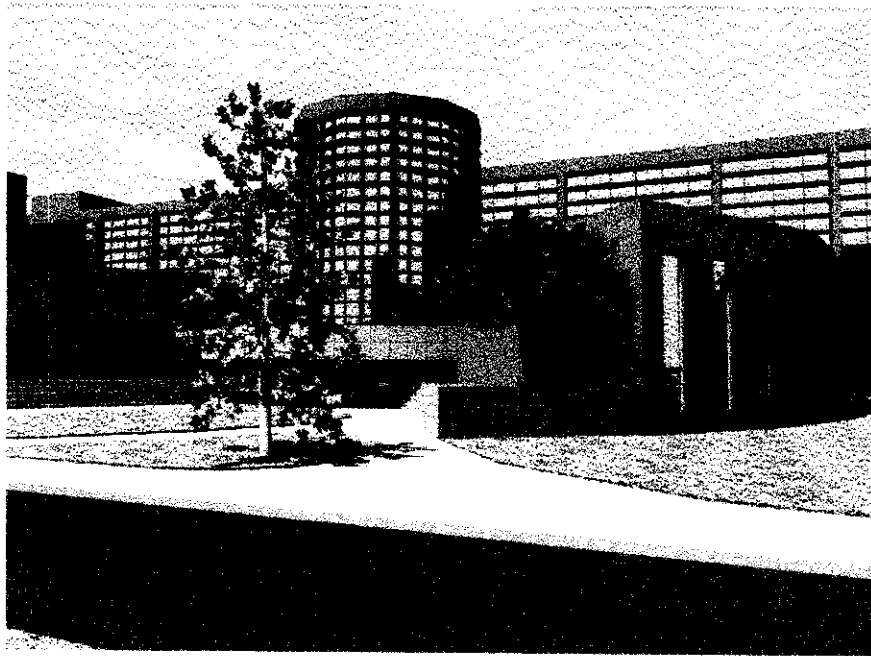


Utilizing Interstitial Space to
Encourage Interaction in the Learning
Environment:
A New Educational Facility for Ball State University

Daniel Wiechel
Thesis 2002



Professor: Jack Wyman
Thesis Advisor: Robert Koester

Space can be defined in two ways, destination space and interstitial space. Destination space is the area where tasks are performed. Interstitial space is the transitional area between these destination spaces. A space does not necessarily fall into only one of these categories. Often a space can be both a destination space and an interstitial space at the same time. For example, at a building scale, a classroom would be the destination space and the corridors between classrooms would be the interstitial space. However, at the classroom scale, a desk would be a destination space and the area between desks would be the interstitial space.

This thesis will explore the design of interstitial space and how it can be used to encourage interaction in the learning environment. Interstitial spaces are often a missed opportunity in design because they are not subject to the programmatic restrictions of destination spaces. If people enjoy the experiences they have as they move between destination spaces they are likely to spend more time there and interact with others. I plan to investigate how natural light, flexibility within a module, and an open plan can define interstitial spaces and enhance the design of the building.

These studies will be focused on a new educational facility for Ball State University's campus. In most academic buildings at Ball State, the interstitial spaces function purely as a way to get from point A to point B. The idea that interstitial spaces should be used for one purpose only enforces the notion that students are supposed to leave the building as soon as classes are over. This creates a factory-like environment that does not exemplify the university experience. Utilizing interstitial spaces to encourage interaction among students and faculty could create a learning environment that is more interesting and effective.

2 Thesis Statements

Utilizing the design of interstitial spaces can create a learning environment that is invaluable to the educational process. Interstitial spaces must serve a variety of functions. Transition spaces, such as corridors and small pullout spaces will help to create an environment of interaction. These spaces create a place where students can interact with their peers and their professors to discuss ideas taught in class. The interstitial spaces need to have a variety of scales and uses. These spaces could range in size from a place that only one person could use, to a plaza area that many could use. I believe that for the interstitial spaces to be successful they need to be comfortable, functional, and interactive.

Comfort:

The interstitial spaces need to be comfortable places for the activities that occur in them. The corridor should be an energetic space that is full of natural light and activity. Flooding this space with daylight will tend to increase temperatures within the space. However, people will spend shorter periods of time in the corridors, so higher- or lower-than-average temperatures are acceptable. In areas where people would spend greater lengths of time, such as lounges and classrooms, there should be a more constant temperature. Interstitial spaces have an elastic environment, because people tend to spend shorter periods of time in them. This allows the designer some freedom to express space in a way that is not normally considered.

Function:

Interstitial spaces should help to create interaction within the learning environment. Because they lack the confines of walls and boundaries, these spaces are more versatile and can facilitate a variety of constantly changing activities. People need to be able to manipulate the spaces to fit their needs. Furnishings should be easily moved so that people feel like they did something to make the space more comfortable, at least for themselves. Interstitial spaces should facilitate the user's activities. They do not need to have an activity assigned to them, but rather should be flexible enough to change with the users. Interstitial spaces need to have a variety of scales and functions to be successful. Traffic within academic buildings in a university moves in cycles. Between classes there are twice as many people in the building than when classes are in session. Interstitial spaces could help alleviate this overflow of traffic by creating spaces where people can gather without blocking the flow of traffic through the building.

Interaction:

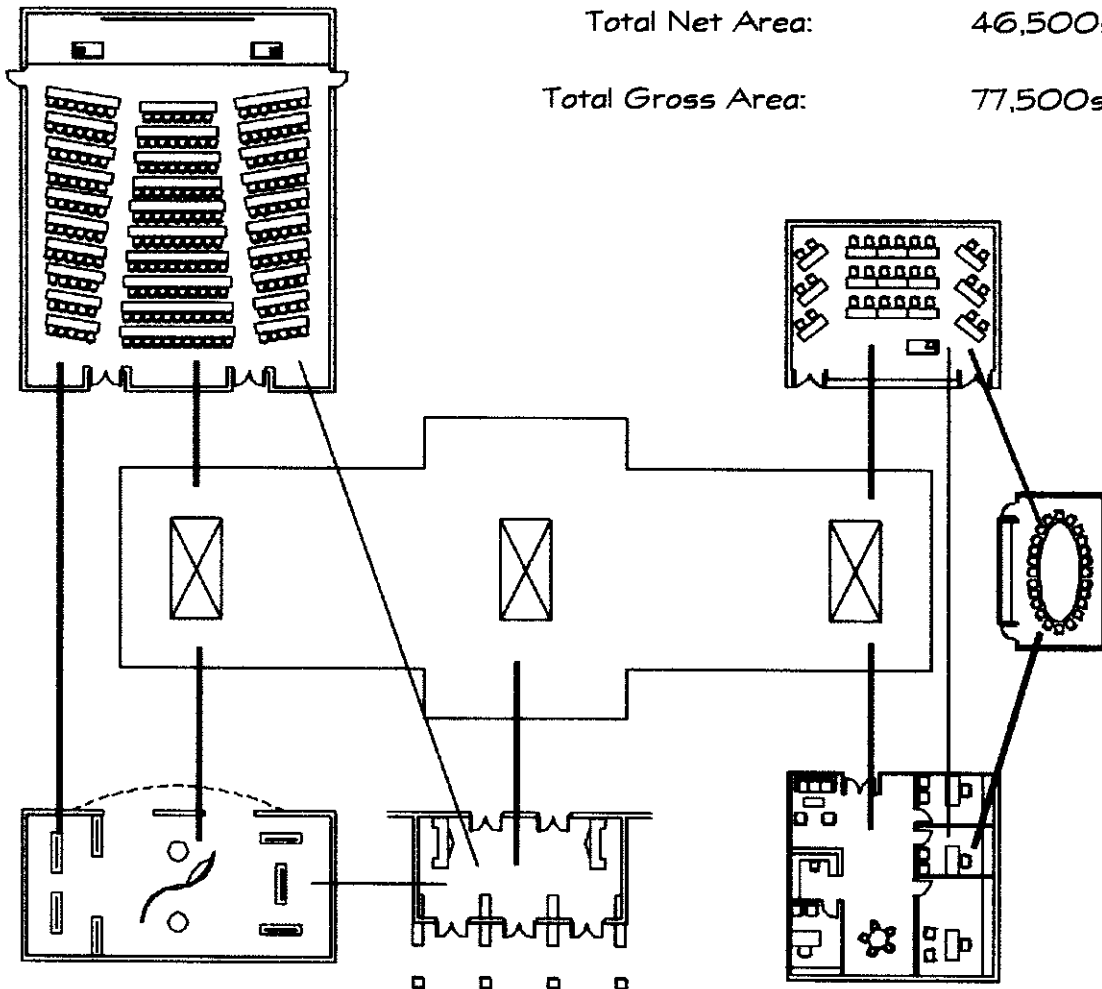
Interstitial spaces that are dynamic and aesthetically pleasing will encourage interaction among users. A corridor could be utilized for more than just getting from point A to point B, if it incorporates interactive spaces in its design. In most buildings at Ball State, corridors only serve as circulation. This does not allow people to stop and talk with someone they meet along the way. If interstitial spaces create events along this path, it makes the entire space more interesting and allows for these impromptu discussions. One example of this would be the atrium in the architecture building, because users have a visual and acoustical connection among all floors. It also serves as a meeting place, critique space, transition space, workspace, and sometimes even a place to sleep. Many different activities are pulled out of the studios into the atrium to create a shared community of people and ideas. People often use the staircase in the atrium because they can get a glimpse of what others are doing. These positive distractions allow students to separate themselves from their classes but still be effected by the learning environment. A dynamic environment creates spaces that people want to experience for longer periods of time. This encourages students to stay in the academic buildings and interact with their professors and peers.

+ Programme Summary

Classrooms	20@ 1,200s.f.	24,000s.f.
Administration Office	1@ 2,000s.f.	2,000s.f.
Department Offices	3@ 1,000s.f.	3,000s.f.
Faculty Offices	40@ 150s.f.	6,000s.f.
Gallery	1@ 1,800s.f.	1,800s.f.
Lobby	1@ 500s.f.	500s.f.
Lecture Hall	1@ 2,500s.f.	2,500s.f.
Atrium	1@ 6,000s.f.	6,000s.f.

Total Net Area: 46,500s.f.

