In the beginning of Arch 406, I turned my attention towards roof forms and the massing of the complex as a whole. These design elements served as physical and visual connectors of the complex.

In preparing for my final review I first studied the massing of the complex. The more enclosed areas where group instruction occurs along the north spine of the building, and are denoted by a 6' building height increase.

A relatively flat roof was provided. Skylights denote major circulation paths and serve as a visual as well as physical connection between the square and semi-circular forms.

Sitework included the planting of more trees in a grid fashion and the development of the garden space in front of the teaching theaters. A service entry is located to the southwest of the complex for easy access to the receiving area.

Elevations using the slanted windows were also studied at this point. The overuse of the slanted win-
dows was discussed at the review. As a result of this discussion, I turned to more elevation studies searching for a more sympathetic solution. At this time the semi-circular skylights became gabled and the rhombus shaped windows became square.

The penetration of the entrance gallery became more apparent. The spiral ramp inside the gallery was replaced by a bridge that punctures the cylinder and connects the second floor gallery space to the second floor teaching theaters. The possibility of a waterfall running under this bridge was considered. Views from the bridge are either over into the small outside garden or through punch-outs in the brick and concrete wall which looks out towards the Grand Entry.
CONSTRUCTION SECTIONS

Detail 1

Detail 2

Truss Line

Roof Line

Second Floor

Computer Room

First Floor

Basement

Gallery

Exhibit
CONCLUSION
I am pleased with the piece of architecture that I have created as a result of the past nine months of hard work. But I look back and realize that far more important than the product is the process, the creative process...

Creativity has been described as a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, etc... and identifying the difficulties, searching for solutions, and testing and retesting of hypotheses; and finally communicating the results.

During this year I have had the opportunity to learn more about my process of creativity. With each new problem, the process becomes more refined and in time, as a result of this constant refinement, I plan to become a good designer.
SPECIAL USER REQUIREMENTS

Indianapolis Life Development Education Center
The Handicapped

Exterior Elements

PARKING
Handicap parking spaces should be located as near the building as possible; preferably no farther 200'. Five percent of the total parking spaces should be for the handicapped. Their dimensions should be 12' wide and 20' deep.

WALKS
Slightly textured, non-slip surfaces should be provided. Suitable surfacing materials include concrete, mortared level brick, or tile. Avoid irregular and rough surfaces and loose materials such as crushed stone, earth, gravel, bark chips, and sand bedded pavers in paths unless equally short, hard surfaced paths are available.

Avoid chains as barriers along pedestrian ways because they are too flexible for support and may create hazard to the blind and partially sighted.
Avoid low level light sources which are high enough to provide glare to wheelchair users.

SIGNAGE

Signs should be provided to indicate the existence and location of facilities for the handicapped. Such information devices have the following purposes:

* To identify suitable entry/exit facilities
* To identify suitable vertical circulation facilities
* To identify suitable personal hygiene facilities
* To identify other facilities which are provided for the handicapped.

Avoid typefaces which are stylized or extensively serifed. Typefaces which are excessively condensed or extended should also be avoided. Typefaces such as helvetica, universe, folio, and futura are desirable.

A substantial level of contrast should be achieved between the letters and symbols and the field on which they are displayed. Generally, it is better to use light colored letters and symbols on a dark field such as white on black or dark blue than vice
versa. Where dark letters and symbols are used on a light field, the field should not be white; it should be a neutral gray.

Avoid graphic symbols as the only form of signage—they are confusing and hard to "feel" for the blind. Place braille explanatory strips on upper left corner of long textural signs.

WASTE DISPOSAL
Open receptacles or those operated by hand are preferred. Lightly spring loaded doors are acceptable. Avoid doors requiring two hands to operate, or foot operation.

Building Areas

ENTRY
Accessible entries for the handicapped should be placed at each location where entrance is normally provided. At least one accessible entrance and two exits should be provided. Entry points should be
located with an eye toward accessibility to both general and vertical circulation and to all public areas. Access to and exit from buildings by the handicapped in the case of power failure (lighting and elevators) should be taken into account.

