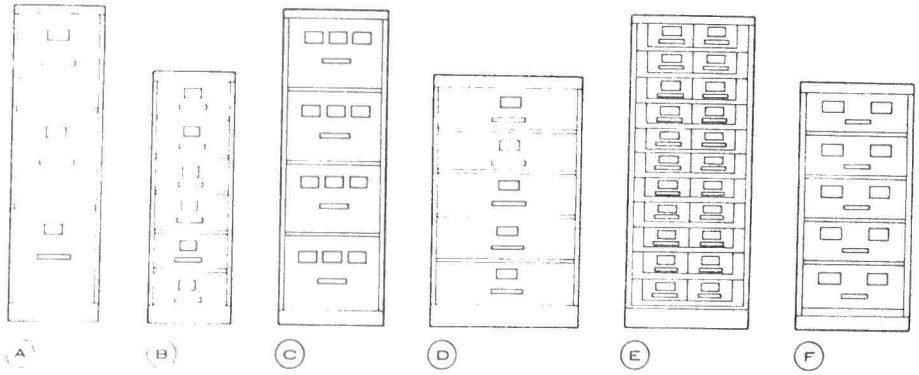
TYPICAL OVERFILE STORAGE

DESCRIPTION	WIDTH	HEIGHT	DEPTH
LETTER SIZE	36	26	15
LEGAL SIZE	36	26	18

TYPICAL LATERAL FILES

DESCRIPTION	WIDTH	HEIGHT	DEPTH
7-DR. LETTER	36	88 3/8	15
LEGAL	36	88 3/8	18
6-DR. LETTER	36	76 3/8	15
LEGAL	36	76 3/8	18
5-DR. LETTER	36	63 3/4	15
LEGAL	36	63 3/4	18
4-DR. LETTER	36	51 3/4	15
LEGAL	36	51 3/4	18
3-DR. LETTER	36	41	15
LEGAL	36	41	18
2-DR. LETTER	36	29	15
LEGAL	36	29	18

TYPICAL LATERAL FILES



VARIOUS SPECIAL FILES

	DESCRIPTION	WIDTH	HEIGHT	DEPTH
A.	LEDGER SHEET FILE	4 7/8	52 3/8	28 9/16
B.	CHECK FILE	12 7/8	41 1/4	
C.	DOCUMENT FILE	17 7/8	52 3/8	
D.	CARD RECORD FILE SIX-DRAWER (3x5, 4x6 CARDS)	25 1/8	41 1/4	
	FIVE-DRAWER (3x5, 4x6, 5x8 CARDS)	25 1/8	41 1/4	
E.	TABULATING CARD FILE	20 9/16	52 3/8	
F.	5x8 CARD FILE	19	41 1/4	

SPECIAL FILING CASES

FILING EQUIPMENT

ARCHITECTURAL GRAPHIC STANDARDS p. 475.

TYPICAL CREDENZA DIMENSIONS

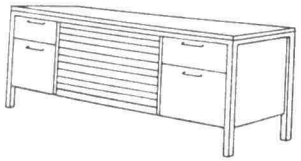
	WIDTH	DEPTH	HEIGHT
ONE COMPONENT	27 to 30	17 ¼ to 21	25 ½ to 29 ¼
TWO COMPONENT	37 ¼ to 41 ½	17 ¼ to 21	25 ½ to 29 ¼
THREE COMPONENT	44 ¼ to 60 ½	17 ¼ to 21	25 ½ to 29 ¼
FOUR COMPONENT	62 ¼ to 79 ¼	17 ¼ to 21	25 ½ to 29 ¼
FIVE COMPONENT	95 ¼ to 98 ½	17 ¼ to 21	25 ½ to 29 ¼

A. BOX DRAWER
B. FILE DRAWER

A. BOX DRAWER
B. BOX DRAWER
C. BOX DRAWER

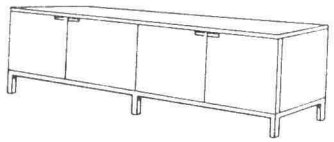
A. BOX DRAWER
B. PULL-OUT DICTATION SLIDE

TYPICAL CREDENZA COMPONENTS



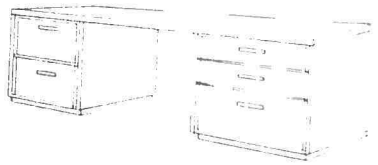
W 62¼
D 19¾
H 29¾

CREDENZA WITH TAMBOUR UNIT
STEELCASE INC.



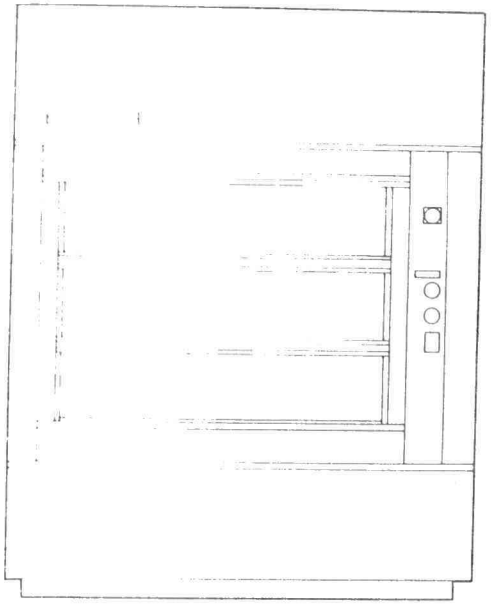
W 74½
D 17¾
H 25½

CABINET
KNOLL ASSOCIATES, INC.



W 84
D 20
H 29

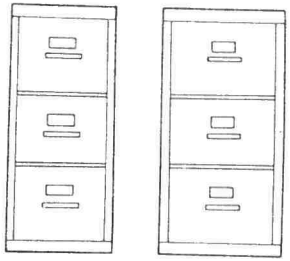
CREDENZA WITH KNEEHOLE
STOW DAVIS FURNITURE CO.



RECORDS RETRIEVAL

VARIOUS OVERALL UNIT SIZES

WIDTH	HEIGHT	DEPTH
91 ¼	95 ½	42 OR 70 7/16
91 ¼	107 ½	42 OR 70 7/16
91 ¼	119 ½	42 OR 70 7/16
77 7/8	95 ½	36 ¼
77 7/8	107 ½	36 ¼
77 7/8	119 ½	36 ¼



FIRE INSULATED FILES

DESCRIPTION	WIDTH	HEIGHT	DEPTH
4-DR. LETTER	17	52	29 13/16
LEGAL	20 ¼	52	
3-DR. LETTER	17	40 11/16	
LEGAL	20 ¼	40 11/16	
2-DR. LETTER	17	27 5/8	
LEGAL	20 ¼		

RECTANGULAR

WIDTH	LENGTH	APPROX. SEAT
5' 6"	20' 0"	20–22
4' 6	18' 0"	18–20
4' 6"	16' 0"	16–18
4' 6	14' 0"	14–16
4' 0"	12' 0"	12–14
4' 0"	11' 0"	10–12
4' 0"	10' 0"	10–12
4' 0"	9' 0"	8–10
4' 0"	8' 0"	8–10
3' 6"	9' 0"	8–10
3' 6"	8' 0"	8–10
3' 6"	7' 6"	6–8
3' 6"	7' 0"	6–8
3' 0"	7'-0"	6–8
3' 0"	6'-6"	6–8
2' 6"	5' 6"	4–6
2' 6"	5' 0"	4–6

BOAT SHAPED

WIDTH CENTER FIELD		LENGTH	APPROX. SEAT.
6' 0"	4' 0"	20' 0"	20–24
5' 6	4' 0"	18' 0"	18–20
5' 6	4' 0	16' 0"	16–18
5' 0"	3' 6"	14' 0"	14–16
4' 6	3' 6"	12'-0"	12–14
4' 0"	3' 2"	11'-0"	10–12
4' 0"	3' 2"	10' 0"	10–12
3' 6"	3' 0"	9' 0"	8–10
3' 6	3' 0"	8' 0"	8–10
3' 0"	2' 10"	7' 0"	6–8
3' 0"	2' 10"	6' 0"	6–8

SQUARE

WIDTH	LENGTH	APPROX. SEAT.
5' 0	5' 0"	8–12
4' 6	4' 6"	4–8
4' 0"	4' 0"	4–8
3' 6	3' 6"	4
3' 0"	3' 0"	4

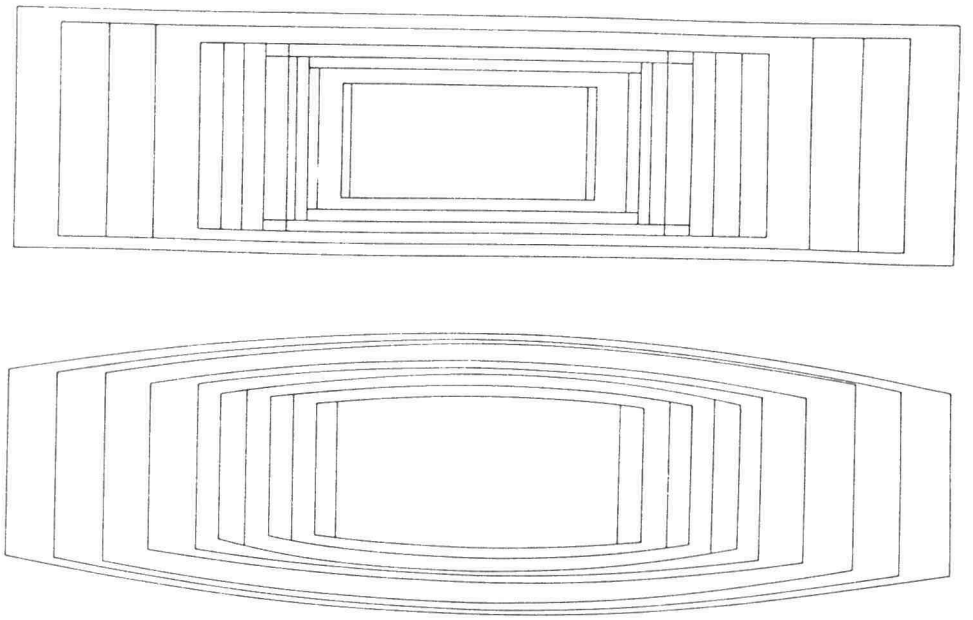
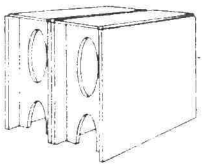


TABLE PLANS

L 60
W 20 OPENS TO 40
H 29
FLIP-TOP TABLE
DUNBAR FURNITURE CORP.