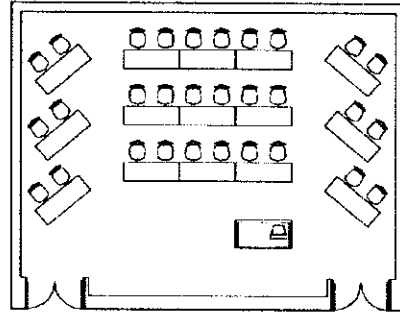
Total Gross Area: 77,500s.f.



Programme Summary 5

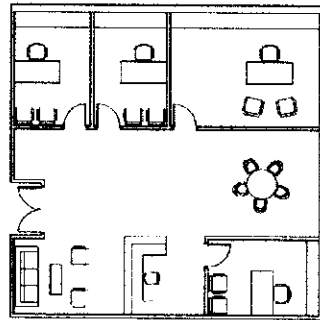
Classrooms:

The classrooms should be based on a flexible module. Classrooms should have the ability to facilitate different types of teaching styles such as lecture, discussion, or studio. All classrooms should have windows that allow for daylight and a connection to the outdoors.



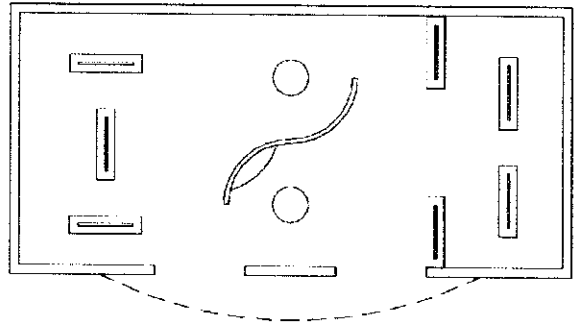
Administration and Department Offices:

The administration office would house the dean of the college. It will include office space for the dean and an assistant dean. There should be secretarial space and a waiting area. There will be a large conference room associated with this office. Storage space will also be included as part of the design.



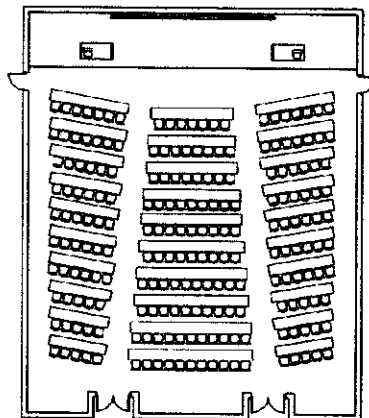
Gallery:

The gallery will serve two functions. The first is as a place to display student projects or traveling exhibits. The other function will be as a reception area or gathering space before and after lectures. The gallery should be easily modified to display different types of exhibits.



Lecture Hall:

The lecture hall should be adjacent to the gallery space. It will seat approximately 150-200 people. The lecture hall could be used for speakers, movies, or large classes. It should have the option of natural light, but must also be able to control the light easily.

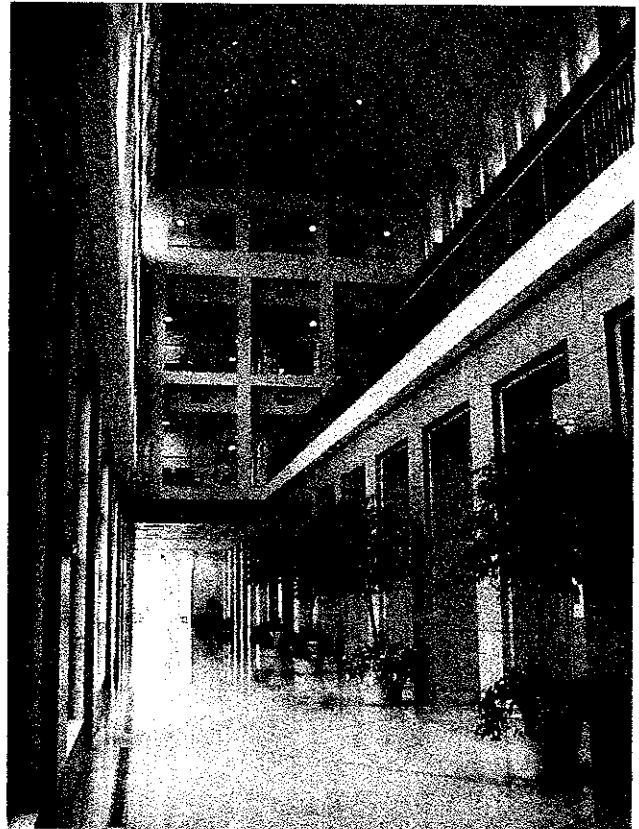
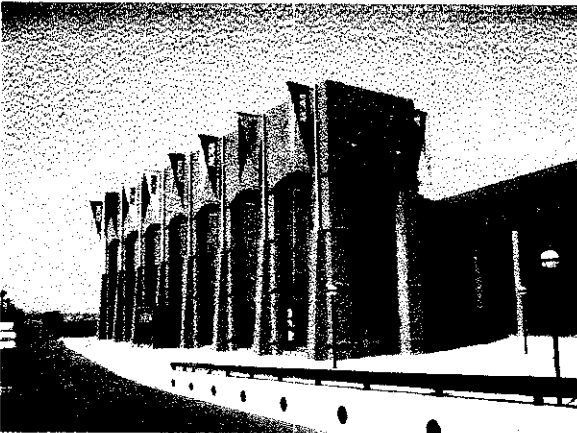


6 Precedent Studies



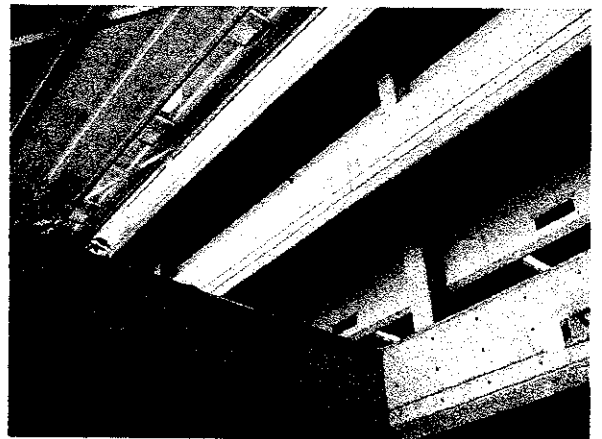
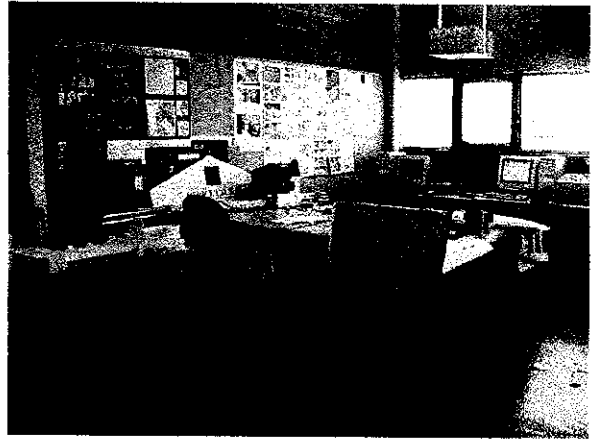
NCAA Headquarters

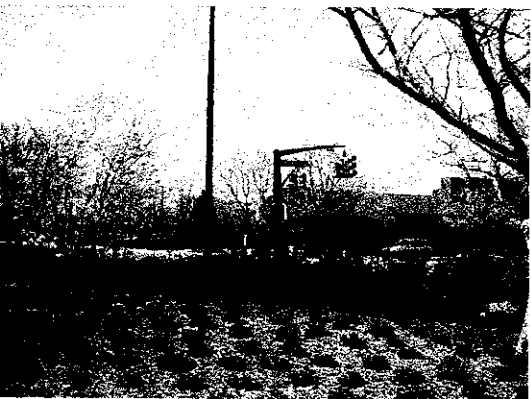
The NCAA Headquarters, located in Indianapolis, was designed by Michael Graves. Its main function is as the office complex for the NCAA. The design objective for this facility is to create an open office environment that encourages interaction between the employees. The atrium is meant to be the focal point where people would meet each other and have informal meetings.



College of Architecture and Planning

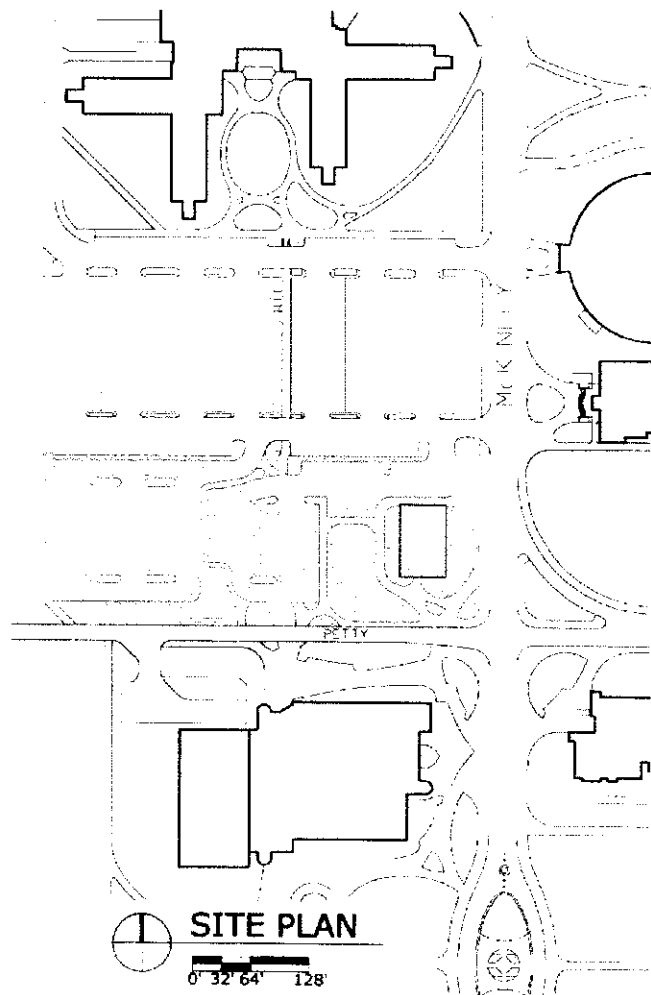
The College of Architecture and Planning has a variety of spaces that allow the users to determine their function. The atrium includes pin-up space for presentations and exhibitions. There is a lounge that can be seen from most of the floors and from the stairs, that allows interaction between people on different levels. There is a large staircase in the atrium space that encourages people to take the stairs rather than the elevator.