Provide a minimum of one entry at grade. Entry/exit doors should be 36" wide if possible. Handicapped accessible doors should be at building fire exit locations. Each door of a pair should provide full minimum clearance.

CIRCULATION

Circulation spaces must provide sufficient room both for the movement of the handicapped person individually and for clearance between opposing flows of traffic. As with exterior circulation paths, interior circulation must be carefully considered to avoid projection of any hazardous elements into any circulation path. Open stairs in or near circulation paths must by carefully located and indicated to avoid hazard to the blind.

Each corridor less than 5'-0" width should have a minimum of one turnaround/passing space. Any cor-
Rider elevation change of 1'-4½" or less should be by ramp, maximum 1:12 slope.

Provide alcoves for "out of circulation path" access to phones and drinking fountains.

**HANDRAILS**

Handrails should be provided to each side of any staircase or steep ramp. Hemiplegics and others with weakness on one side may find it difficult to manage a staircase or ramp in both directions where a rail is on one side only.

Handrails must be easy to grip. A circular section having a diameter of 1 3/4" or 2" is most satisfactory. Rails with sharp edges or which are more than 2 1/8" wide or 2" deep are difficult for people with weak or arthritic hands to grip.

Handrails should be at a height of 2'-8" above nosing and extend a minimum of 2' beyond the last step in a flight of stairs, and should be continuous around landings.
STAIRS, RAMPS
Vertical movement within buildings is most easily accomplished by the handicapped by elevator. Ramps require a great amount of space for any significant vertical rise. Stairs are not accessible to those in a wheelchair. Suitable ramps and/or lifts should be provided in addition to or in place of steps.

TOILETS
Toilets are generally relatively small spaces in which the location of, and clearance past, all elements must be carefully considered. Space to turn a wheelchair 180° must be maintained in order to avoid the necessity of backing out of the room.
The Elderly

Exterior Elements

PARKING
Each space should be 10' wide and 20' deep (with 24' of aisle space). Five percent of the total number of parking spaces should be 12' wide and designated for handicapped users.

WALKS
Walkway paving should be concrete with a broom finish, non-slip surface. A special brand of textured, non-slip paving should be used on the entrances to the building.

SIGNAGE
Usually, necessary information should not be presented in a typeface smaller than 1½" high. It is better to present information on oversized rather than undersized signs to compensate for the losses in vision suffered by many older persons. See section on 'Signage' under "Handicapped Users" for additional requirements.
Building Areas

ENTRY
Door design, opening, and placement should reflect the limited muscular strength and poor eyesight of old people, and the confinement of some to wheelchairs.

All door openings should allow for someone who is in a wheelchair or for someone who is using a mechanical walking aid to pass easily. Therefore, all door openings should have a minimum clear opening of 32". Primary building entrance doors should have a minimum clear opening of 34". At least 39" of clear approach space should be provided on each side of primary doors.

CIRCULATION
Corridors must be carefully designed if they are to compensate for the physical and visual deterioration of the elderly. Slip-resistant floors and high lighting levels are necessary features. Corridors should have a clear dimension of at least 5' wide. Where handrails are provided, they are needed on both walls.
of the corridor so that an elderly person with a disabled right or left hand can use the support on either side. (Dimensions and requirements for handrails are the same as those for the handicapped).

STAIRS, RAMPS

Stairs can be made more comfortable to use by careful design which recognizes user limitations. Perception difficulties make it important to provide at least three risers per flight. Stairs should be designed with runs which are as straight and short as possible and with a maximum of ten risers between landings. Steps should have plain faces with integral non-projecting nosings. Open risers are unacceptable.

All staircases, including means of egress, should be designed with a maximum rise of 7", a minimum run of 10½", and a minimum tread width of 11". The product of rise and run shall not be less than 70, or more than 75.

TOILETS

(Requirements are the same as the handicapped).
SPATIAL FUNCTIONS

Indianapolis Life Development Education Center
Entry

Goals & Objectives

According to the White River Park Development Master Plan, a circulation path passes directly through the site linking the Grand Entry of the Park to the central public space of the Quadrangle. In planning, an effort has been made to link, both physically and psychologically, all the buildings in the Quadrangle into a single compound. This is accomplished by using a continuous loggia, open specifically to the entrance of each building and generally, to the central public space.

