Triple Occupancy 190 S.F.

9'-6"  Source Number Eleven
SPECIAL SUPPORT SPACES FOR STUDENT UNITS

The uniform plumbing code dictates that for every 50 square feet of sleeping space (excluding corridors, restrooms, etc.) will equal 1 occupant. Detailed facilities are as follows:

MALES
Water Closets: 1 for every 10 calculated occupants
Urinals: 1 for every 25 calculated occupants
Lavatories: 1 for every 12 calculated occupants
Bathtubs/Showers: 1 for every 8 calculated occupants
Drinking Fountains: 1 for every 100 calculated occupants

FEMALES
Water Closets: 1 for every 8 calculated occupants
Lavatories: 1 for every 12 calculated occupants
Bathtubs/Showers: 1 for every 8 calculated occupants
Drinking Fountains: 1 for every 100 calculated occupants

Laundry Rooms
Laundry rooms shall be located within the student housing area, it can assume the configuration of a central laundry facility or a decentralized facility. Detailed facilities are as follows:

MALES
Washers: 1 per 100 occupants
Dryers: 1 per 100 occupants
Sinks: 1 per laundry facility
Ironing Stations: 1 per laundry facility

FEMALES
Washers: 1 per 100 occupants
Dryers: 1 per 100 occupants
Sinks: 1 per laundry facility
Ironing Stations: 2 per laundry facility
Drip Dry Area: 1 per every laundry facility
Source Number Twelve

**Student Housing Information Desk**

To provide necessary daily functions such as mail delivery and supply information to visitors and residents. Detailed facilities are as follows:

- One information station with counter
- Mailboxes: 1 per every 2 residents
- Typing Station: One
- Storage: For various sports equipment for exterior use, magazines, and administrative supplies.

**Student Housing Directors Apartment**

An apartment shall be provided for the directors of both the men and women who live in student housing. It is possible that these persons will be married, thus the facilities of the apartment should reflect this possibility. Detailed facilities are as follows:

- Living room
- Bedroom with storage
- Bathroom with water closet, shower and tube, lavatory and storage
- Efficiency kitchen with cabinets, range and oven, sink and refrigerator.
- Director and spouse will dine in the student housing dining area with the student residents
- Small dining area: Could be incorporated into either kitchen or living room areas

**Student Housing Director's Office**

Each director will have an office adjacent to his or her apartment.

Furnishings are as follows:

- Desk
- Desk Chair
Two conference chairs
Two filing cabinets
Shelves
Work Surface

Conference Room
The student housing area will be provided with two conference rooms, for use
by the residents. Furnishings are as follows:
One conference table 30" x 80" or 9' diameter
Ten conference chairs
One chalk board

Source Number Eleven
SPACE REQUIREMENTS - COMMONS FACILITY

Television Lounge
For use by residents as well as commuters seeking entertainment between classes. Furnishings are as follows:

- Fifty swivel chairs, mounted to floor
- One television - large screen format

Changes in floor elevation to enhance viewing is desired.

Source Number Two

Commons Area Toilet Facilities - For Commuter Use
To avoid use of dormitory toilet facilities by non-residents, toilets are needed in close proximity to the living center. Furnishings are as follows:

- MALES
  Three water closets
  Three urinals
  Two lavatories

- FEMALES
  Four water closets
  Three lavatories

Source Number Twelve

Quiet Study Area
For use by residents of student housing and commuters. It should be in close proximity to the housing units, primarily due to the fact that this will serve as the housing units major in-house study center. Furnishings are as follows:

- Ten 4' x 4' study tables
- Forty chairs
- Twenty lounge chairs with ottomans

Source Number Two
**Commons Center**
This space should act as a central hub of all living center activities, and should accommodate activities ranging from individual conversation to group presentations and entertainment. An asset of the space is the possibility that it could be incorporated into the major circulation spaces between the restaurant, bookstore, etc.