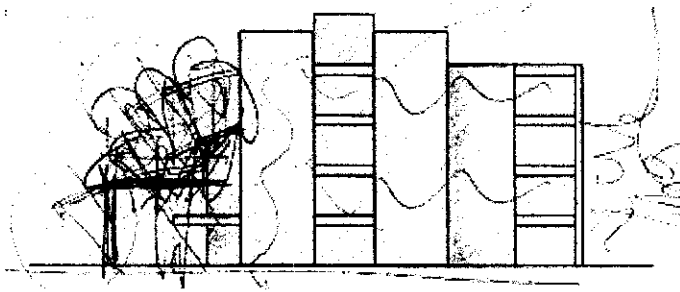


The site for this project is located on Ball State University's campus. It is on the northwest corner of the intersection of McKinley and Petty. Currently, most of the site is used as a parking lot. There is a building on the corner for Ball State's printing services. North of the site is a nine-story residential hall. Across McKinley to the east is the two-story human performance laboratory. On the southeast corner of the intersection is the six-story architecture building. There is a four-story English and mathematics building across Petty to the south of the site. Along the western edge of the site there is a pedestrian path. A residential neighborhood is located to the west of the site. The site is shown as the shaded region in the plan to the right.

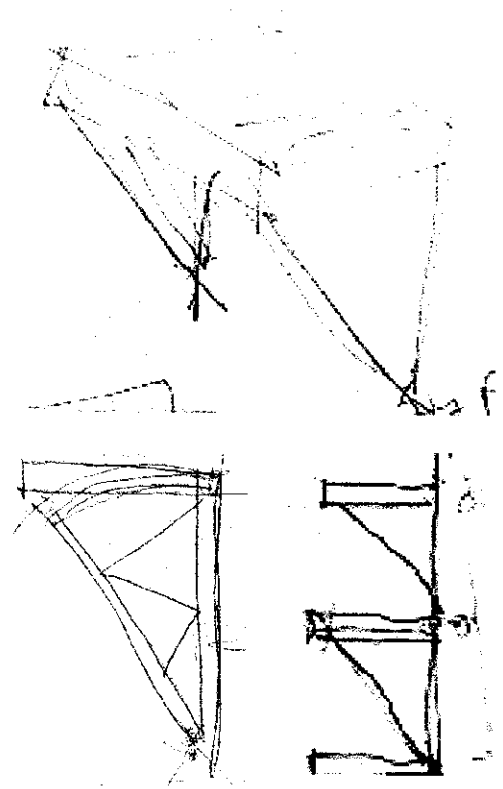
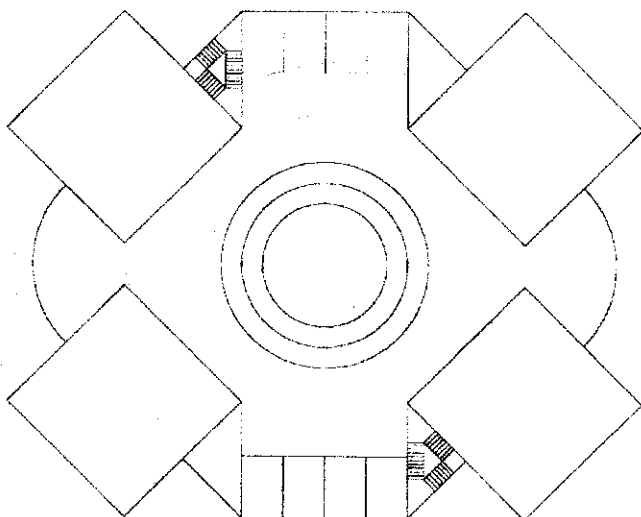
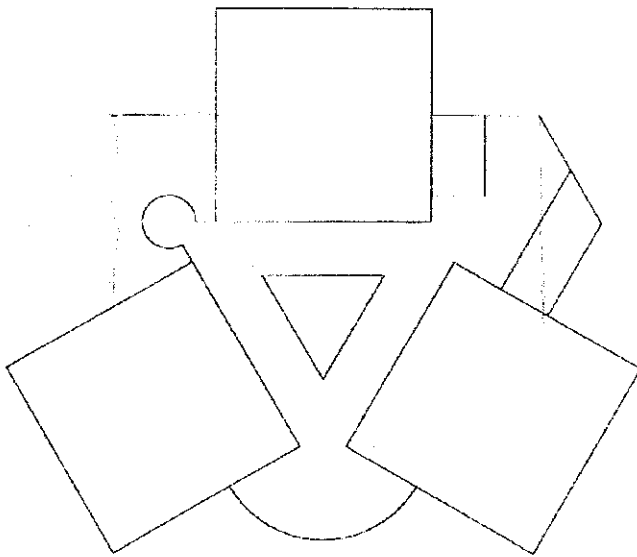
I propose to demolish the printing services building to allow for green space that transitions into the building. The building will follow the fifty-foot setbacks from the road in congruence with the rest of the buildings on campus. The building should allow for the pedestrian traffic that currently flows north and south through the site to go through the building without difficulty. Some consideration should be given to the scale of the building along the western edge so that it relates to the neighborhood context.

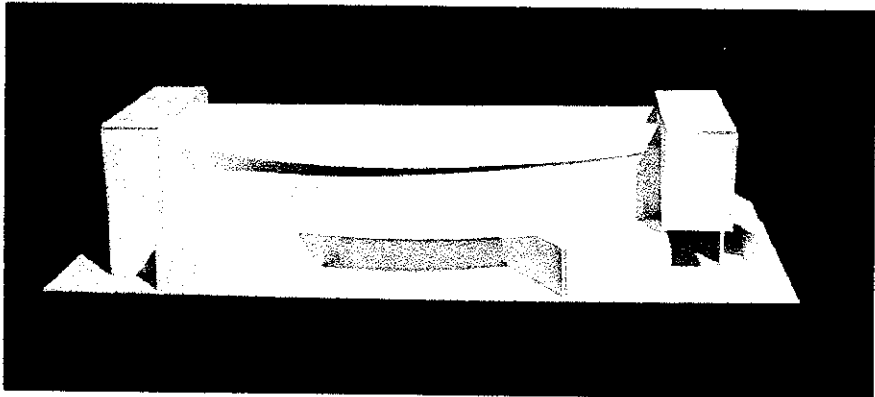
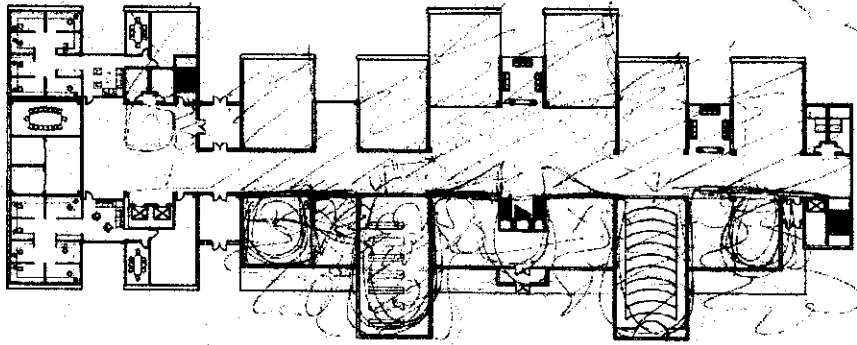
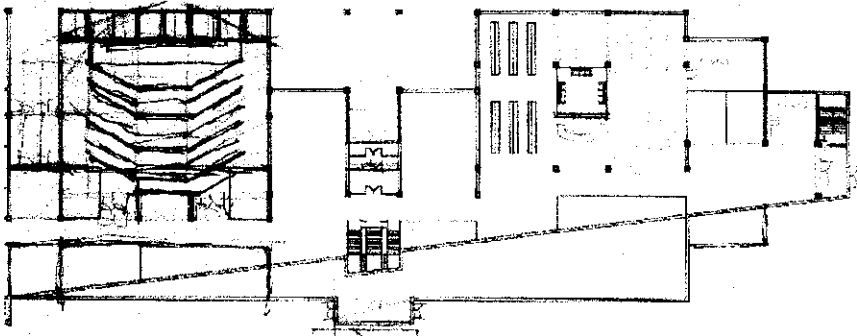
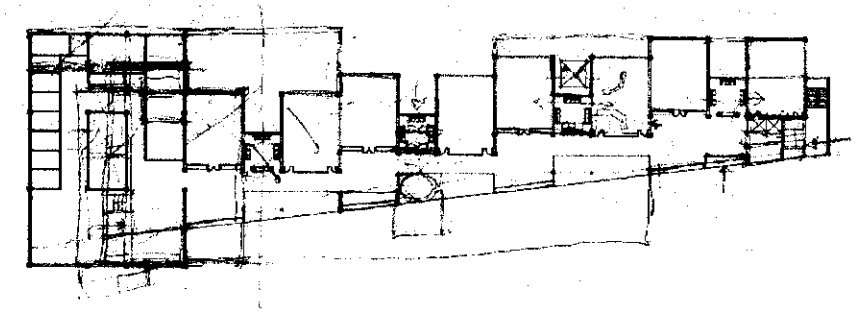