L 16 EXTENDS TO 116
W 35½
H 29
DOUBLE DROP LEAF TABLE
GEORG JENSEN INC.

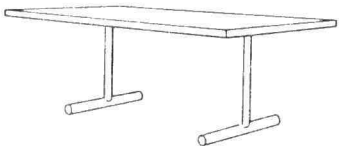
CONFERENCE TABLES

ARCHITECTURAL GRAPHIC STANDARDS p. 465.

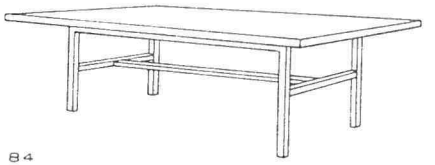
ROUND

DIAMETER	CIRCUM.	APPROX. SEAT.
8' 0"	25'-1"	10-12
7' 0"	21'-8"	8-10
6' 0"	18'-9"	7-8
5' 0"	15'-7"	6-7
4' 6"	14' 1"	5-6
4' 0"	12'-6"	5-6
3' 6"	11'-0"	4-5

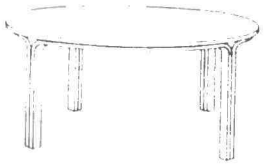
SOURCE: LEHIGH FURN. CORP.



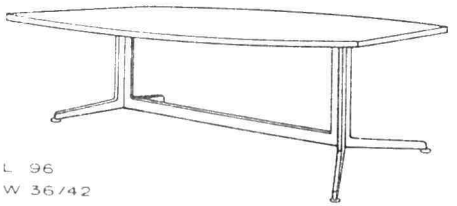
L 60
W 30
H 28½
CONFERENCE / DINING TABLE
STENDIG INCORPORATED



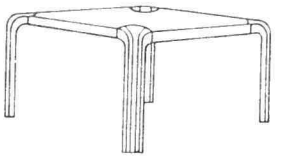
L 84
W 36
H 28½
CONFERENCE TABLE
ROFFMAN ASSOCIATES, INC.



CONFERENCE / DINING TABLE
ZOGRAPHOS DESIGNS LTD.



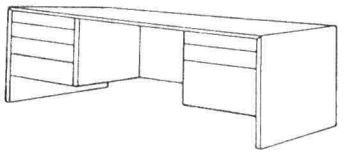
L 96
W 36/42
H 29
CONFERENCE/DINING TABLE
LEHIGH FURNITURE CORP.



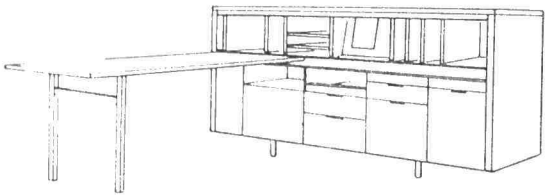
L 36
W 36
H 28
AALTO DINING TABLE
ICF, INCORPORATED

MACHINE DESK
STEEL CASE INC

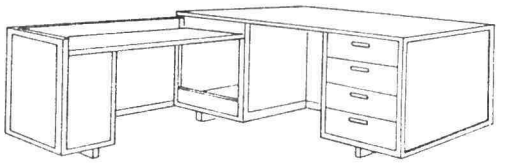
W 78
D 48
H 28
OVAL TABLE DESK
KNOLL ASSOCIATES, INC



W 78
D 36
H 29
PANEL END DESK
LEHIGH FURNITURE CORP.



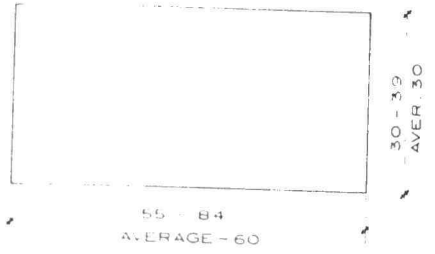
WORK ORGANIZER
HERMAN MILLER INCORPORATED

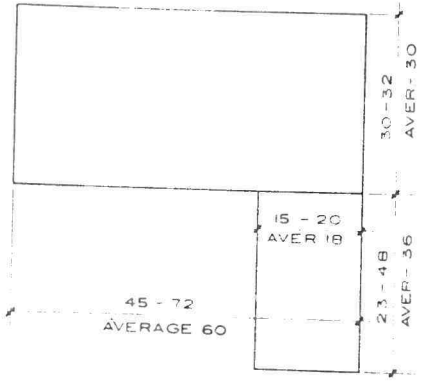


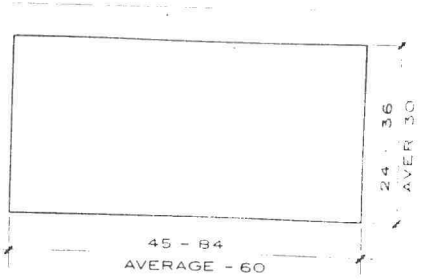
DESK:
W 60
D 30
RETURN:
W 42
D 18
SECRETARIAL DESK
CORRY JAMESTOWN CORPORATION

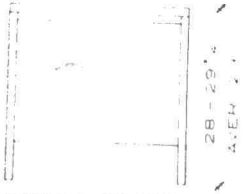
CONFERENCE TABLES

ARCHITECTURAL GRAPHIC STANDARDS p. 465.

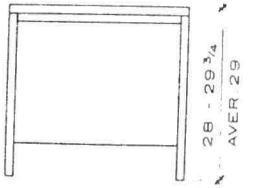




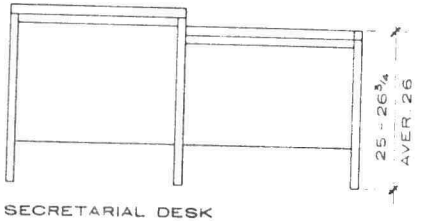




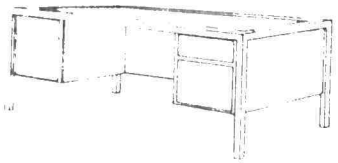
DOUBLE PEDESTAL DESK



SINGLE PEDESTAL DESK

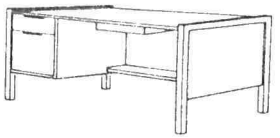


SECRETARIAL DESK



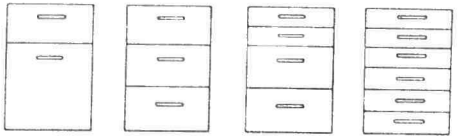
W
D
H

TRANSITION LINE DESK
STOW DAVIS FURNITURE CO.



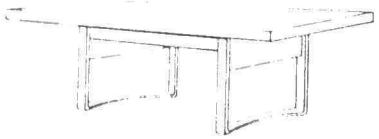
W 49½
D 28
H 28⅝

SINGLE PEDESTAL DESK
JENS RISON DESIGNS



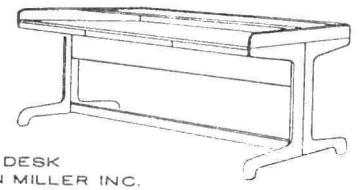
A. 1 BOX DRAWER, 1 FILE DRAWER
B. 3 BOX DRAWERS
C. 2 TRAY DRAWERS, 2 BOX DRAWERS
D. 6 TRAY DRAWERS

VARIOUS DESK PEDESTALS



W
D
H

TASK TABLE DESK
UG FURNITURE CO. INC

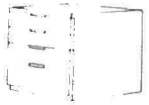


W 65 7/16
D 32
H 32½

ACTION DESK
HERMAN MILLER INC.

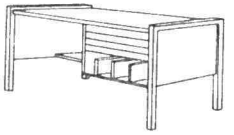
DESKS

ARCHITECTURAL GRAPHIC STANDARDS p. 473.



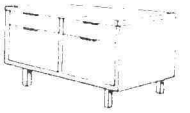
W 15
D 20½
H 25½

AALTO STORAGE UNIT
GF, INC.



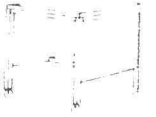
W 42
D 21
H 25⅝

TYPING TABLE
JENS RISOM DESIGN



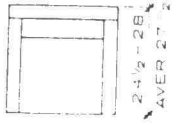
W 39
D 18
H 26

CABINET
HARVEY PROBBER, INC.

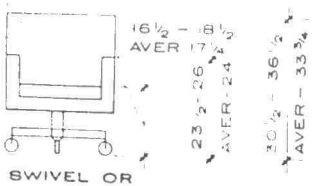


W 23
D 19
H 26⅝

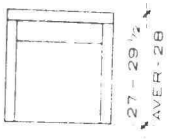
TYPING TABLE
STEELCASE, INC



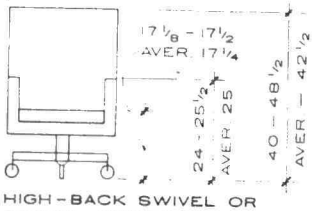
23¾ - 28
AVER - 26¼



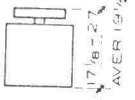
SWIVEL OR
SWIVEL POSTURE CHAIR

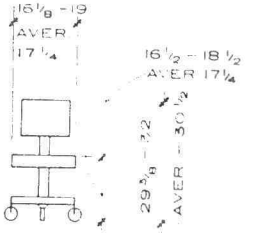


24 - 29
AVER 27¼

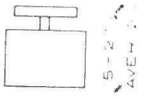


HIGH-BACK SWIVEL OR
SWIVEL POSTURE CHAIR

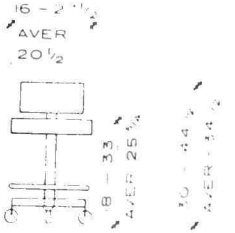




SECRETARIAL POSTURE
CHAIR



16 - 2
AVER
20½



OPERATOR'S STOOL OR
DRAFTING STOOL

W 27¼
D 27¾
H 36½ - 38½

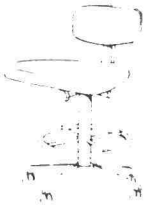
SWIVEL ARM CHAIR
KNOLL ASSOCIATES, INC.

W 24
D 29½
H 48½ (ADJ)

HIGH BACK SWIVEL
STOW DAVIS FURN. CO.

W 17¼
D 27
H 30 - 34½

SECRETARIAL CHAIR
STEELCASE INC.