**Multi-Function Room**
To be utilized to present films, lectures, workshops, etc. Thus the space should be very flexible to accommodate this variety of activities and the various sizes of groups. Film and lecture seating capacities should be approximately 175 persons. Also storage should be provided for chairs and tables. Furnishings are as follows:

- Individual seating for 175
- Fifteen conference tables
- Projection booth with movie and slide capabilities
- 10' x 10' projection screen, remote from ceiling

**Branch Bank**
A minimal facility used primarily for check cashing and opening accounts. The bank will be staffed by one teller and one manager. Furnishings are as follows:

- **Lobby**
  - One transaction preparation counter
  - Two lounge chairs
  - One side table
- **Transaction Area**
  - One teller window
  - Service counter
  - One teller stool
- File storage with counter above closet for employee personal belongings
Storage for business supplies
Janitorial closet
Electronic security system
Manager's office
One desk
One desk chair
Two conference chairs
One side table
Two file cabinets
One overnight safe 36"W x 36"D x 60"H

The branch bank should reflect the close personal contact it will have with the small university population.
Source Six and Eleven

Bookstore
The location of the present bookstore is in an administratively oriented area of the campus. It is proposed to incorporate a bookstore into the commons and remodel the present space into administrative offices. The bookstore is composed of four major spaces: shipping and receiving, storage, sales, and office. Each space is detailed as follows:

Shipping and Receiving
This area will process all shipments arriving and leaving the
bookstore. The loading dock should accommodate deliveries from trucks ranging in size from vans to "semis".

- **Storage**
  This storage is primarily for books and supplies. A general rule is that storage is to be two times the square footage of the sales area.

- **Sales**
  Sales consist of primarily text books and supplies with university novelties making up the remainder of the sales merchandise. The present bookstore has 2,400 square feet, bookstore personnel expressed a desire for additional space, particularly in the text book display area. Furnishings are as follows:
  - Shelves and display units
  - Two check out lines with counter and storage
  - Book deposit area for customers

- **Bookstore Office**
  This office is for the bookstore manager, whose primary function is ordering and receiving materials as well as daily bookkeeping. Furnishings are as follows:
  - One desk
  - One desk chair
  - One work table
  - Two lounge chairs
  - Three file cabinets

Sources Number Six and Eleven
Post Office

This space will act as a central shipping and receiving facility for all mail at the campus. Also it would supply students and faculty with postal supplies, i.e. stamps, parcel service, etc. The post office can be divided into three basic areas: customer service area, mail sorting area and shipping and receiving. Detailed facilities are as follows:

- **Customer Service Area**
  
  Used to carry out transactions ranging from buying stamps to mailing parcels. Furnishings are as follows:
  
  Service counter with one teller window
  
  One teller stool

- **Mail Sorting Area**
  
  Is used to sort mail to specific departments and student housing units. Most university mail is of inter-campus mail from the other Indiana University Campuses. Detailed furnishings are as follows:
  
  Mail sorting slots
  
  Large work counter adjacent to sorting slots
  
  Also circulation spaces should accommodate 30" wide by 48" long mail carts

- **Shipping and receiving**
  
  Used to unload mail from U.S. Mail delivery trucks and United Parcel Service delivery trucks. Drive up area and unloading dock should be sized for delivery trucks, as most of the campus deliveries are made in smaller trucks rather than semis. Detailed furnishings are as follows:
  
  One 8' overhead door
  
  One 12' wide loading area
  
  Two mail bag storage areas, one for incoming mail and the other for outgoing. Each to accommodate 6 mail bags.