10 Design Process

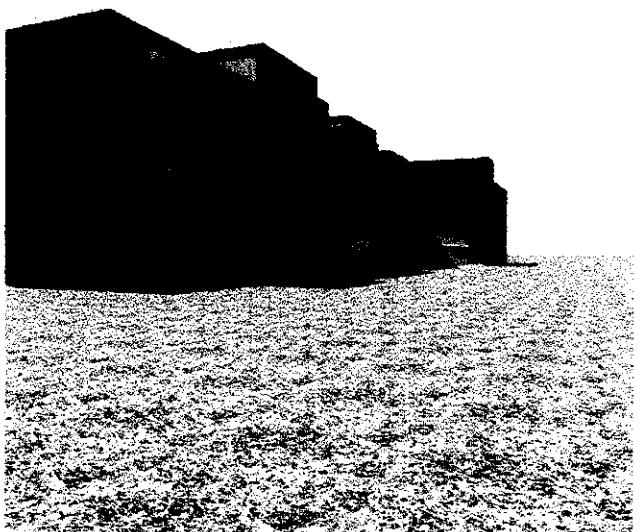
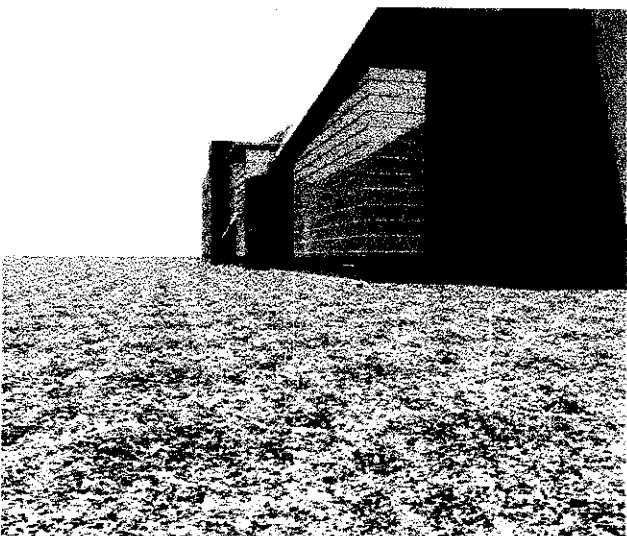
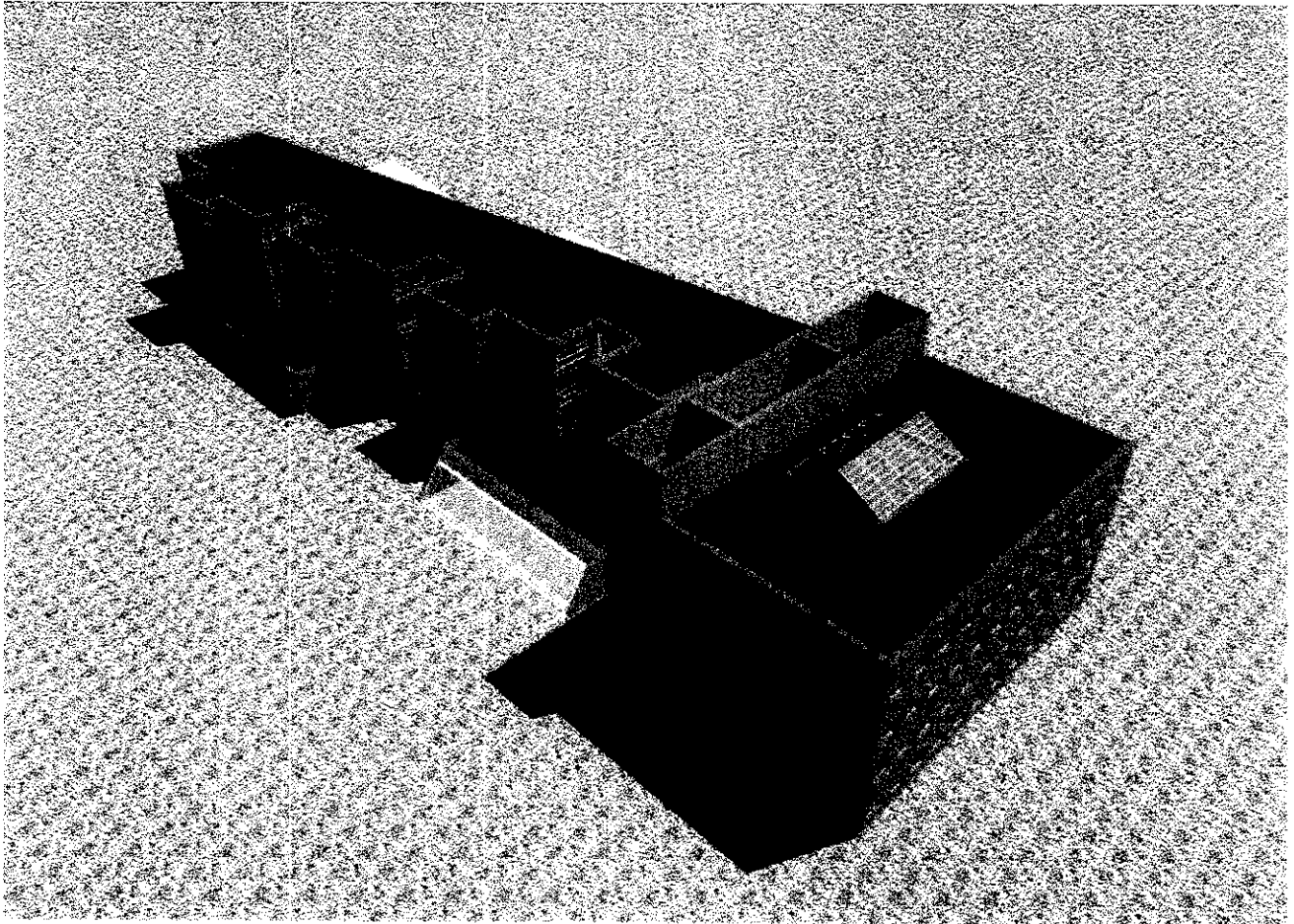


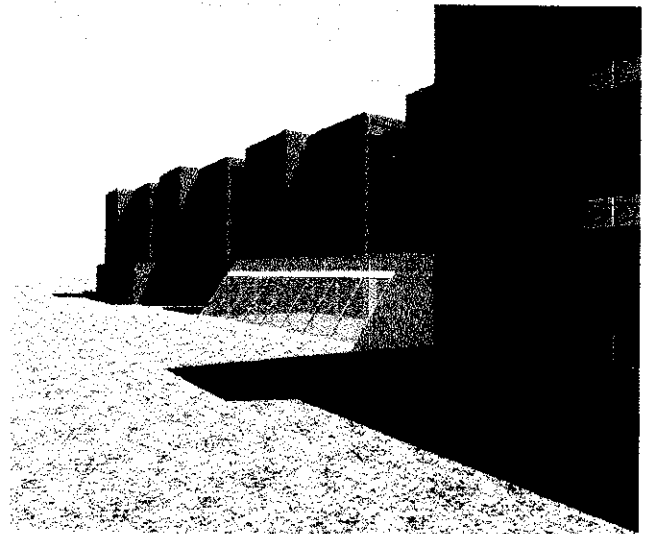
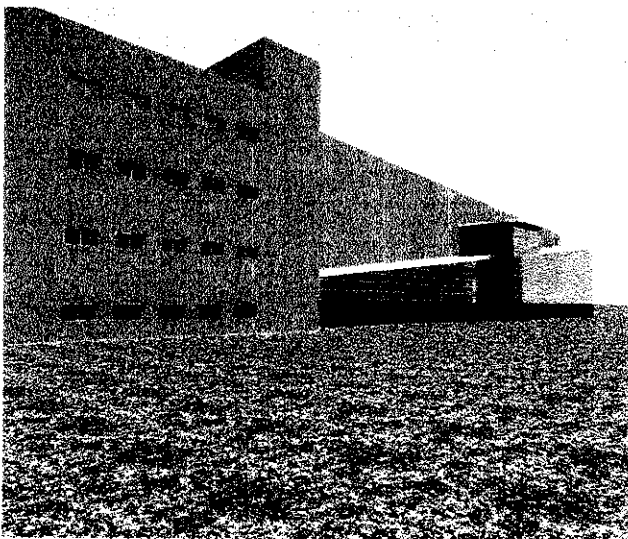
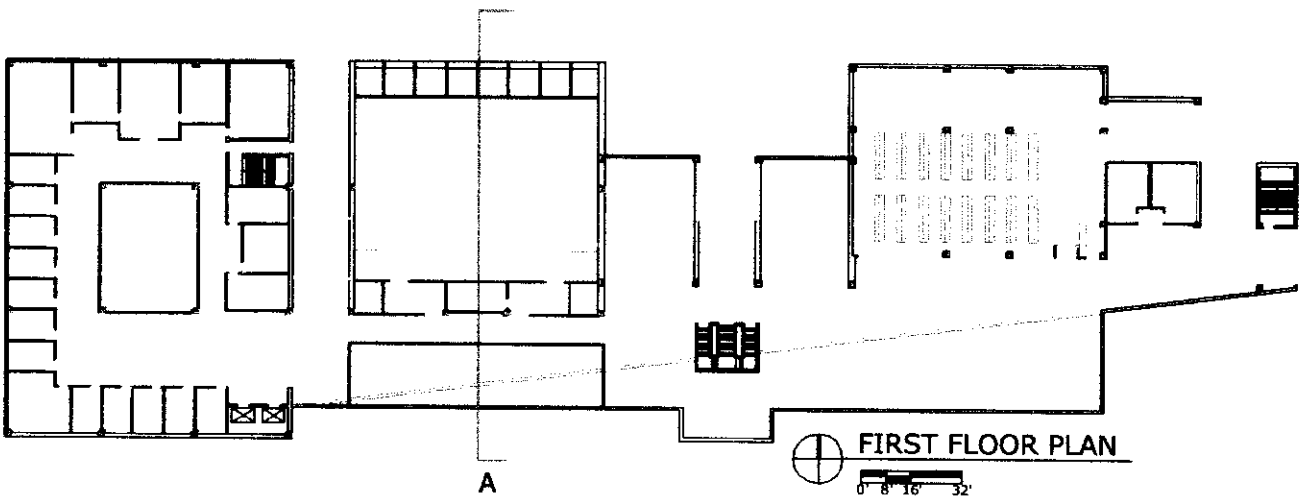
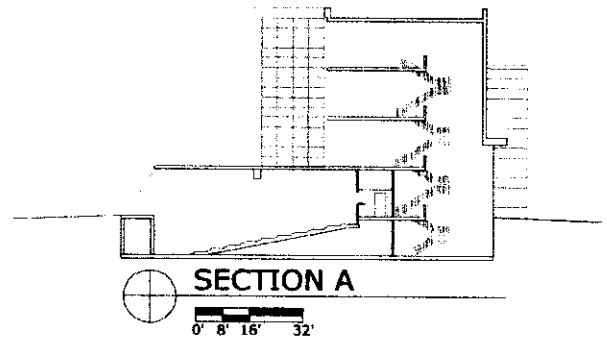
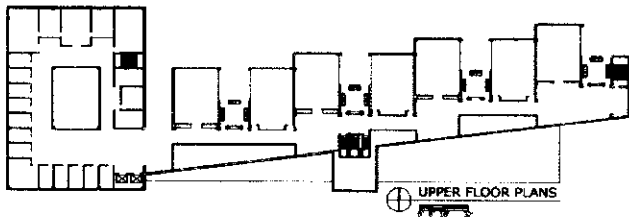
The initial designs for this building started with a classroom tower that would be placed at the eastern end of the site, and the rest of the building would occur farther to the west. This allowed for the scale of the building to break down as it moved into the residential neighborhood. The design ended up becoming a classroom building and an office building. The building has a linear scheme that came about because of site considerations. As the design progressed the public spaces were placed on the first floor to the south of the classrooms. This created a public edge along the street so that the building transitions from public to private.