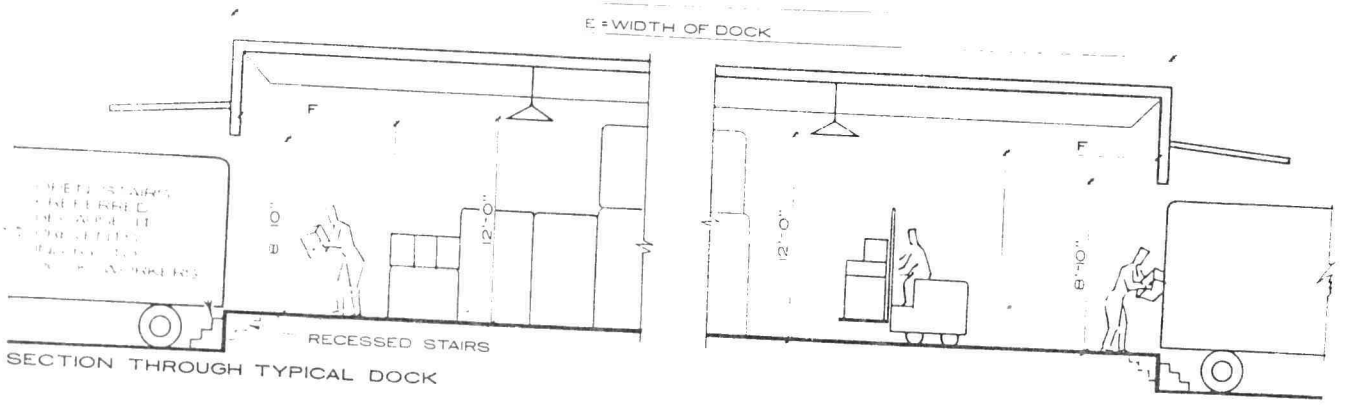


W 18
D 20
H 35 - 42

SWIVEL-BASE STOOL
KNOLL ASSOCIATES, INC.

OFFICE CHAIRS

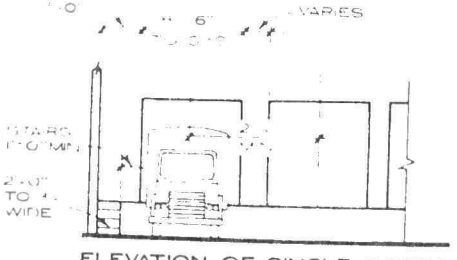
ARCHITECTURAL GRAPHIC STANDARDS p. 474.



SECTION THROUGH TYPICAL DOCK

SIZE OF VEHICLE	PLAT FORM HEIGHT
55'- 0"	4'- 4" ±
30' 0"	4' 0" ±
25' 0"	3'- 8" ±

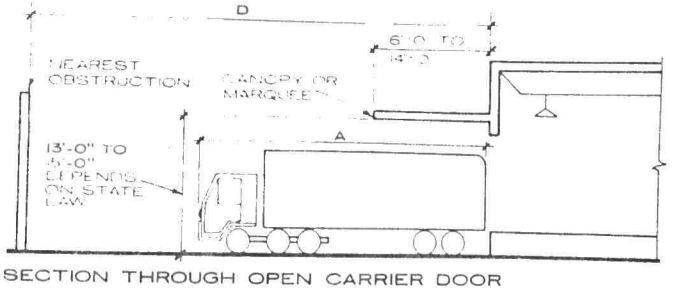
	2 WHEEL HAND TRUCK OPERATION	FORK LIFT TRUCK OPERATION	4 WHEELED HAND TRUCK OPERATION	DRAG LINE OPER	AUTOMATIC SPUR TYPE DRAG LINE
F	6'- 0"	10'- 0"	10'- 0"	10' 0"	10'- 0"
E	50'- 0"	60'- 0"	70' 0"	80'- 0"	120'- 0" 140'- 0"



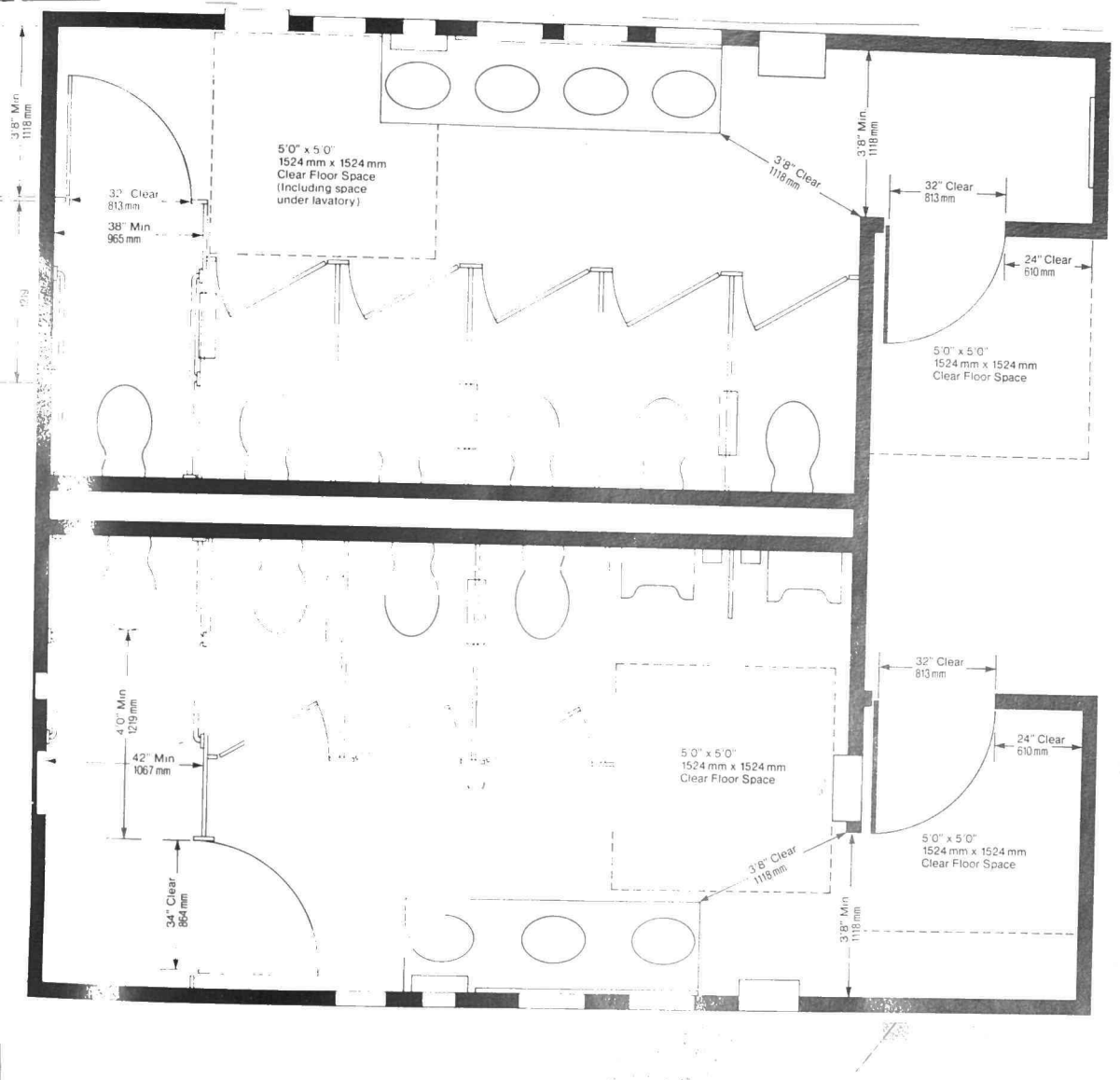
ELEVATION OF SINGLE DOORS

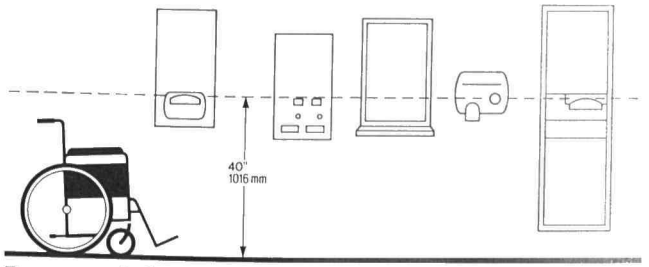
A	D
55'- 0"	110' 0"
30'- 0"	60'- 0"
25'- 0"	50'- 0"