Sources Six and Eleven
Barber Shop

This facility has no precedent on the I.U.S. campus thus no exact analysis can be made, other than to rely on other campuses and their experiences. The facility will serve the faculty and the student population. A campus of I.U.S.'s size can be served by one barber from the outset, but provisions for a second work station should be included. Grooming activities such as those which take place in barber shops and the like, are very personal items. Patronage of the common's barber shop will increase with time as its reputation grows and as students and their present barber attachments diminish. This facility can be divided into three areas: customer waiting area, work stations, and service and storage areas. Detailed facilities are as follows:

Customer Waiting Area

Used to occupy customers while waiting for service. This space should be a casual, relaxed area. Detailed furnishings are as follows:

- Six lounge chairs
- Product display area
- Cash register area

Work Stations

Used to perform activities such as haircuts and shampoos. Furnishings are as follows for each of the work stations:

- One barber chair
Mirror area
Counter area
Enclosed shelf storage

**Service and Storage**
Used to store surplus products and supplies, also to store janitorial needs. Furnishings are as follows:
- Janitorial closet
- Mop sink
- Shelf storage space

**Restaurant**
This facility will be used primarily to accommodate formal luncheons and banquets as well as daily breakfast, lunch, and dinner. The facility should have the capability of accommodating up to 450 persons for a luncheon or banquet, while accommodating 125 for daily lunch or dinner service. To accommodate the 450 persons, a possibility of combining the dining area with the multi-function space exists. To accommodate student housing residents in the dining area, the multi-function space will be divided and part of it will be used for student housing resident dining. The restaurant can be divided into five basic elements: entry, serving, dining, kitchen, and storage. Details are as follows:

**Entry**
Should serve as transition from total community circulation to more private function. Furnishings are as follows:
- Coat storage
- Book storage

**Serving For Lunch and Dinner Service - Cafeteria**
To accommodate activities ranging from picking up trays and silverware to paying cashier. Furnishings are as follows:
Tray and silverware storage
Steamtables
Hot plates
Warming Light stands
Ice Plates
Display shelves
Beverage dispensers
Ice storage
Cashier station

**Serving For Formal Luncheons and Banquets**

Serving during formal activities will be more conventional serving by use of waitresses and waiters. Furnishings for this type of serving is as follows:

- One cashier station
- Beverage dispensers
- Waitress station with supply storage
- Dining For Lunch and Dinner Service

Students tend to dine in small groups thus the seating pattern should reflect this tendency. Furnishings are as follows:

- Thirty-two 4 person tables
- 135 stackable chairs
- Chair and table storage

The use of fixed dining booths should be avoided as they decrease the flexibility of the space.

**Dining For Formal Luncheons and Banquets**

This type activity can accommodate larger seating arrangements, for instance table accommodating 8 to 10 persons. Furnishings are as follows:
Fifty-seven 8 person tables or forty-five 10 person tables
460 stackable chairs
Speakers podium
Public address system

Kitchen
Will be flexible to accommodate cafeteria style lunches as well as formal banquets. Furnishings and equipment are as follows:
Three 6'-10" x 2'-0" work tables
One mixing machine
One slicer
Two baking ovens
Two steamers
One stock kettle
Two double compartment preparation sink
Two deep fryers with exhaust hoods
One ice maker
One 8 S.F. griddle
One 6 burner range
Dish Washing Area
One soiled dish table with cone, spray and disposal
One 30" dishwasher
Clean dish counter
Clean dish storage

Storage
Storage takes three forms: dry, refrigerated and frozen. Equipment is as follows:

Dry Storage
Shelves 19" deep
Bins for unpacked produce
- Refrigerated storage
  One 300 cubic foot walk-in refrigerator
- Frozen storage
  One 400 cubic foot walk-in freezer

Sources Number Six and Eleven
EXTERIOR FACILITIES

Sundecks shall be provided to accommodate both large and small groups. They will be used for many individual interaction as well as large group presentations and gatherings. Large group presentations will involve activities such as movies, meetings, and the like.
STATE BUILDING CODES AND CAMPUS CODES

A number of restrictions have been established for future development on the I.U.S. campus, an attitude toward the planning and design of structures on the campus was established in the pre-campus development study by Johnson, Johnson and Roy, Incorporated. A three story height restriction was adopted for the campus, with the desire to allow the buildings to blend into the rolling hills. Materials were also a point of discussion in the campus adopted master plan, which stated a desire to have building materials and tones which blend into the natural setting. All existing structures on the campus are constructed of standard size red brick with copper roofs.