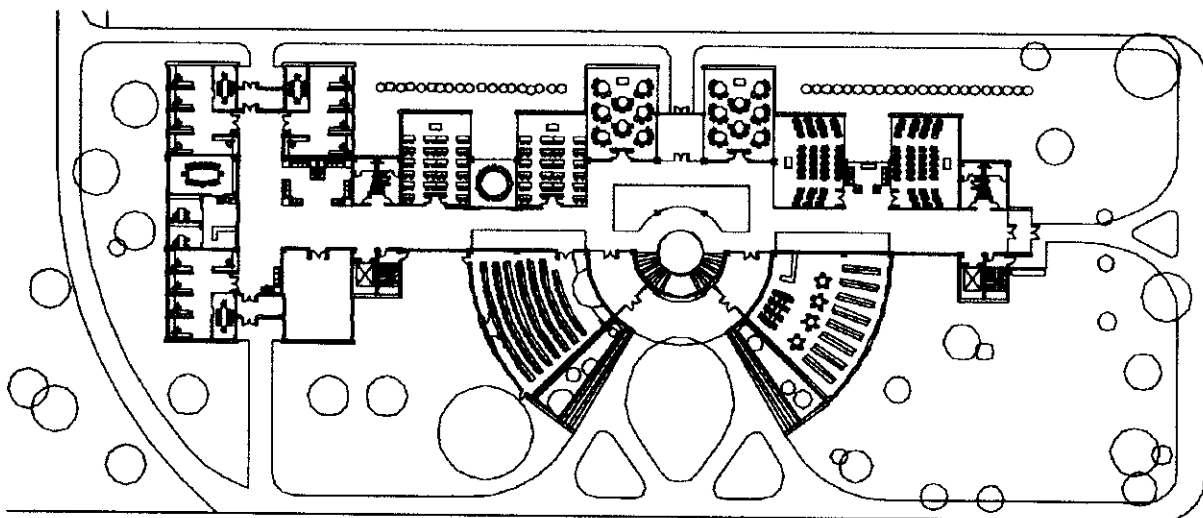
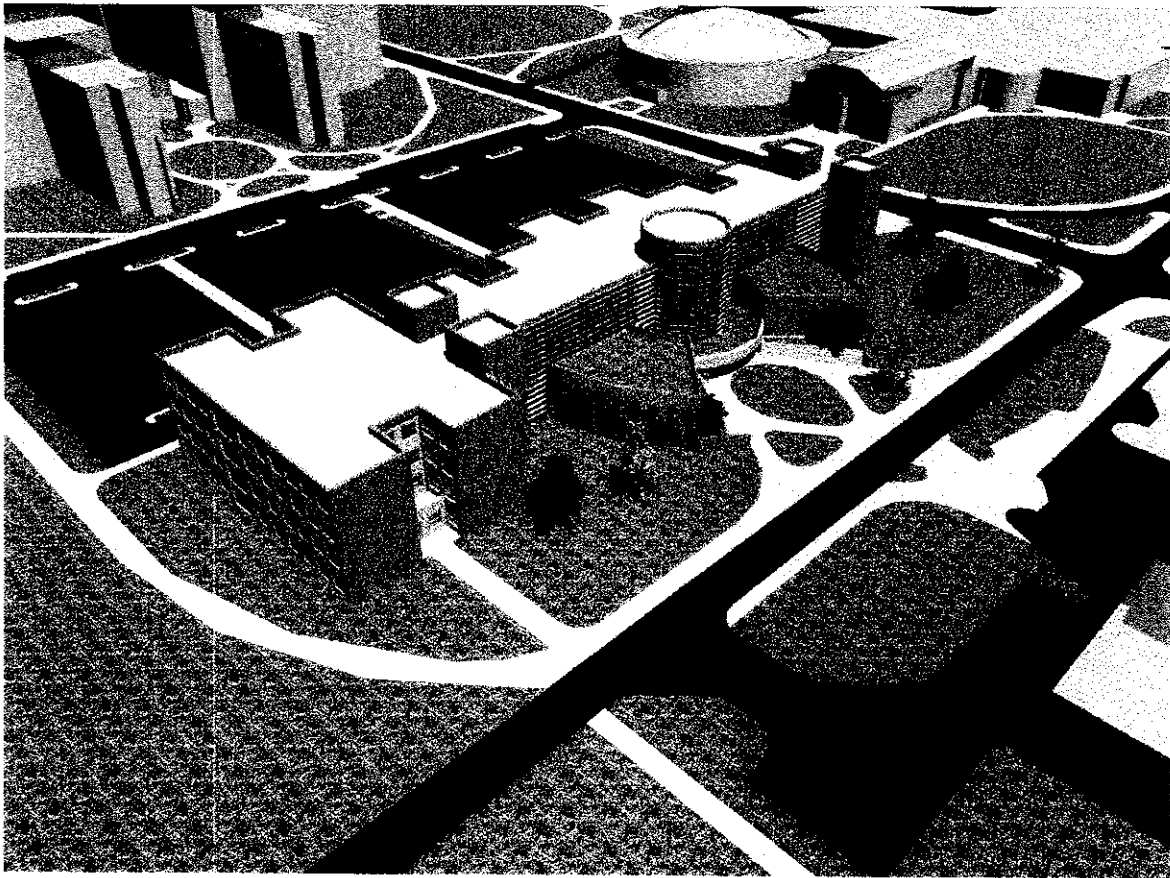


12 Design Process

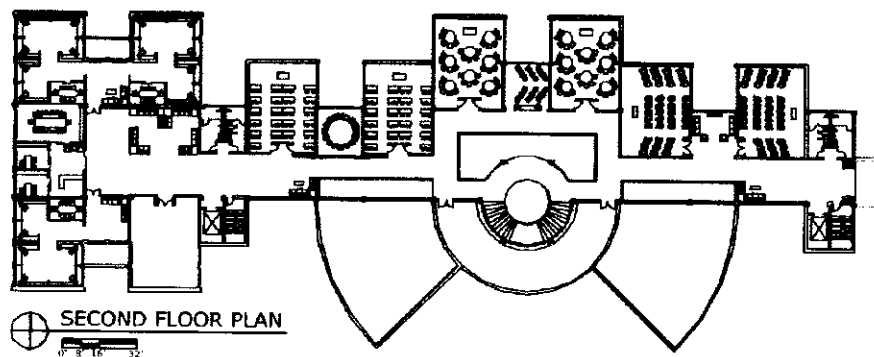
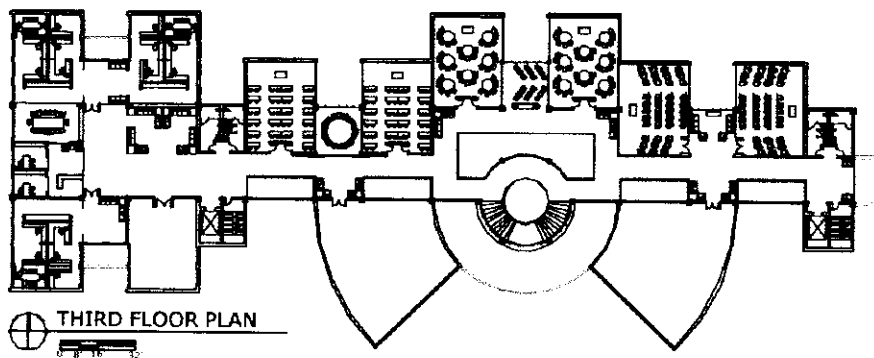
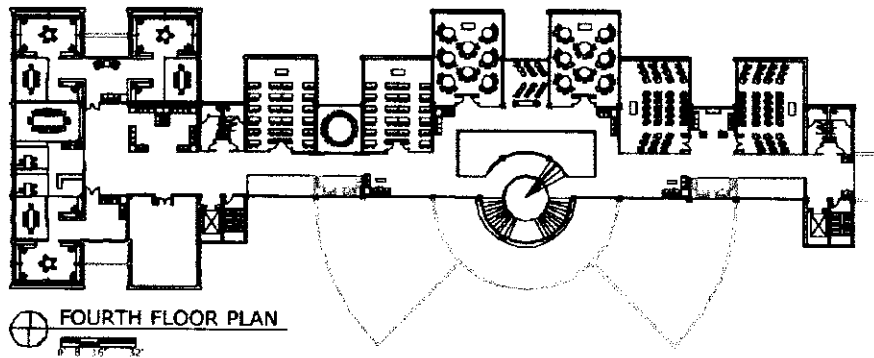