TRUCK DOCKS

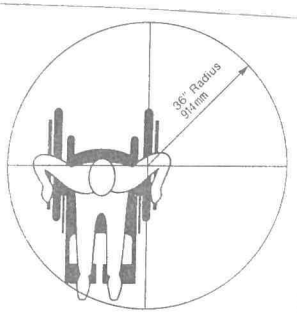


SECTION THROUGH OPEN CARRIER DOOR





Recommended Mounting Height



Wheelchair Turning

HANDICAP DIMENSIONS FOR PUBLIC RESTROOMS

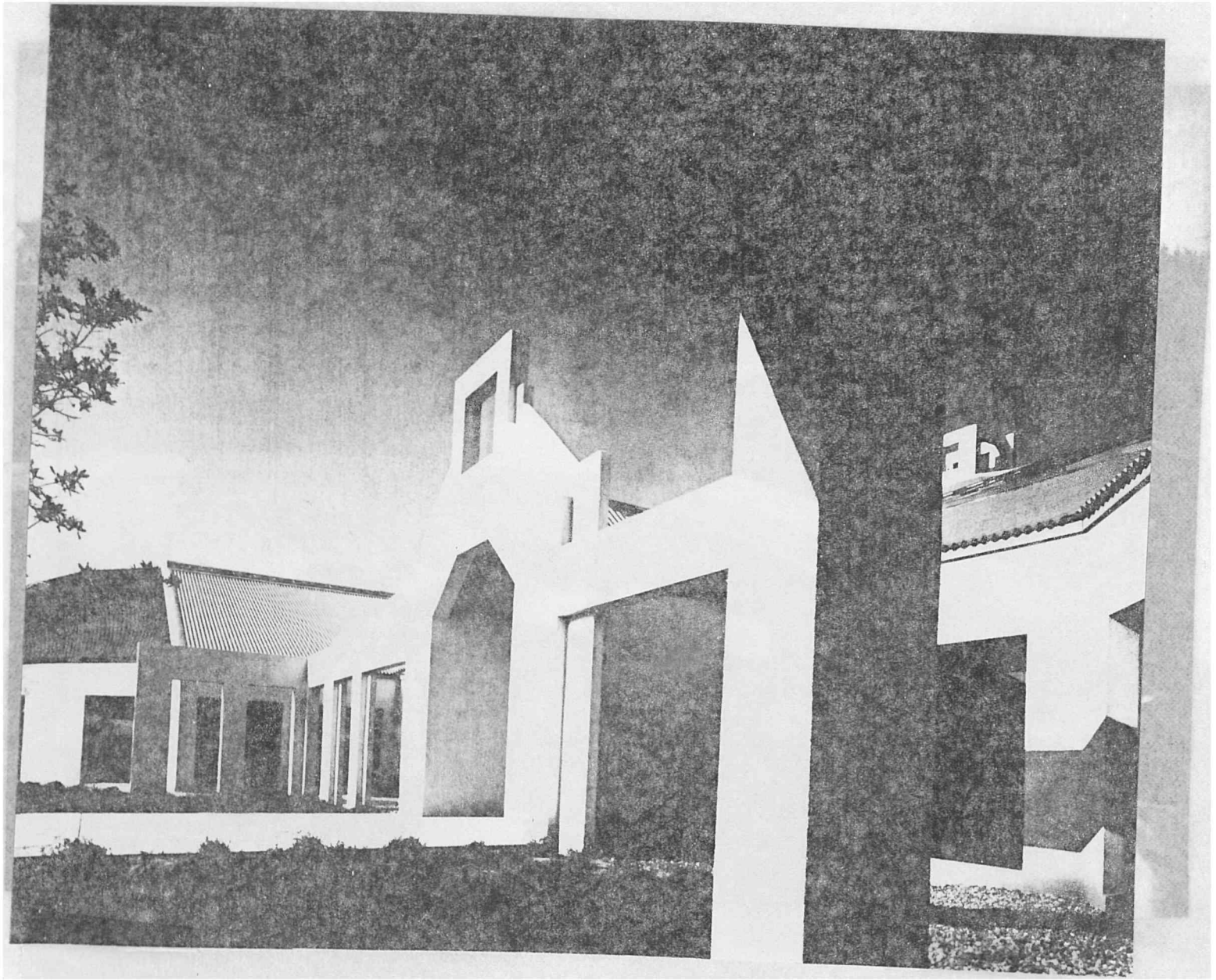
In multiple stall restrooms, be sure all passageways are 3'8" wide minimum. There is a 5'0" x 5'0" wheelchair turn around space. The working parts of at least one of each type of dispenser, receptacle and vendor are no more than 40" above the floor. Waste receptacles are recessed into the wall, out of everyone's way.

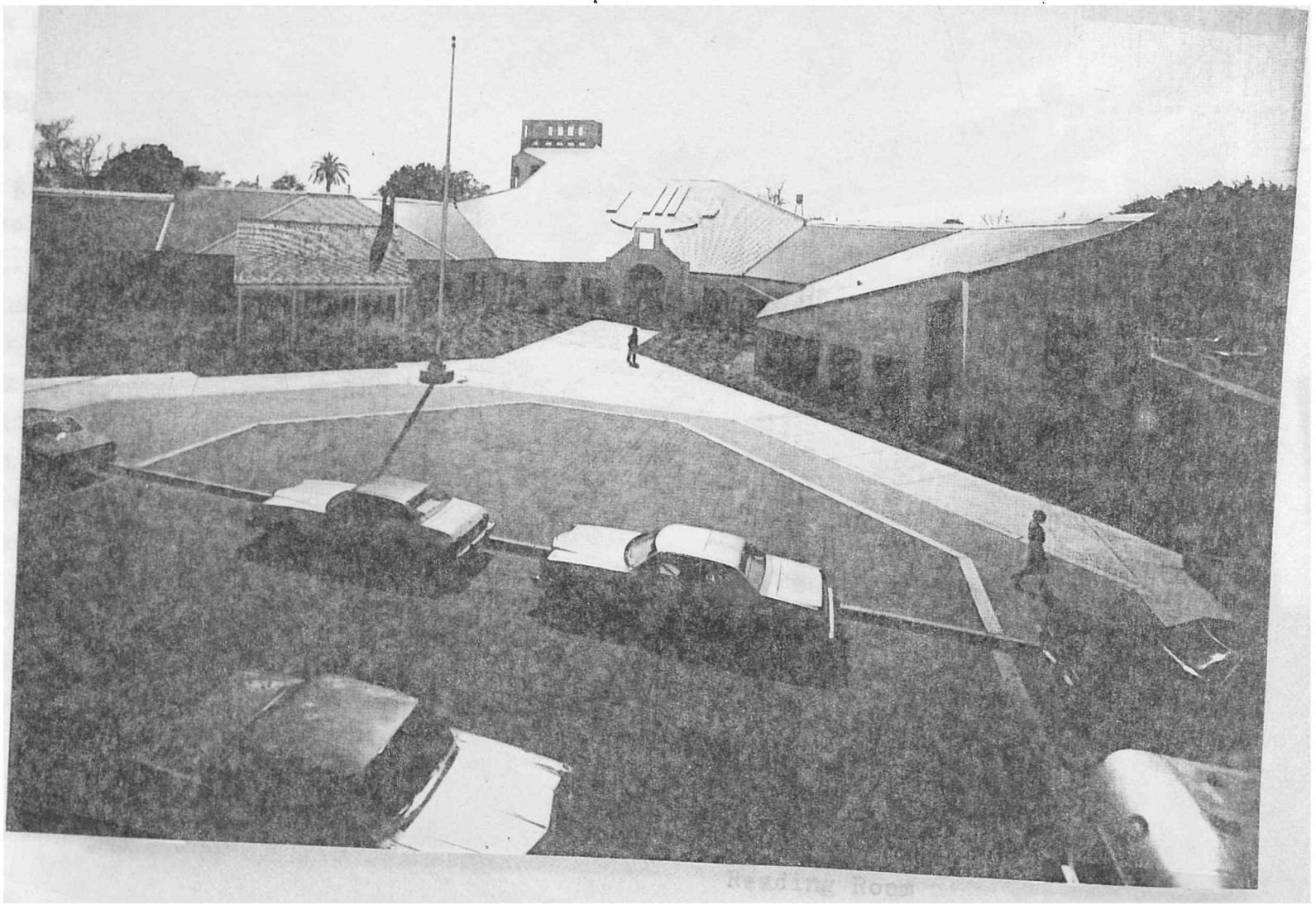
Usually the end toilet compartment is designed to accommodate the handicapped. The door is outswinging and hinged on the wall side to avoid interference with other compartments.

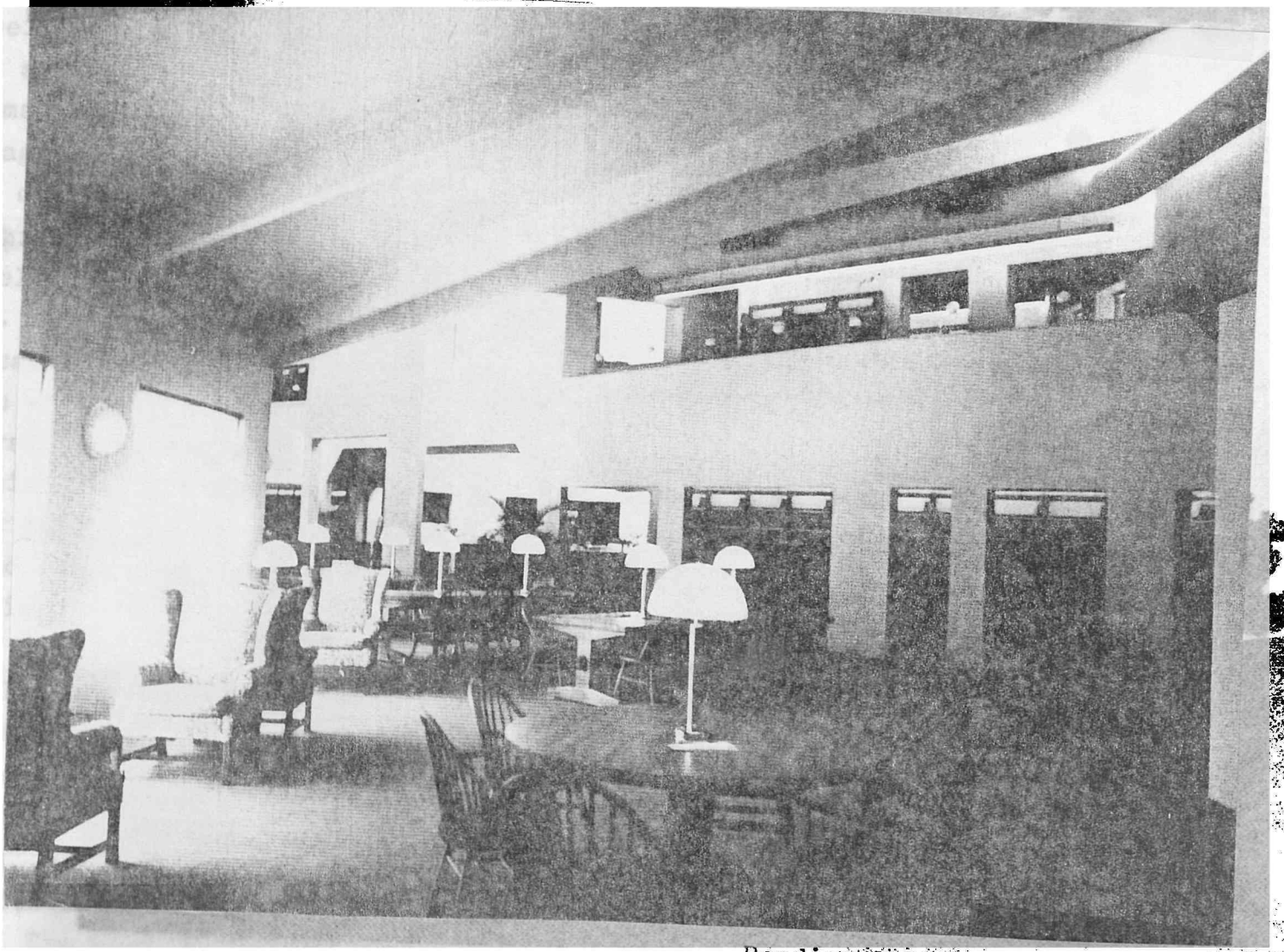
Toilet compartments for the handicapped should be at least 38" wide for front entry and 42" wide for side entry compartments and have 4'-0" of clear space in front of the toilet to allow the wheelchair to enter and the door to close.