Another attitude toward the physical environment of the campus arose from the same master plan, concerning the siting of buildings and parking areas. It was adopted that all parking surfaces would be located on the lower elevations of the site, while all buildings would be located on higher elevations, thus maximizing the views of the surrounding country side.

The student population at I.U.S. has a number of physically handicapped persons in its rank. All areas will be accessible to every student on the campus, which demands a number of provisions will have to be made in the design of the building. Rather than give detailed information about all areas of barrier free design, I have selected two excellent sources to be used in gaining this information during the design process. The first being, ACCESS TO THE ENVIRONMENT and ARCHITECTURAL ACCESSIBILITY FOR THE DISABLED OF COLLEGE CAMPUSES, more detailed listings appear in this programs bibliography.

The design and construction of this structure is regulated by the uniform building code which is amended and adopted by the state of Indiana. The following information was compiled from the uniform building code.
This type occupancy is classified a group R. Division 1 occupancy, with not less than a one-hour fire rating. Egress facilities are found in table 33-A of the U.B.C. and are as follows: occupancy is calculated by 50 square feet per occupant then the total occupant load is divided by 50 to give the total width of exit in feet. The maximum distance from any point in the building to an exit shall not exceed 150 feet or 200 feet when the structure has an automatic fire-extinguishing system throughout.

Sources Number One, Three, Nine, Ten
Twelve and Thirteen
SPACE SUMMARY

All square footage figures are approximations of net assignable square footages.

Dormitory Rooms

<table>
<thead>
<tr>
<th>Type</th>
<th>MALE</th>
<th>FEMALE</th>
<th>TOTAL SQUARE FOOTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single occupancy</td>
<td>86 S.F.</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Double occupancy</td>
<td>142 S.F.</td>
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<td>75</td>
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<tr>
<td>Triple occupancy</td>
<td>190 S.F.</td>
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Total Dormitory Square Footage = 27,860 S.F.

Dormitory Restrooms

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<tr>
<th>Type</th>
<th>MALE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Water closets per dormitory</td>
<td>= 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinals per dormitory</td>
<td>= 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lavatories per dormitory</td>
<td>= 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Showers per dormitory</td>
<td>= 35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking fountains per dormitory</td>
<td>= 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Approximation of total male dormitory restroom facilities 1,563 S.F.

<table>
<thead>
<tr>
<th>Type</th>
<th>FEMALE</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Water closets per dormitory</td>
<td>= 35</td>
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<td></td>
</tr>
<tr>
<td>Lavatories per dormitory</td>
<td>= 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Showers per dormitory</td>
<td>= 35</td>
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<td></td>
</tr>
<tr>
<td>Drinking fountains per dormitory</td>
<td>= 3</td>
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<td></td>
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</tbody>
</table>

Approximation of total female dormitory restroom facilities = 1,563 S.F.

Laundry Rooms

<table>
<thead>
<tr>
<th>Type</th>
<th>MALE</th>
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<tbody>
<tr>
<td>Washers per dormitory</td>
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<tr>
<td>Dryers per dormitory</td>
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<td></td>
</tr>
<tr>
<td>Sinks per laundry room</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ironing board per laundry room</td>
<td>= 1</td>
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</table>

Approximations of total male laundry facilities = 150 S.F.