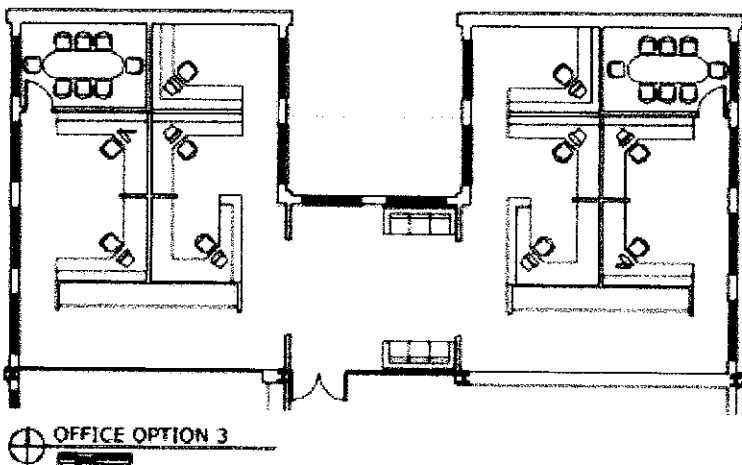
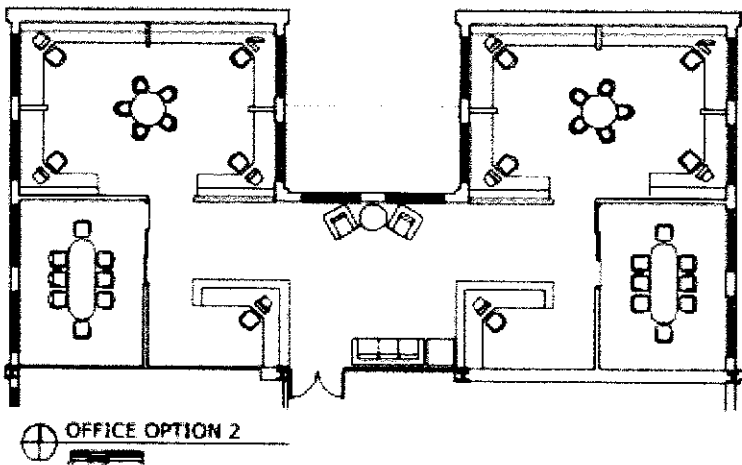
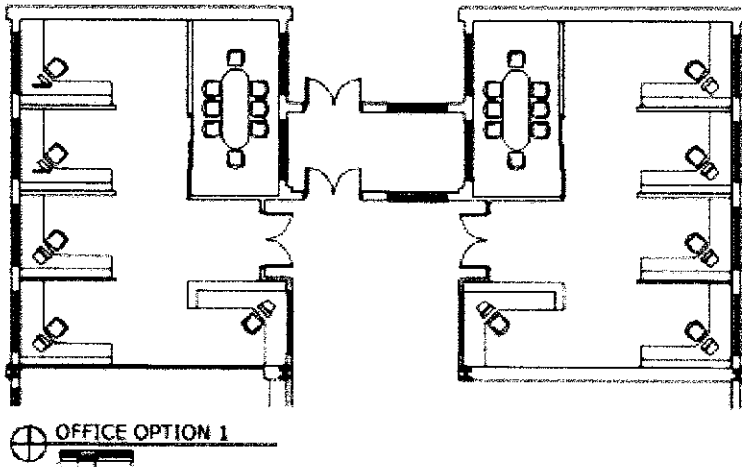


Design Results



 FIRST FLOOR PLAN





Faculty Offices

The faculty offices are based on the open plan concept. This type of office plan has a number of advantages that would be beneficial to the university. Typically, faculty offices are enclosed spaces with doors and full height walls. This creates an environment that is very fixed and closed off. Using the open plan allows each office bay to be customized to fit the needs of the professors that work in it. The open environment would encourage interaction between professors and would facilitate some interdisciplinary classes.

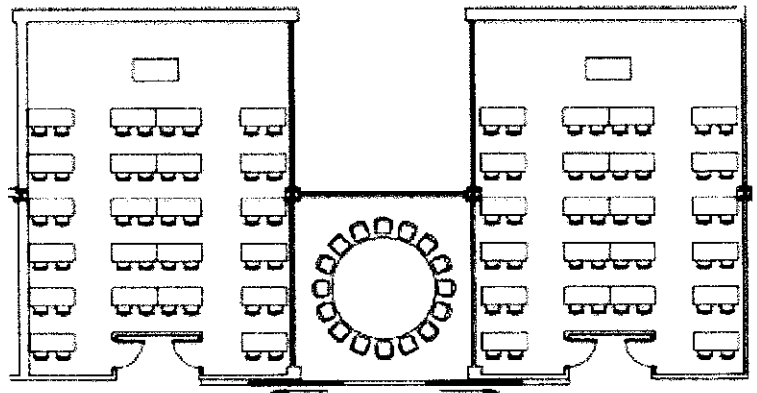
In each of these concepts the office bay would have at least four workstations and a secretary/receptionist. These offices would also include a conference room that the faculty members could use for private phone calls or conferences. Each of these schemes is developed within one structural bay. Security for the offices would be accomplished through either a door directly into the office, or a shared door with another office bay.

Classrooms

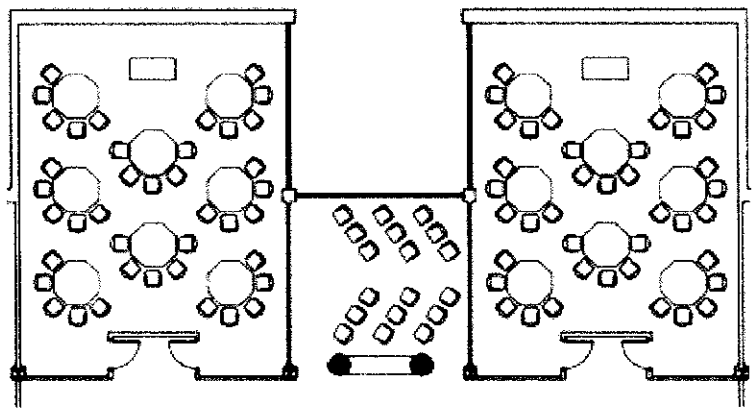
Two key aspects to productivity in the learning environment are daylight and flexibility. Many classrooms in universities do not have windows or natural light. This creates an atmosphere that is not natural. In many of the classrooms without windows the students will focus on other things than what is being taught. By allowing classrooms to have daylight, the students will have a connection with the outdoors and a sense of the passage of time.

Flexibility in the way a classroom can be configured gives the professor another tool to help them to teach the students.

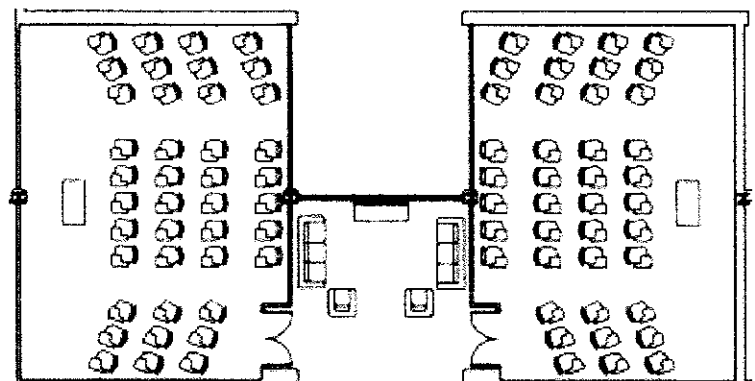
The classrooms in this design are developed in a module to allow for variety within a framework. They are grouped in pairs with an additional space in between them. This module could accommodate different styles of teaching. These classrooms could be used for lectures, group discussion, or studio space. Each classroom module should be developed in a unique way to create a space that is tailored to its use.



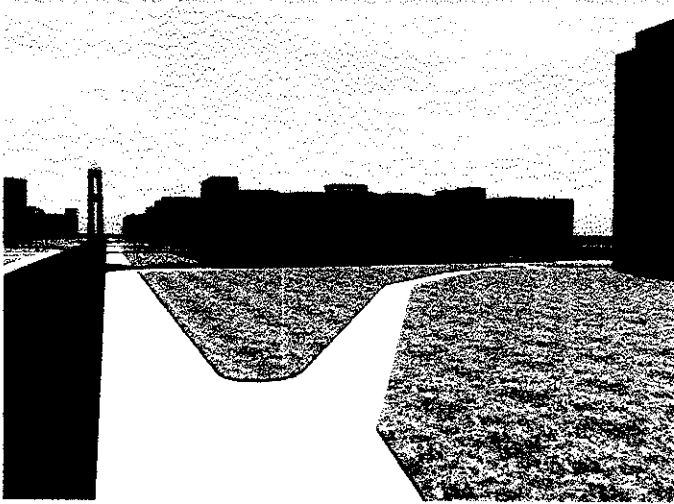
CLASSROOM OPTION 1



CLASSROOM OPTION 2

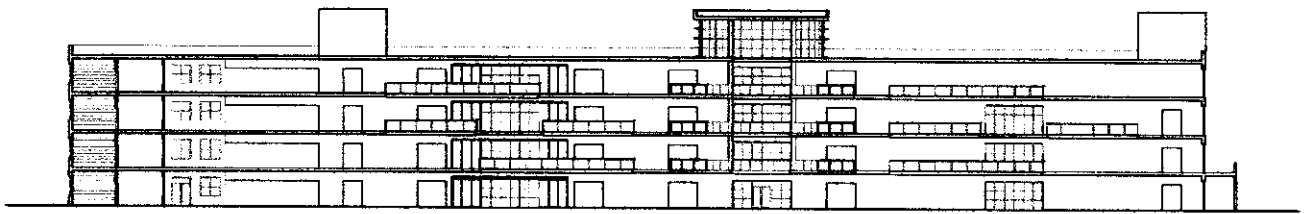


CLASSROOM OPTION 3



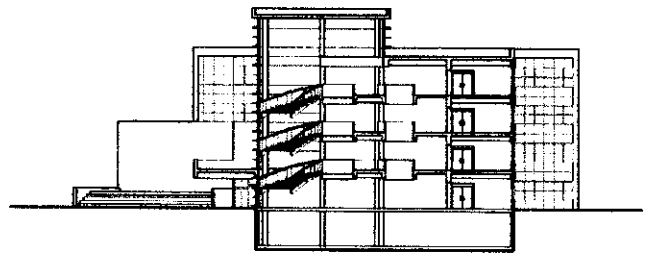
The sections to the right are cut through the atrium of the building. They show the main circular space and how the upper floors are cut through. The diagrams on the lower right show the zoning of the building and how the different spaces are related. The main corridor is a linear volume that each space connects into. The long space is broken up by the monumental stair and central open space. This is meant to shorten the perceived distance that people would have to travel.