INFORMATION FROM BOBRICK RESTROOM EQUIPMENT

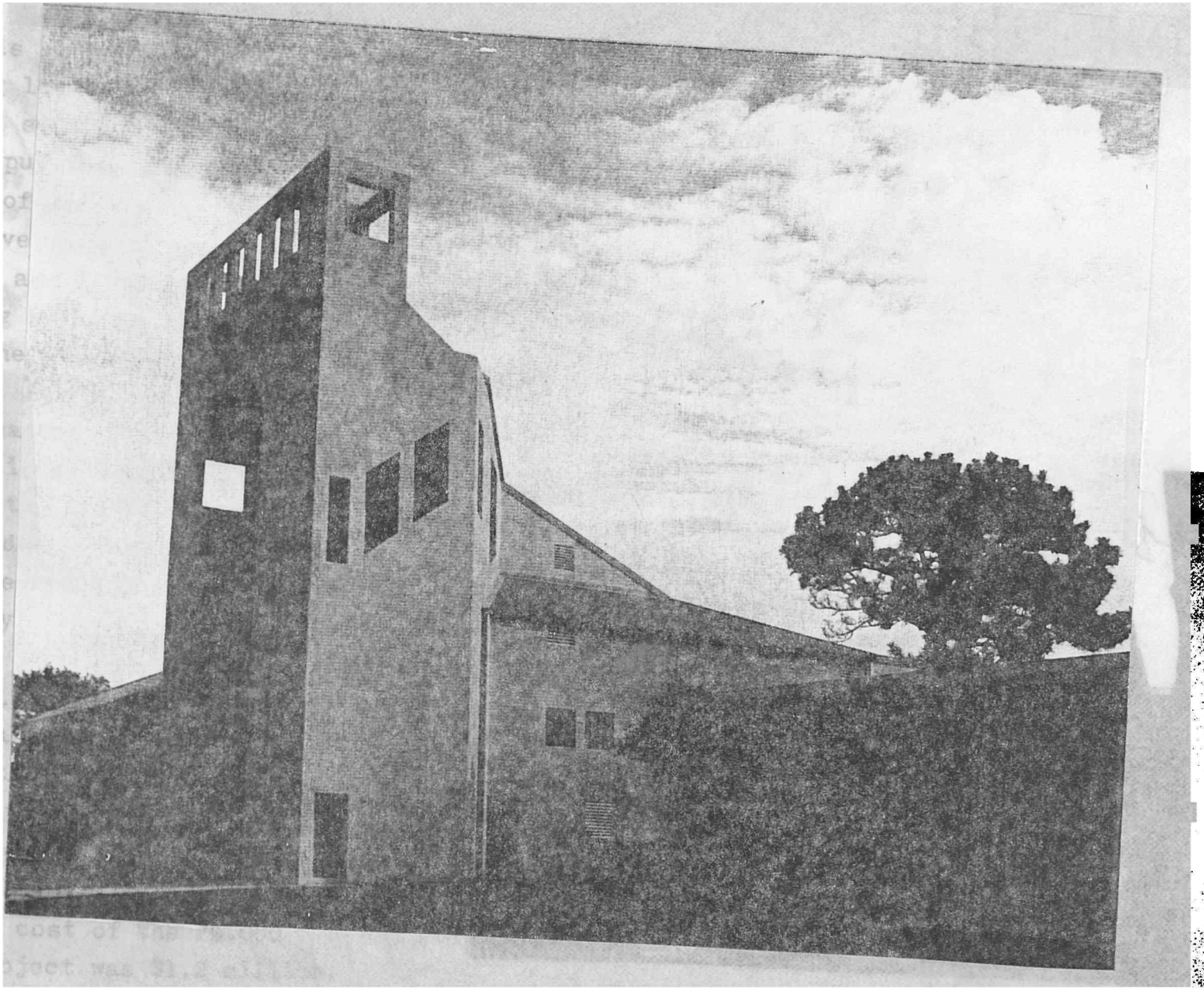
CASE STUDIES





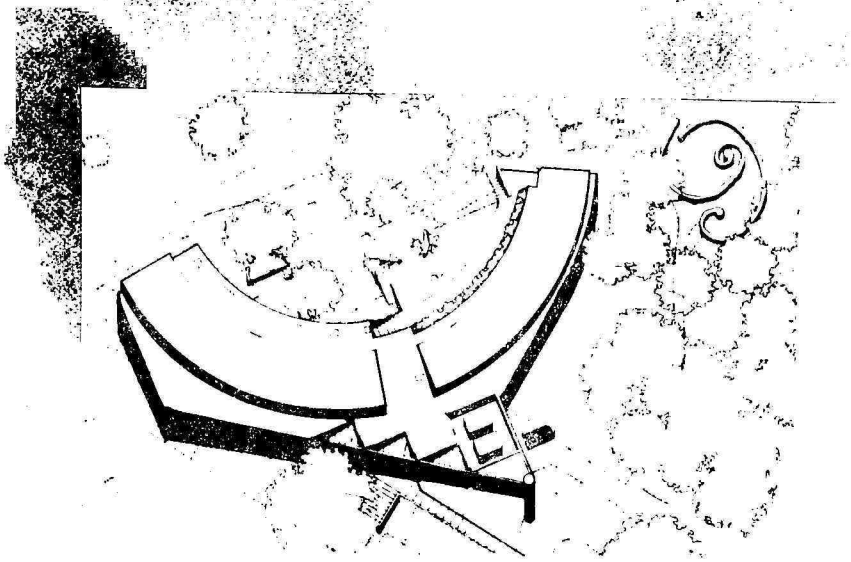


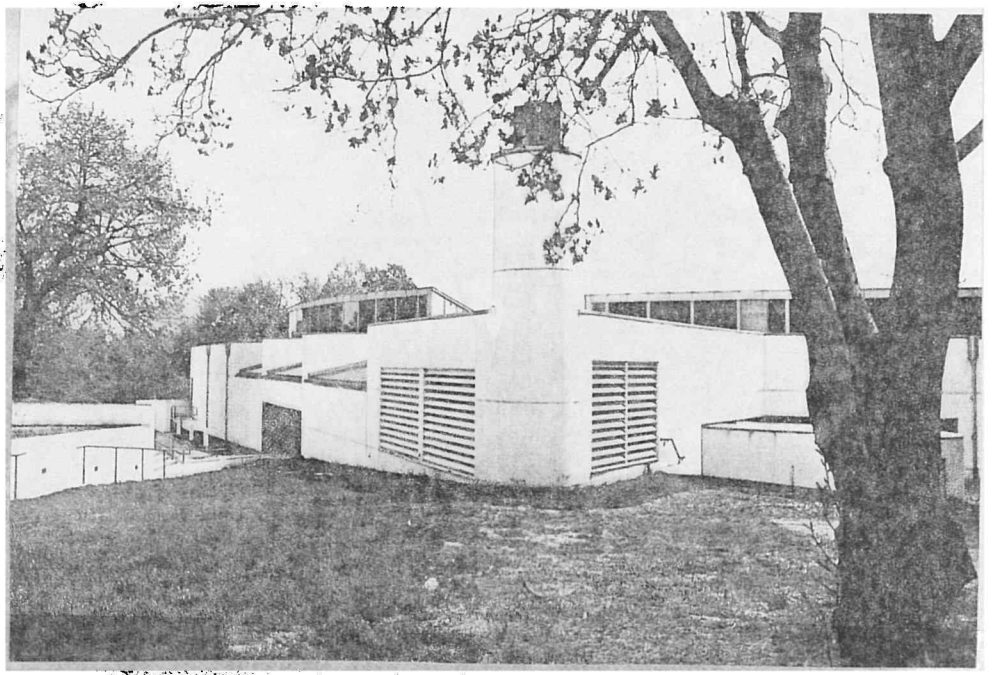
Reading Room



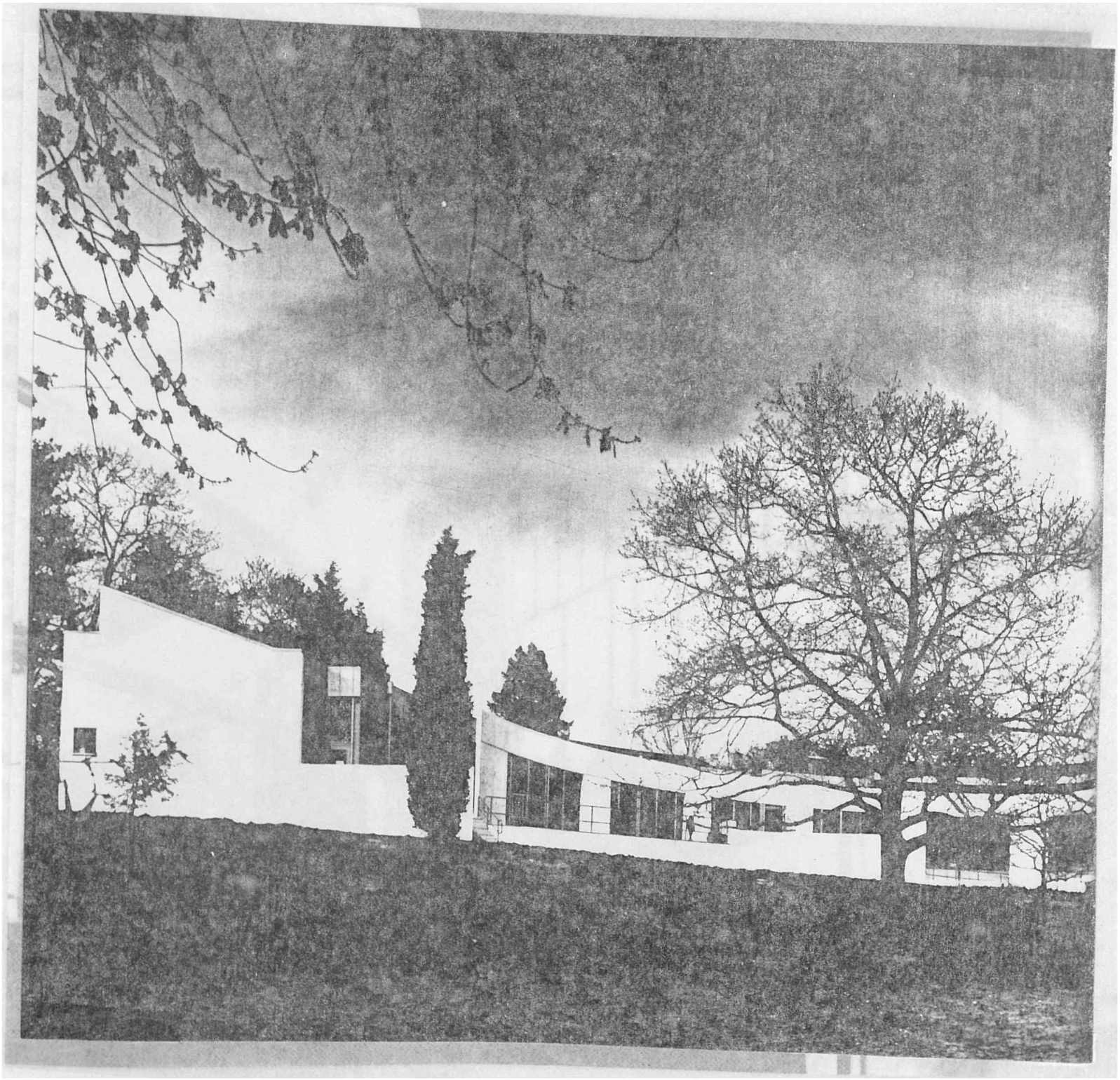
Public Library-
Strafford, Pennsylvania

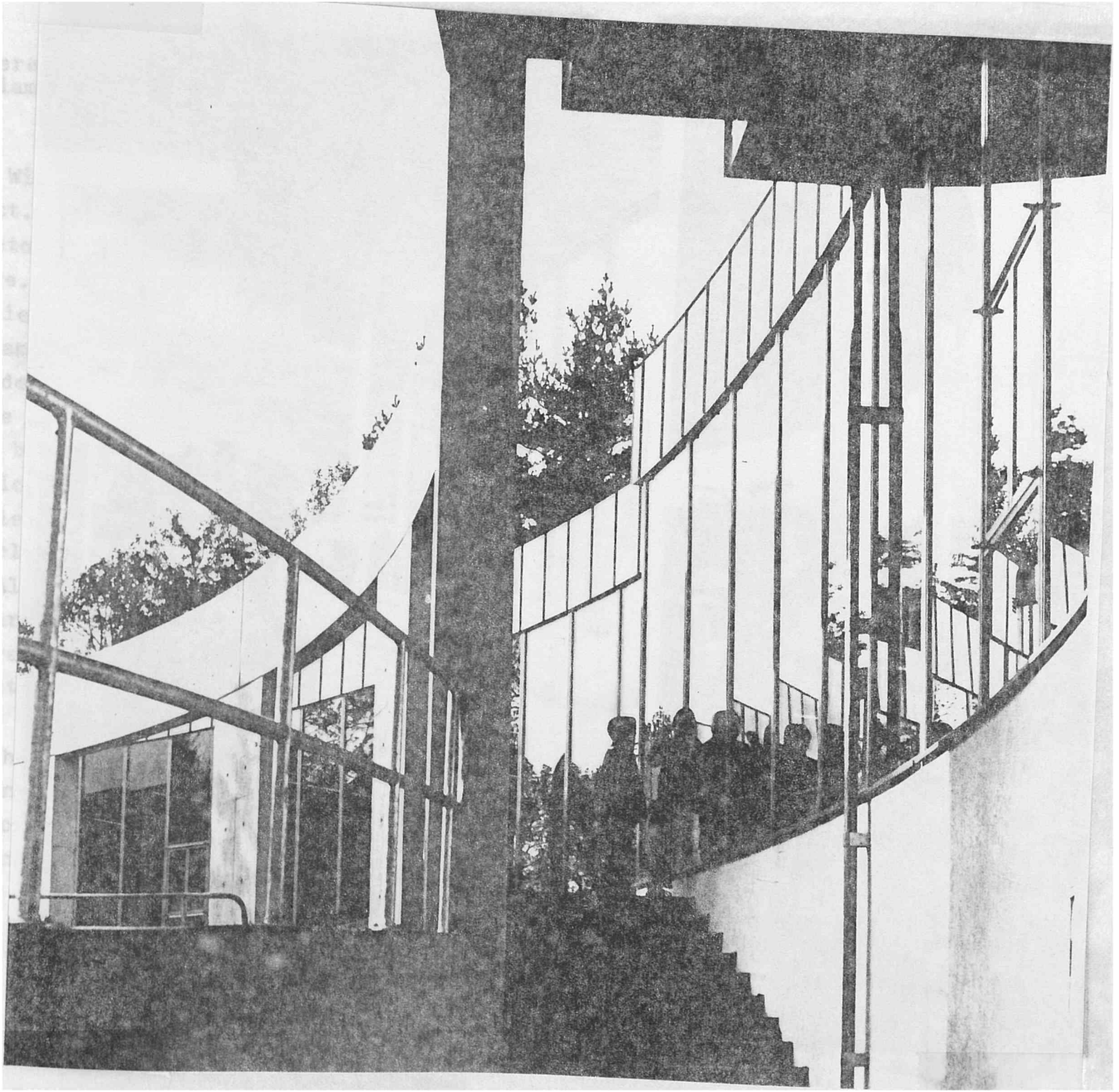
This library has the advantage of being located at the end of a park and so the form of the building was manipulated to take full advantage of the views. The reading room curves around the side facing the park and gives the readers inside a feeling of