<table>
<thead>
<tr>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>Washers per dormitory</td>
<td>= 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dryers per dormitory</td>
<td>= 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinks per laundry room</td>
<td>= 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility Type</td>
<td>Quantity</td>
<td>Notes</td>
<td>Total S.F.</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------</td>
<td>----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Ironing board per laundry room</td>
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<td></td>
</tr>
<tr>
<td>Drip dry area per laundry room</td>
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<tr>
<td>Approximation of total female laundry facilities</td>
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<td>200 S.F.</td>
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<tr>
<td><strong>Dormitory Desk</strong></td>
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</tr>
<tr>
<td>1 desk per dormitory</td>
<td></td>
<td></td>
<td>(2) at 150 S.F.</td>
</tr>
<tr>
<td><strong>Director's Apartment</strong></td>
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<td></td>
</tr>
<tr>
<td>1 apartment per dormitory</td>
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<td>(2) at 450 S.F.</td>
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<tr>
<td><strong>Director's office</strong></td>
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</tr>
<tr>
<td>1 office per dormitory</td>
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<td>(2) at 90 S.F.</td>
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<tr>
<td><strong>Conference Room</strong></td>
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</tr>
<tr>
<td>1 room per dormitory</td>
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<td>(2) at 140 S.F.</td>
</tr>
<tr>
<td><strong>Television Lounge</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1 only</td>
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<tr>
<td><strong>Commons Area Toilet Facilities</strong></td>
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<td>100 S.F.</td>
</tr>
<tr>
<td>Females: 1 only</td>
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<tr>
<td><strong>Quiet Study Lounge</strong></td>
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<tr>
<td>1 only</td>
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<tr>
<td><strong>Commons Lounge</strong></td>
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</tr>
<tr>
<td>1 only</td>
<td></td>
<td></td>
<td>3,000 S.F.</td>
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<tr>
<td><strong>Multi-Function Room</strong></td>
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</tr>
<tr>
<td>1 only</td>
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<tr>
<td><strong>Branch Bank</strong></td>
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<tr>
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<td><strong>Bookstore</strong></td>
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<td><strong>Post Office</strong></td>
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<tr>
<td>1 only</td>
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</tr>
<tr>
<td><strong>Barber Shop</strong></td>
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</tr>
<tr>
<td>1 only</td>
<td></td>
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<td>450 S.F.</td>
</tr>
</tbody>
</table>
Restaurant
1 only = 7,825 S.F.

Total Net Square Footage = 61,621 S.F.

Gross square footage is calculated as being
Net assignable square footage x (1.25)
(61,621 net S.F.) (1.25) = 77,026 Gross S.F.
The 25% addition accounts for circulation, mechanical, and structural spaces.
COST ESTIMATE ANALYSIS

Building Cost
77,026 Gross S.F. (50 $/S.F.) = $3,851,300

Fixed Equipment
8% of Building Cost = $308,104

Site Development
15% of Building Cost = $577,695

Total Construction = $4,737,099

Professional Fees
7% of Total Construction Cost = $331,596

Contingencies
5% of Total Construction Cost = $236,854

Administrative Costs
1% of Total Construction Cost = $47,370

Total Budget Required = $5,352,919

Source Number Fourteen
### CLIMATE AND RELATED INFORMATION

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<th>Description</th>
<th>Value</th>
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<tbody>
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<td>Average Rainfall</td>
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<tr>
<td>Average Snowfall</td>
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<td>Average Minimum Temperature</td>
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<td>Average Maximum Temperature</td>
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<td>Winter Sun Angle</td>
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<td>Summer Sun Angle</td>
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#### Average Winter Temperature/Month

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<td>March</td>
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<tr>
<td>November</td>
<td>45°</td>
</tr>
<tr>
<td>December</td>
<td>36°</td>
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</table>

#### Average Summer Temperature/Month

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<tbody>
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<tr>
<td>June</td>
<td>73°</td>
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<td>July</td>
<td>77°</td>
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<td>August</td>
<td>76°</td>
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<tr>
<td>September</td>
<td>69°</td>
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<tr>
<td>October</td>
<td>58°</td>
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#### Major Wind Direction/Month

<table>
<thead>
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<th>Month</th>
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<tbody>
<tr>
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<td>June</td>
<td>South</td>
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<tr>
<td>Month</td>
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</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
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<td>November</td>
<td>South</td>
</tr>
<tr>
<td>December</td>
<td>South</td>
</tr>
</tbody>
</table>

Source Number Sixteen
DESIGN GOALS

1. Provide a concentrated area for student living and interaction. Drawing from the entire structured campus community.

2. Provide a facility in which a commuter student and his or her family can interact and spend valuable time together.
3. Services for the facility should be as centralized as possible.