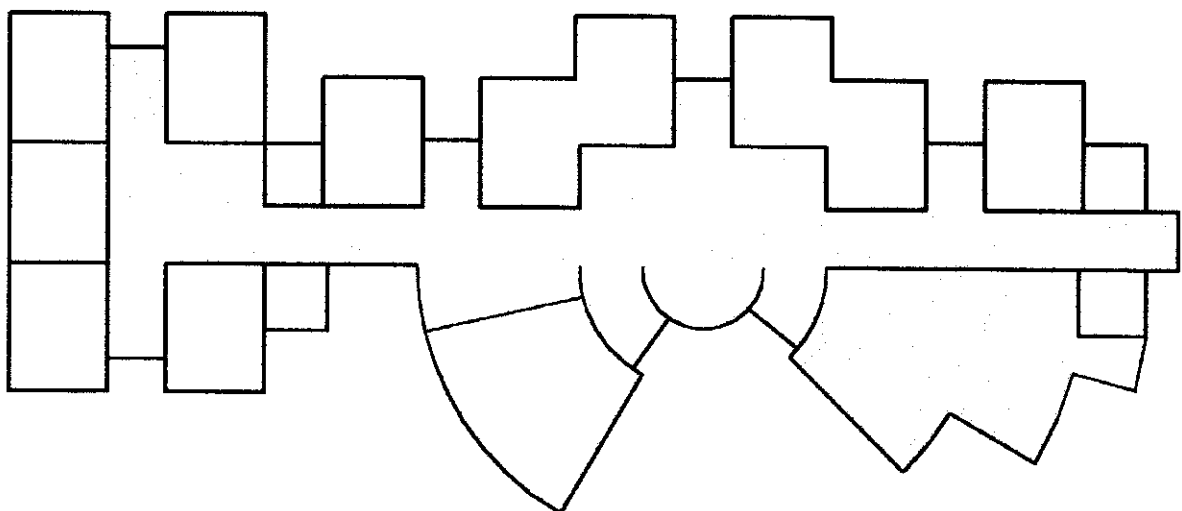


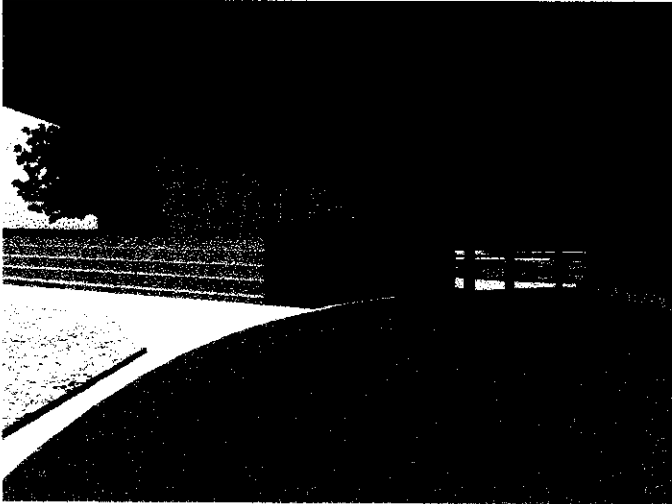
 **EAST/WEST SECTION**
0' 8' 16' 32'

- Interstitial Space
- Classroom Space
- Office Space
- Lecture Space
- Research Space
- Support Space

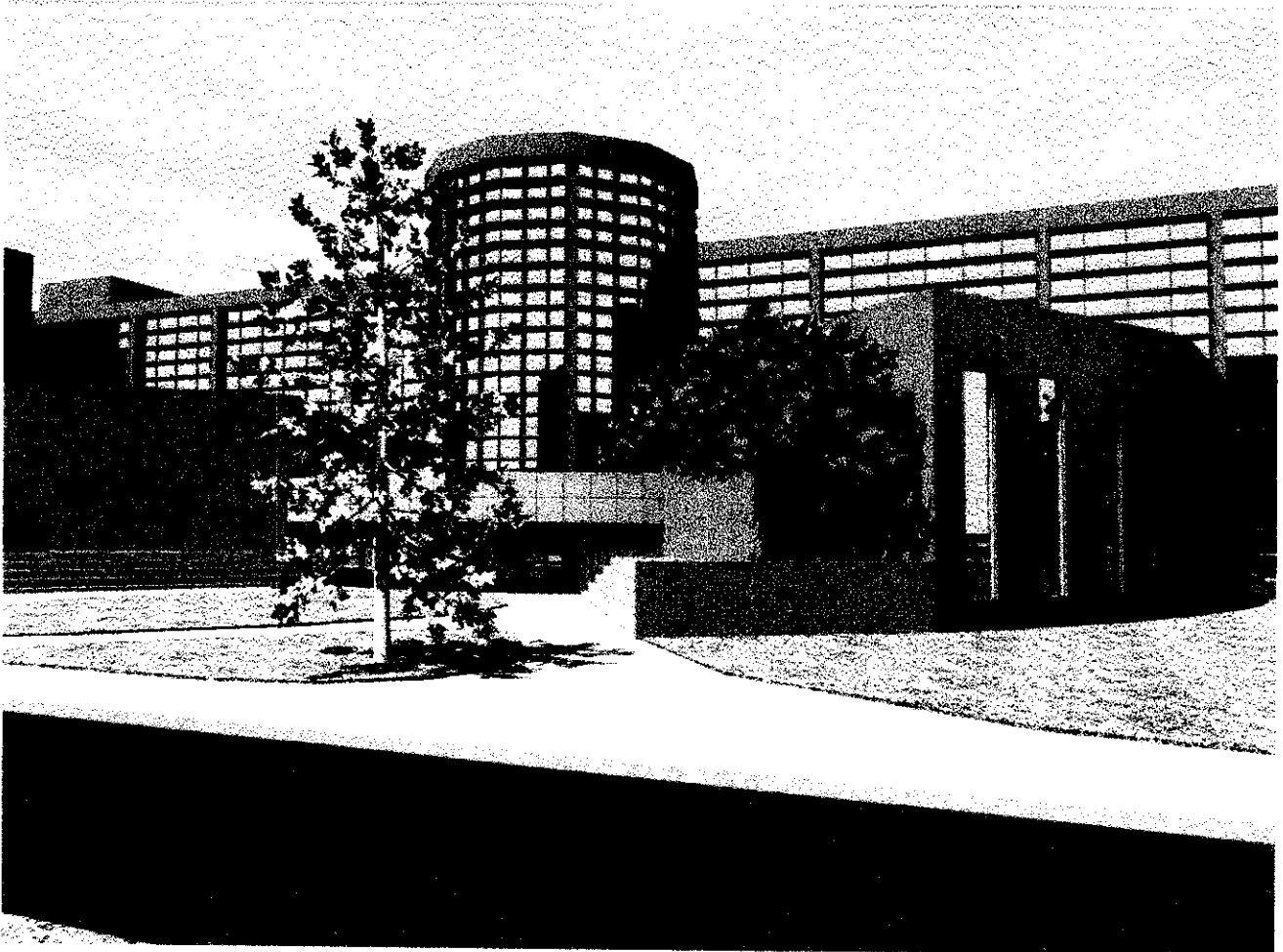


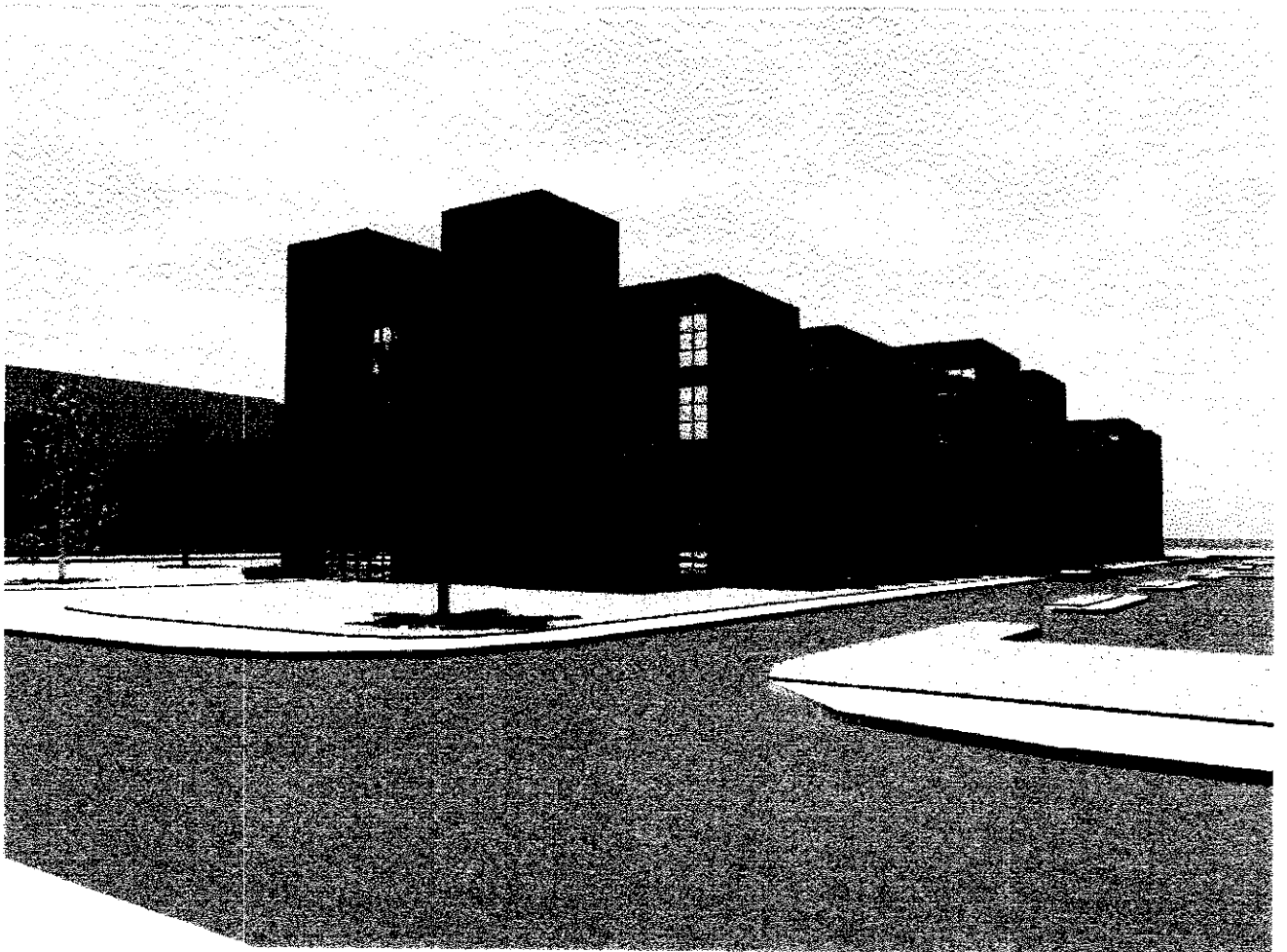
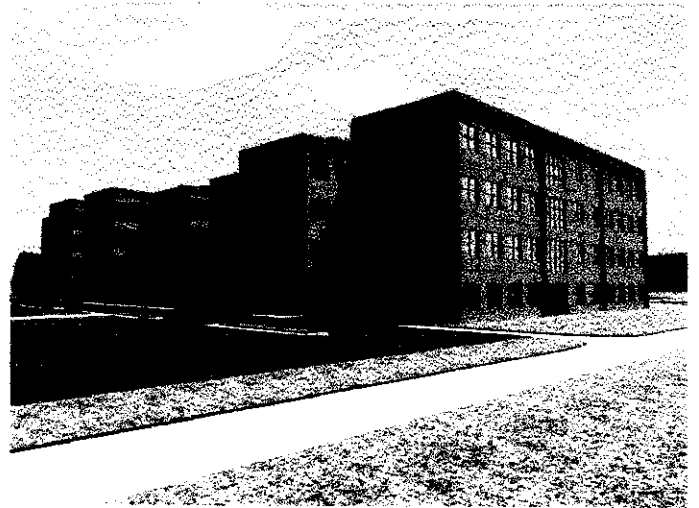
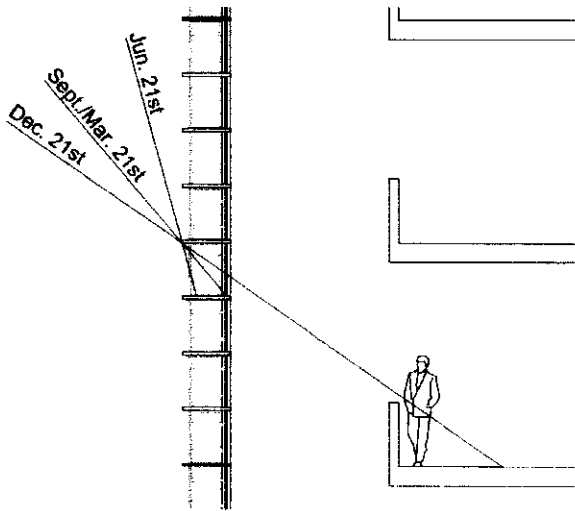
 **NORTH/SOUTH SECTION**
0' 8' 16' 32'