being outside in the park. The atmosphere is very pleasant, due to the color scheme which enhances the exterior views. Natural light floods the interior, reducing the amount of artificial light needed. The book stacks are behind the reading room and promote efficiency.

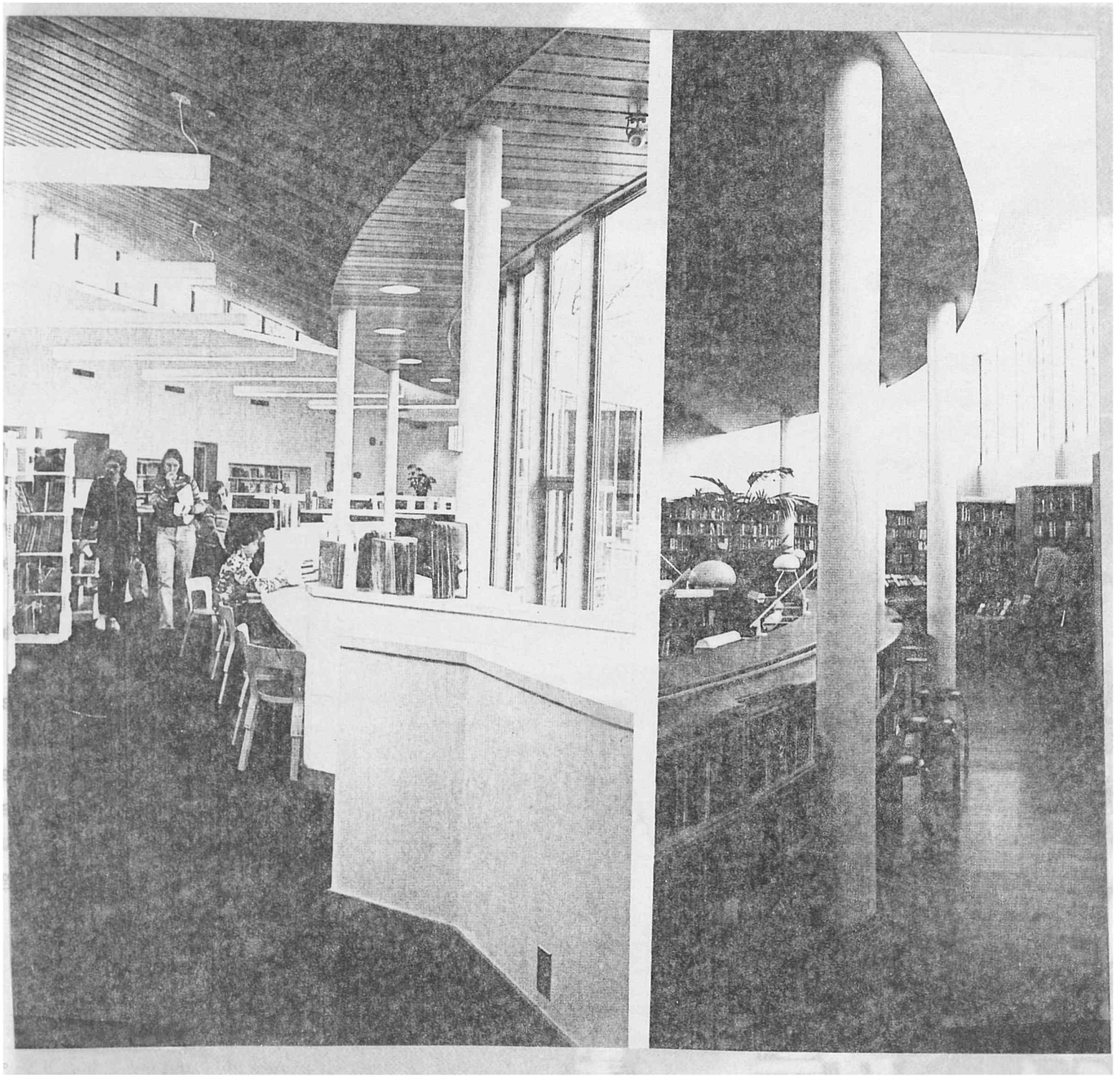




The library, which is near residential housing, blends well although the architecture is different. The structure is concrete covered with stucco. The roof is cedar shingles for a more residential look. The cost of the 20,000 sq. ft. project was $1.2 million.