4. The facility should provide an environment in which the commuters as well as the resident population can relax and interact.
RESEARCH SOURCES

Source 1  INDIANA UNIVERSITY SOUTHEAST: A GUIDE FOR FUTURE PHYSICAL DEVELOPMENT, Johnson, Johnson and Roy, Inc. Ann Arbor, Michigan

Source 2  INDIANA UNIVERSITY - UNIVERSITY CENTER CONCEPT ANALYSIS, James Associates - Architects and Engineers, Indianapolis, February 1973


Source 4  PLANNING COMMUNITY JUNIOR COLLEGE FACILITIES, Floyd G. Parker and Max S. Smith, Michigan State University Press, 1968

Source 5  STUDENT HOUSING, Educational Facilities Laborities, EFL Press, 1972

Source 6  UNIVERSITY SPACE PLANNING, Harlan D. Bareither, University of Illinois Press, 1968

Source 7  PLANNING STANDARDS, INVENTORY, AND UTILIZATION DATA FOR HIGHER EDUCATION FACILITIES IN TWENTY-SEVEN STATES, University of the State of New York and the State Education Department, 1970


Source 10  ACCESS TO THE ENVIRONMENT, Volumes 1-3, Department of Housing and Urban Development, July 1976

Source 11  ARCHITECTURAL GRAPHIC STANDARDS, Joseph N. Boaz, AIA-Editor, John Wiley and Sons, Inc., 1970


Source 15  ENVIRONMENTAL GEOLOGY OF THE NEW ALBANY AREA, INDIANA, Department of Natural Resources, 1971

Source 16  NATIONAL WEATHER SERVICE, Louisville, Kentucky, Standiford Field, 1978

Source 17  PROBLEM SEEKING, William Pena, Canner Books International, 1977
SITE ANALYSIS CONCLUSION

VEGETATION: The site causes no real obstacle in the area of vegetation. One large tree stands in the immediate site while a line of trees exists at the northern edge of the site. The general ground cover is of blue grass seeded after the construction of University Center some three years ago.

ORIENTATION: The orientation of the site causes the most desirable site for construction to slope away from the southern sun angles and directly into the winter winds.

VEHICULAR CIRCULATION: Auto circulation is of major concern for this commuter oriented campus. 145 parking spaces presently exist for the housing complex's use.

NOISE: The railroad tracks at the west of the site presents a genuine design consideration.

VIEWS: The majority of the favorable views exist to the north and west.

DRAINAGE: Drainage presents no real problem on this sloping site.

UTILITIES: Utilities are readily available to the immediate site due to the foresight of the master plan of the campus.
BUILDING TYPE ANALYSIS
Student Housing With Various Support Facilities

Analysis

No. 1. Spelman Halls - Princeton University
     Princeton, New Jersey
     I.M. Pei and Partners
     60,000 Square Feet

No. 2. Cornell University Housing
     Ithaca, New York
     Richard Meier
     497 Student Residents

No. 3. Pembroke Dormitories - Brown University
     Providence, Rhode Island
     Moore, Lyndon, Turnbull and Whitaker

No. 4. Student Union - State University College
     Plattsburgh, New York
     Mitchell/Giurgola Associates

No. 5. Kresge College - University of California
     Santa Cruz, California
     Moore, Lyndon, Turnbull and Whitaker

No. 6. Erdman Hall Dormitories - Bryn Mawr Girls College
     Bryn Mawr, Pennsylvania
     Louis I. Kahn
ANALYSIS NO. 1
SPelman HALLS - Princeton University

SPACE: A major space is created by the pedestrian street which give the space an identity of being exactly what its function demands - a through space. The pedestrian street represents the primary public space, while the eight units of 60,000 S.F. total define the private areas. Lighted stairwells serve as a transition from public to private space and vice versa.