The curtain wall on the southern façade incorporates shading devices that prevent light from entering the atrium during the summer and allow light to penetrate into the building during the winter months. This creates natural heating in the winter and a cooler shaded zone in the summer. The diagram to the right shows the shading devices that are integrated with the curtainwall system.

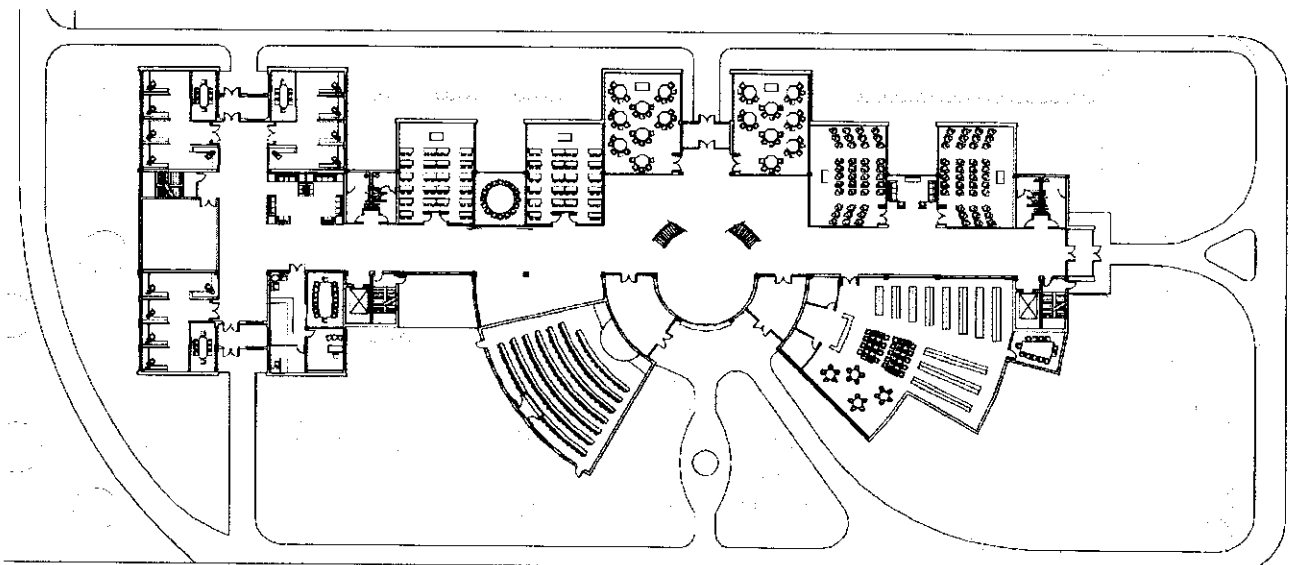




This project has opened my eyes to how difficult it is to design some aspects of architecture. The whole concept of designing a building around the interstitial space is contrary to the way architects tend to design. The design process ended up being a struggle between the programmatic spaces and the connections between these spaces.

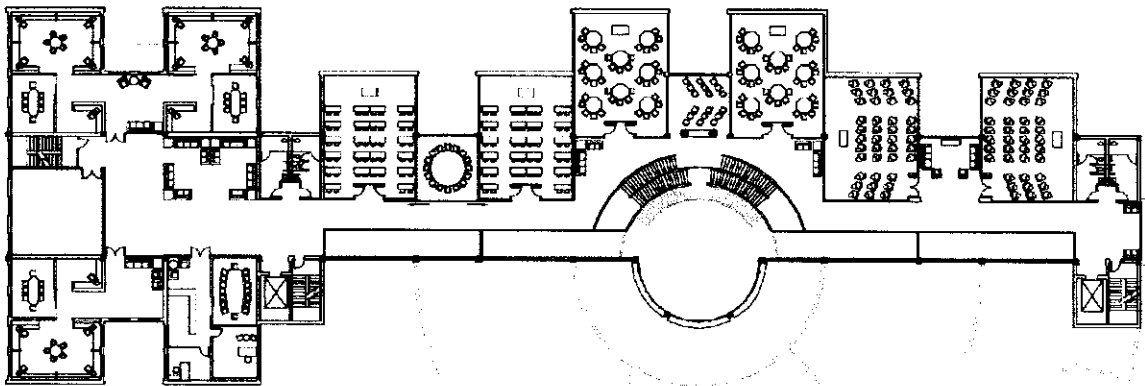
I think that this project was successful in utilizing interstitial space to enhance interaction among its users. The dynamic atrium space draws people together. Small lounges and seating areas provide spaces for conversations that do not interrupt the flow of people through the building. The concept of an open environment throughout the building encourages interaction even within the destination spaces. For example, flexible classroom layouts allow professors to modify the classrooms to encourage discussion, and the shared office environment promotes a sense of community among faculty members.

Since the final review, some changes have been made in response to comments by the critics. The floor plans on these pages show most of these changes. The library has been redeveloped so that the courtyard to the south opens more toward the corner of McKinley and Petty. The lecture hall has also been rotated to allow for gallery space that will also serve as a lobby during lectures or presentations. The circular area and stairs have been changed to allow the floors above to step back and create an interactive space between floors. My suggestions for further research would be to explore the transition between the interior and exterior space, to explore the transition between interstitial and destination spaces within the building, and to explore the visual relationship between floors.

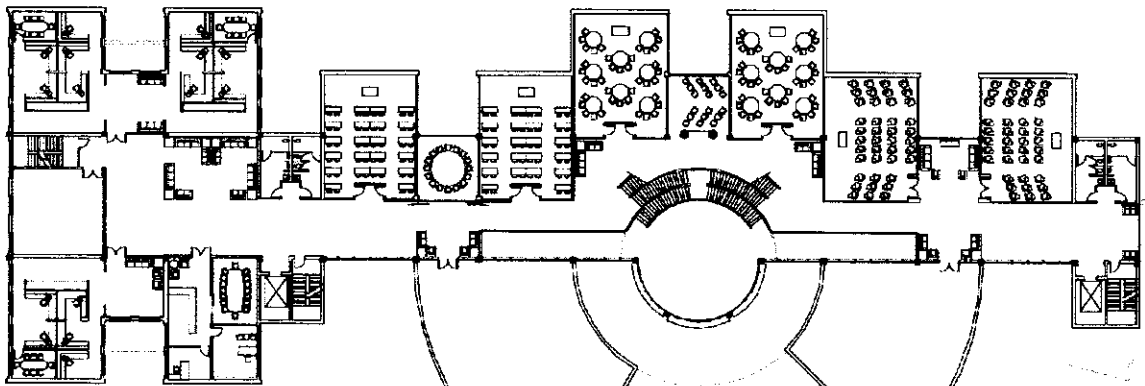


FIRST FLOOR PLAN

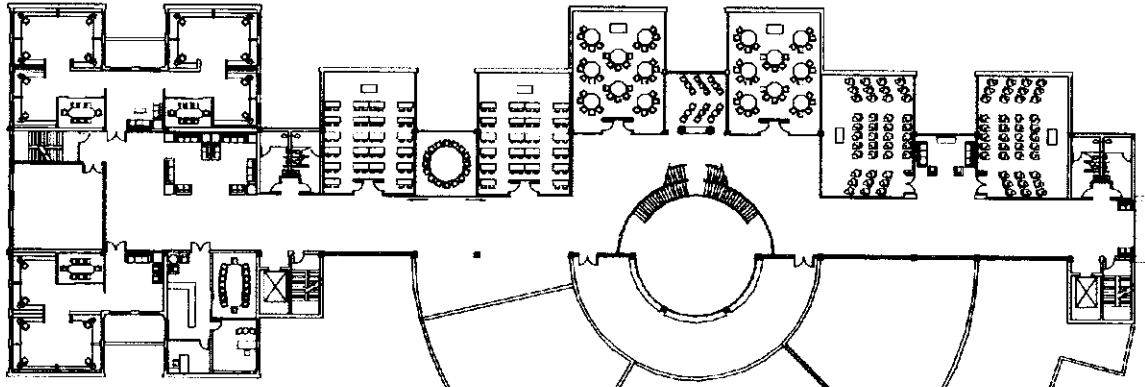




FOURTH FLOOR PLAN



THIRD FLOOR PLAN



SECOND FLOOR PLAN

I would like to thank the College of Architecture and Planning faculty at Ball State University for their continued help throughout my college career. A special thank you to Jack Wyman for helping me as my studio professor, and Bob Koester as my thesis advisor.

I would like to express my appreciation for all of my fellow students for inspiration and motivation throughout the thesis process.

I would like to thank Josh Vermillion for setting up the website, and making possible for us to display our work over the Internet.

I would like to express my appreciation for Shanna Sporleder's support and encouragement this year.

Baker, Nick, and Koen Steemers. Energy and Environment in Architecture. New York: Routledge, 2000.

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