University of Minnesota-
William.on Hall

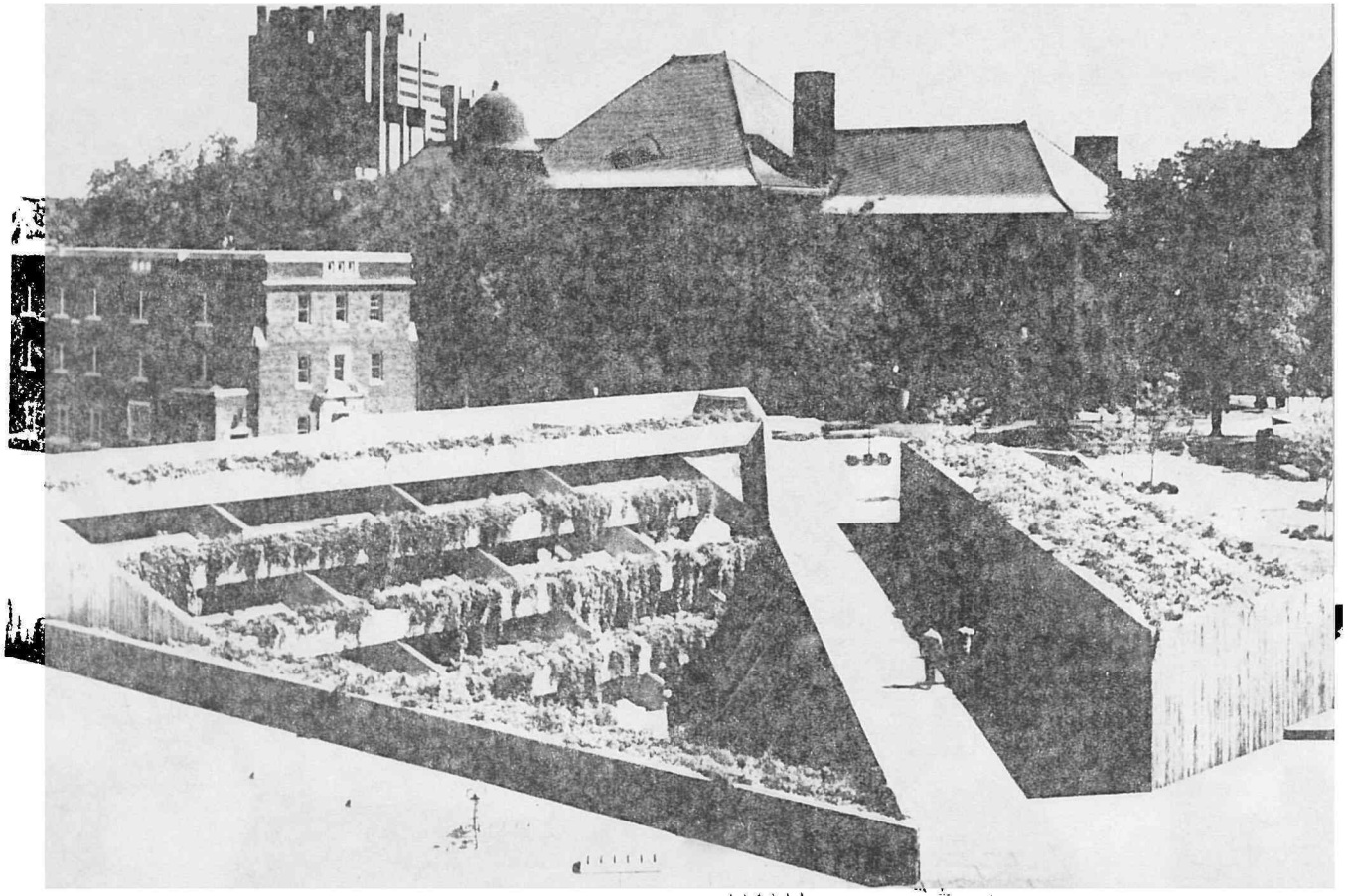
Williamson Hall, designed by David Benett, demonstrates how an underground bookstore can have a pleasant atmosphere, as well as being energy efficient. The campus, which is cramped for space, dictated an underground structure. Most people thought an underground building would be like a cave, but the design solution called for a terrace effect. Each level steps down and contains many clerestory windows. As a result, natural light floods the interior-some areas have too much sunlight. Workers and students inside can view the outside, which aids in orientation.

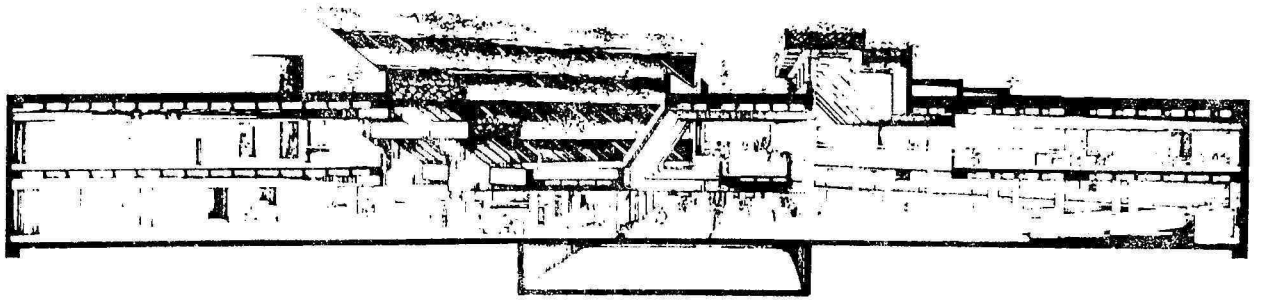
The building was designed to save energy, and by nestling it into the ground, this protects the building from above ground heat and cold.

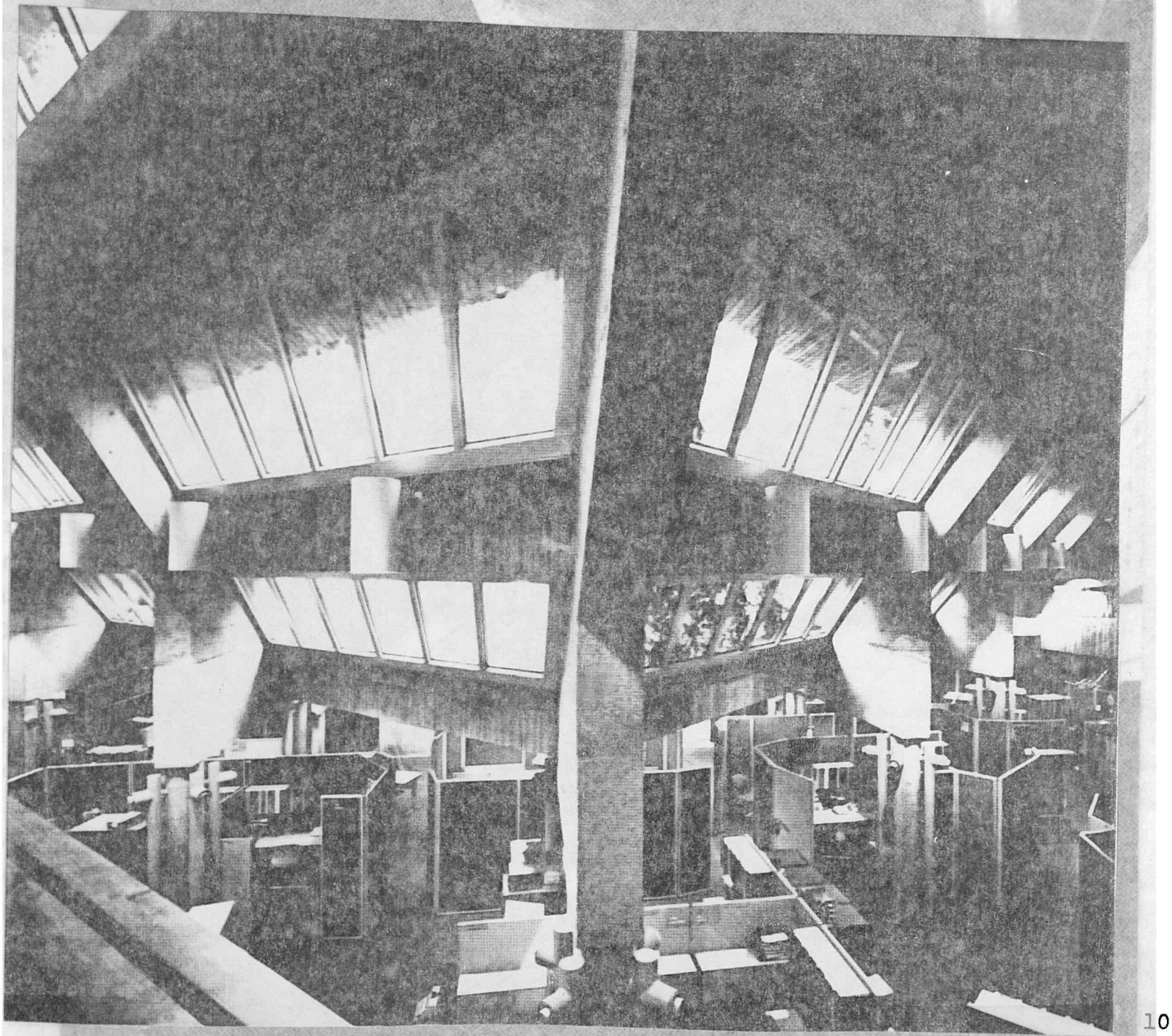
Ivy planted above each 45° clerestory window, blocks summer rays to reduce heat gain while letting winter light penetrate.

The interior spaces are bright and friendly with exposed concrete walls and light wood accents. Warm colors are used throughout.