It is desirable that the Center serve as a focal point looking in the directions from both the Grand Entry and the central public space therefore, it is important to relate the form of entry to the surrounding site as well as relating its function to the needs of the Center itself.
Activities

Arrival

For those who come to the White River Park Development specifically to visit the ILDEC, there are two possible points of arrival. If arriving by car, one would approach the Center from the parking lot via the Grand Entry. If arriving by bus, one may approach the Center from the bus drop-off at Park Ave.

White River Park patrons who are already on the park site and decide to visit the Center while touring the Park will more than likely approach the Center from the Grand Entry or from the central public space of the Quadrangle.

Whether approaching the Center from the Grand Entry, the central public space, or the bus drop-off, the sense of arrival is important. The arrival to the Center should include the progression through a series of spaces that lead to a climatic entrance. Trees, plants, water, columns, arches, and steps, etc., are natural and man-made elements that can be used to provide a pedestrian scale to the site. The texture and character of these elements should
be soft and act as a counterpoint to the hard surfaces of the City, and as a transition to the pastoral qualities of the park.

Entry

The major function of the entry is to provide a transition from exterior space to interior space. An entrance should be visible from any possible approach to the Center whether on foot or by car.

It is important that the entrance be strongly differentiated from its immediate surroundings. The articulation and form of the entry should be of such to draw the public inward. The relative color of the entrance, the light and shade immediately around it, the articulation, and whether or not the entrance projects beyond the building front or is recessed, are factors which should be considered when defining an entry.
Orientation

As with any public building it must be very easy for each person entering the Center to become immediately oriented in it. Upon entering the Center from the main entrance, one will more than likely proceed into a large open area that serves as a common public space.

Color, graphics, texture, and large objects along with the architectural integrity of this space could provide reference points to give a sense of direction to the user.

Direction

Close to the main entry in the common public space should be an information center where the user can receive information concerning programs offered at the Center and their location. Signs should be placed at circulation nodes to indicate direction to the various activities of the Center.
Exhibition

Goals & Objectives

Exhibitions are one of the most effective means of stimulating interest in objects and ideas. The ILDEC's exhibitions will be well beyond the display of collections characteristic of pre-20th century museums. The most effective exhibition is one that imparts some measure of stimulation, enjoyment, or knowledge to most of the people who visit it.

In recent years, hands on exhibits have grown in acceptance. Explanatory lighting changes, slide shows, movies, and animated models will generate excitement, lengthen attention spans, provide sequence and add meaning to exhibits.

The Center's walk-through exhibit area will feature a variety of exhibits including self-teaching units, theme units, and student operated units. The space will be capable of displaying national traveling exhibits such as those available from the American Medical Association or the Smithsonian Institute.
Along with exhibits will be models, audio-visuals, and electronics to teach and visualize the field of health: see-through, light-up, and working models of the human body and its various anatomical systems, organs, tissues, and cells; detailed enlarged and life-size models of the growth of human life; charts and films depicting body functions and processes. Buttons and switches will activate film and slide projectors; panels will open to reveal hidden things synchronized with a taped narrative.

Educational Activities

Lectures, films, television programs, panels, discussion groups and similar educational activities all fulfill an important part in any exhibition. Whether they take place in or near the exhibition itself or elsewhere, they serve to attract attention and interest and increase attendance.

Pamphlets, brochures and handouts are also an important part of any major exhibition. They often bear information completing the exhibit or include material not easily adapted for exhibition purposes.
Criteria

Entrance

However many outside doors may be found necessary for the Center's various services, there must be as few as possible public entrances, preferably one, placed separately from the others to facilitate supervision and security measures.

The public entrance should lead into a vestibule where certain essential services will be located such as sale of tickets, information service and sale of brochures and postcards. In a center such as this, one person may be carefully planned to ensure the most practical form and arrangement.