STRUCTURE: The original design of the project called for a masonry bearing wall system but the decision was made to use pre-cast concrete units due to the reduced cost and shorter construction time. A total of 979 pre-cast units were used, of which some measured up to 57 feet in length and weighed up to 38,000 pounds. All panels were a standard 8 inches in thickness.
CIRCULATION: Pedestrian circulation serves as the most adjacent type of circulation to the units themselves, as well as a major determinate in the site concept of the project (the pedestrian street or spine). Vehicular circulation has only peripheral contact with the site. The pedestrian street serves not only the residents of Spelman Hall but many others using "the street" as a pass through. The stairwells which enter directly onto the street serve as secondary circulation cores.

SITING: This complex is located on a relatively flat site with numerous deciduous trees, in the heart of Princeton's campus. The site concept was arrived upon primarily through observation and analysis of existing pedestrian paths. The pedestrian streets relate closely in direction and size to previous unconstructed pedestrian routes.
ANALYSIS NO. 2
CORNELL UNIVERSITY HOUSING

SPACE: The dominate "free-form" shapes of the buildings serve as a definer of the hierarchy of spaces. The elongated shapes establish the pedestrian space and its limits, the shapes also give the complex a focal point, which is where Meier elected to locate the commons. The spaces within the curving sections were used with very little wasted space, by using the smaller single person rooms in these areas.

STRUCTURE: The structure is a concrete slab system on concrete-block bearing walls. The bearing walls were placed at right angles to the exterior skin of the structure. Meier has relieved the exterior skin of any structural functions, thus allowing fenestration to be placed at will. The total height of the structure is four stories.
CIRCULATION: Circulation on this project differs somewhat from Pei's Spelman Halls, just discussed. At Spelman, the structure are simply an addition to the pedestrian spine where as at Cornell Meier uses the shape of the structures define flow as well as space. Transitional circulation occurs at the nine exposed exterior or stair towers, these define the separation of public and private spaces. The only other circulation above ground level is an exterior corridor at the third floor level.

SITING: The long axis of the complex is oriented in an east/west direction, this is due to Meier's desire to follow the natural contours of the semi-rural site. The curved form arose from a respect and bit of symbolism of the former use of the site - a golf course.
ANALYSIS NO. 3
PEMBROKE DORMITORIES - BROWN UNIVERSITY

SPACE: MLTW made two decisions early in the design process which defined the major spaces of the project. The first decision was to use clustered housing units instead of the more traditional barracks like dormitory which enhanced the possibility of a diverse and detailed central court space vs. a "sling shot alley". The second was to attempt to blend into the "street scape" on the east and north.

STRUCTURE: The major vertical structure is of masonry bearing walls with secondary vertical structure. Such as interior partitions being of metal stud construction. Floors and roofs are constructed of precast concrete slabs. MLTW utilized materials for the structure which was aesthetically acceptable in the finished spaces.
CIRCULATION: The site of Pembroke created a condition and environment as well as circulation of the residents of the dormitory. The "street front" situation was handled by placing the building directly adjacent to the sidewalk, thus maintaining common building setbacks and circulation scheme (sidewalk). Circulation within the dormitory took the form of a "street-scape" with pedestrian circulation being defined as the void between interfacing building forms.

SITING: Of all the design considerations, the site seems to have been one of the most influential. The site is a corner at the northeast corner of the campus, to the east of the site is an active retail area while to the north exists a district of detached housing. The areas adjacent to the site influenced many aspects of the design in varying degrees, such as the use of materials, handling of pedestrian circulation, over-all scale of the complex and manner and degree of detailing.
ANALYSIS NO. 4

STUDENT UNION - STATE UNIVERSITY COLLEGE - NEW YORK

SPACE: Mitchell/Giurgola attempted to design in such a way as to allow occupants of the building to know exactly where they were at all times. To do this they organized the spaces so they constantly relate to back the central court space. The building is essentially a square in plan with the east corner removed to allow access to the central court space.