DICTIONARY
DICTIONARY
DICTIONARY





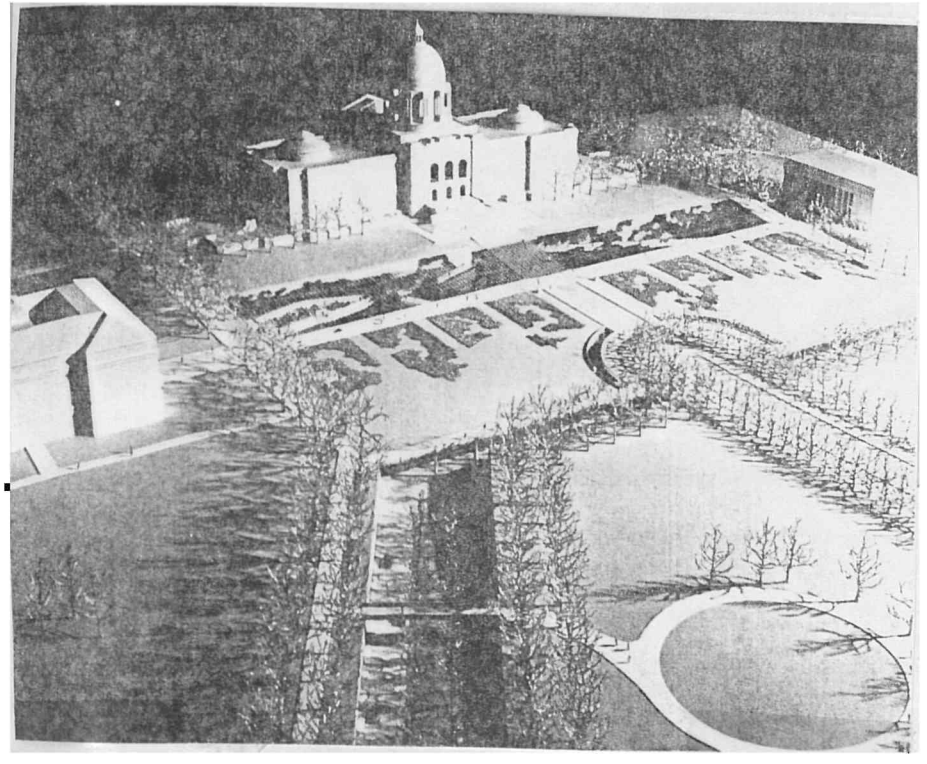


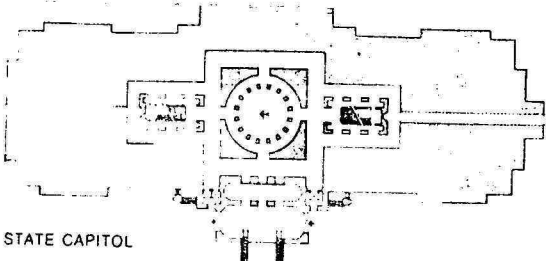
Central Files

Addition to Minnesota's Government and History Center

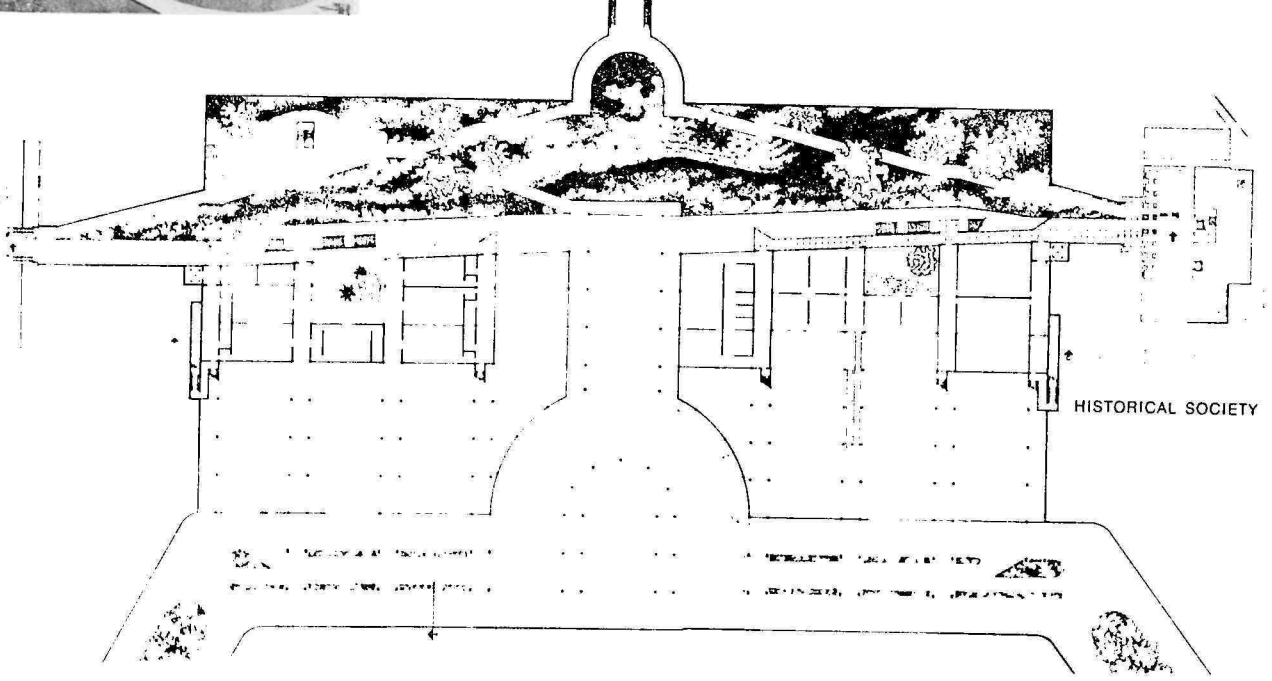
The extraordinary thing about this building is that the entire expansion project is underground, all 400,000 sq. ft. The project problem forced the entire structure underground to protect the visual vistas around the government center, while providing a great view from the new structure. The Mall created above the building, promotes pedestrian traffic while eliminating vehicular traffic and parking. The design of the pedestrian park above and to the building below, is classical in nature to enhance the surrounding buildings. The relationship between the State Capitol, the State Office Building, and the Historical Society Building, is interesting because it demonstrates how an underground building can connect existing facilities together, in an interesting, visual way.

The structure saves energy by sinking it into the earth, where the temperature stays at a constant 50^{o}-55^{o}, protecting it from harsh cold temperatures. This method seems to work most anywhere. The underground park/pedestrian path serves two purposes. First, it gives light and visual relief to the underground environment. Secondly, it directs pedestrians between buildings in a solar heated park space. The structure is Precast and cast-in-place reinforced concrete frame. The garden area is covered by a glass covered space-frame.





STATE CAPITOL



STATE OFFICE BUILDING

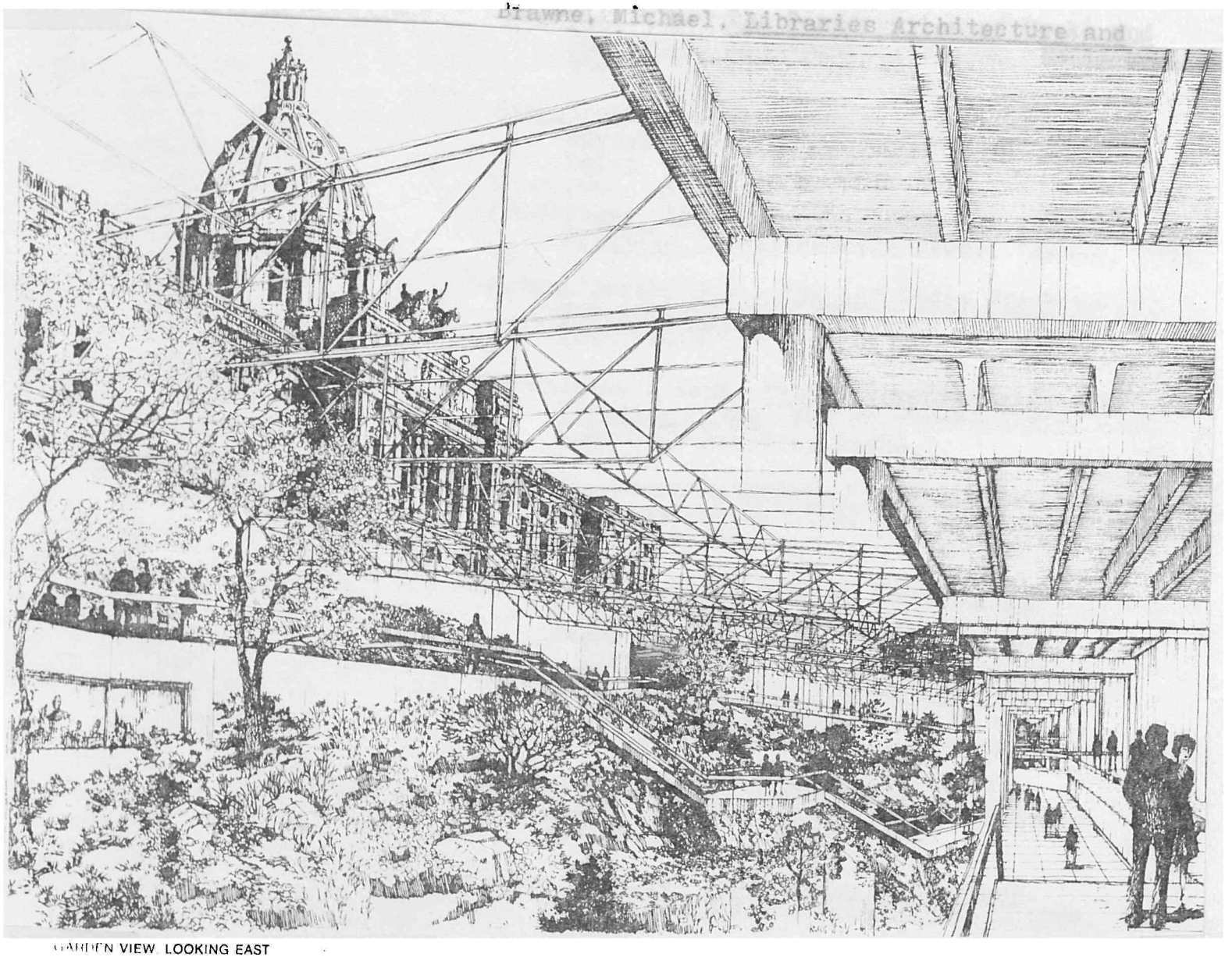
HISTORICAL SOCIETY

MEZZANINE LEVEL

N ↑

0 32'

Browne, Michael, Libraries Architecture and



GARDEN VIEW, LOOKING EAST

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THE SOUTHWEST BUILDING COLLECTION

Stephen Ralston

Thesis Documentation

Summer 1981

Many considerations make up design concepts concerning the development of the proposed Southwest Collection Building. The site analysis suggested several possibilities about concepts. These include; 1) orienting the Reading Room and Administrative offices toward the superior vistas of the Ranching Heritage Center's outdoor display area, 2) integrating the collection to the site in reference to scale to the surrounding structures, 3) creating a physical/visual bond between the Museum and Ranching Center, 4) improving landscaping to improve on site vistas. Natural forces which affect the proposed structure also provided some conceptual ideas.

Examing the proposed building it is obvious that the entire structure was sunken three feet and bermed around with the cut. This technique will reduce energy consumption while establishing an unobtrusive image. Also, a scale crisis is avoided by shrinking the architecture visually exposed. Integration to the site was solved by mimicking the surrounding berms of the outdoor display area. Since orientation was so important to the design concepts, the existing parking area was altered to accommodate the 42,000 square foot building. The analysis of space needs and functions required that the large storage space be adjacent to the reading room and processing area. The storage was placed on the East side of the site to enable expansion possibilities if they become necessary. Placing the administrative spaces on a second level established a definite separation of functions while providing spectacular over views of the outdoor display area. Another important benefit was to have a central architectural statement exposed to promote building identity and to define the entry area. Spanish tile coveres the sunken entry court-

yard chosen for its warm color and for its conotation of a southwestern theme.

An outdoor garden surrounded by the lobby, check-out desk, and storage area expresses a space transition while first entering the building. This garden provides views from the check-out desk to psychologically bring the outdoors in. This open, outdoor theme is carried through to the reading area by an unbroken expanse of glass across the south and southwest side. Glassed areas are shaded by a low overhang of the roof facia. Crowning the lobby area is a zinc roof. The color and shape develop a certain character statement about the collections unique function. The roof provides a flamboyant symbol to the largely understated building design.

To better connect the collection into the larger complex, (Ranching Heritage Center and Museum) the structure was placed back on the site to enable drop-off points in line to the existing Ranching Heritage Centers drop-off and walkway system.

The structure consists of loadbearing reinforced concrete block walls and a steel joist roof system. The zinc roof is supported by steel trusses. Dark brown pre-cast concrete facia panels top off the berm theme. Exposed walls are covered by tan concrete panels. Glassed areas are dark brown to reduce energy losses and gains.