STRUCTURE: The majority of the structure is of cast in place concrete columns for the vertical structure and an unexposed waffle slab system for the horizontal structure. For spaces with larger spans, steel trusses and metal deck was utilized.
CIRCULATION: Mitchell/Giurgola recognized the unorganized meandering pedestrian circulation that existed in the area of the site of the proposed building, this proved to be the major design organizer of the project. They used the stairway area as a focal point of exterior circulation as well as interior.

SITING: The building is situated on a major circulation axis in the center of the campus. The structured grid layout of the campus set guidelines for interface between building and street. The exterior court opens to the east and away from the noise and distractions of the street.
ANALYSIS NO. 5
KRESGE COLLEGE - SANTA CRUZ, CALIFORNIA

SPACE: Housing units on this campus are decentralized throughout the entire area of the campus. The individual housing units range in size from 52 persons to 16 persons. Each of the units front the major space of the campus the pedestrian street. Some of the housing units are of an apartment variety with communal kitchens and living rooms. While others utilize a "self created space" concept which allows the student to physically change his or her living space.

STRUCTURE: Due to a restrictive budget MLTW utilized a woodframe system with exterior stucco finishing. In areas where larger spans were needed heavy timbers were used for both horizontal and vertical structure.
CIRCULATION: The concept of circulation was another area which was somewhat determined by cost considerations. By using the pedestrian street for all pedestrian circulation MLTW avoided the added expense of separate circulation systems for auto and pedestrian, also by allowing all housing unit doorways to exist directly onto the pedestrian street the need for internal corridors was avoided.

SITING: The site consists of a strip of property approximately 1500 feet in length with a vertical drop from one end to the other of 82 feet. The site and campus create a good union between the two, the pedestrian street weaves through the tree-studded site with consciousness toward blending.
ANALYSIS NO. 6
ERDMAN HALL DORMITORIES

SPACE: Entry into the complex serves as a major organizer of space, entry is made from below the grade level. First visual contact with the building takes place in the central atrium space. Each of the three housing units are spatially organized an atrium, with the atrium of the central unit serving as an entrance hall, and the other two atriums serving as a living hall and dining hall respectively. All student rooms are arranged around the perimeter of each of the buildings with each having the atriums located at the center.

STRUCTURE: The primary material used is poured in place concrete, Kahn felt that "space is architectural when the evidence of how it is made is seen and comprehended". Thus all concrete surfaces have retained the scars and textures of the formwork used to place it. The structural floors and the walls of the central spaces are of poured in place concrete. A system of 12" cinder blocks with exterior slate facing was utilized on all exterior walls.
CIRCULATION: Vertical circulation is focused upon the entry hall in the center unit which is served by two identical stairwells. Horizontal circulation extends from the entry hall around each of the atriums in the form of corridors. Student rooms open directly onto the circulation corridor in most cases.

SITING: The long axis is oriented in an east-west direction, on a relatively steep slope. The site slopes downward to a major street which passes through the campus. The axis of the complex is parallel to the axis of the street below.
BUILDING TYPE ANALYSIS - CONCLUSION

SPACE: A common consistency in all of the buildings analyzed is the division of public and private spaces. There is no exact pattern to the design of the housing unit configurations, other than the fact that the units are arranged in a manner that creates many varieties of exterior space.

STRUCTURE: There appears to be no one structural system which is the norm for student housing projects. The decision as to what structural system to use is based upon a number of variables i.e. economics, site and aesthetics desired.

CIRCULATION: One common element is the fact that public circulation and private circulation is separated by a transition space i.e. sidewalks, stairwell or stoop. Some projects experience private circulation through a defined space such as a stairwell while some are as subtle as threshold on the projects in which the housing units exit directly onto the "pedestrian street".

SITING: The siting shows the most individualist realm of the student housing project. One consistency is the idea of using the structures to enhance the site, whether it be to give a disrupted site a focus or to simply merge with the site.