Design & Layout

The contrast of an exhibition to its surroundings tends to increase interest and is, therefore, a definite advantage. The distractions of surroundings cannot always be masked, but they become less noticeable when the exhibition clearly shows that it has a separate existence by use of location, color, lighting and display techniques.
An exhibition should be consistent within itself; it should emphasize the coherence of the subject matter by being a coherent unity in its design and layout as well.

Large slowly moving audiences tend to bunch up at interesting sections of exhibits. Therefore, not only should the material displayed be arranged in such a way that a number of people may see it at the same time without difficulty, but also sufficient room for passing by the exhibit should be allowed.

Where display stands are mounted on temporary platforms, the level of platforms should not be higher than 3'1/8" above fixed floor level for viewing by the handicapped. For chairbound people, a single step may be permissible in certain circumstances but not two steps or more. Where practicable it is desirable that platforms to display stands are ramped. Any display higher than 4'-6" is beyond the small child's usual range of awareness.
Lighting

When correctly employed in an exhibition, light should enhance, emphasize, and create atmosphere; it should never dominate, dazzle or distract.

NATURAL

Daylight is one of the best means of lighting a museum, despite the variations and difficulties which characterize it at different seasons and in different places. The Center should therefore be planned to make the best use of this source of light, even if certain other structural features have to be sacrificed as a result.

SKYLIGHTING

Providing skylights in the ceiling of the exhibition space is a favorable source of lighting for the Center because it presents certain obvious advantages:

- A freer and steadier supply of light, less liable to be affected by the different aspects of the various rooms in the building and by any lateral obstacles (other buildings, trees, etc.) which might tend, by causing refraction or by casting shadows, to alter the quantity or quality of the light itself.

- The possibility of regulating the amount of
light cast on the exhibits and of securing full and uniform lighting, giving good visibility with a minimum of reflection or distortion.

*The maximum latitude in planning space inside the building, which can be divided without requiring courtyards or light shafts.

*The saving of wall space, which thus remains available for exhibits.

*The facilitation of security measures, owing to fewer openings in the outside walls.

LATERAL LIGHTING
A definite practical advantage of walls pierced by windows is that of rendering the utmost simplicity and economy in the style of building, permitting the adoption of the ordinary, nontransparent roofing (flat or sloped), and providing a convenient and simple method of regulating ventilation and temperature.

High-placed windows, especially if they occupy more than one wall, provide more light, more closely resembling that supplied by skylights, and leave all four walls free for exhibits.

Nowadays, the tendency is to abandon uniform lighting in favor of light concentrated on the walls and
on individual exhibits or groups of exhibits, which are thus rendered more conspicuous and more likely to attract the visitors' attention.

ARTIFICIAL

Strip or tube lighting is often used for general lighting, either concealed above a louvered ceiling, or behind valances or other baffles. Incandescent fixtures are often used as spotlights in such profusion that additional general lighting can be omitted. Incandescent lighting fixtures, are often used decoratively as elements of the total design, arranged in groups or clusters or rhythmically repeated at intervals.

The lighting system whether natural, artificial, or a combination of both should be flexible. If the lighting system is too rigid, too definitely planned to suit a particular setting and to establish certain relationships between that setting and the exhibits, it will form an impediment by imposing a certain stability, tending to reduce the facility to a static condition from which modern institutions are striving to emerge.
Teaching Theatres

Goals & Objectives

The Indianapolis Life Development Center will combine under one roof the best technology and the best teaching available to provide programs relating to life itself, leadership, as well as physical, mental, and emotional health.

The health programs at the Center will explore the wonders of human physiology, inspiring participants with a new respect for the body. The Center's staff will utilize discovery and active inquiry techniques by with graphic and oral presentations.

The programs shall take place in small theatres that each provide amphitheatre seating for about 90 adults comfortably. The teaching theatre should be small enough for the teaching specialist who will present the program to maintain constant eye contact with the audience. The array of audio-visual technology and models which will be used during the exquisitely prepared and executed presentation.
The entire array of teaching apparatus should be within easy viewing range, not more than 20 feet from the most distant participant. All of the film and slide projectors and electronics are within easy and full control of the teaching specialist from within the teaching theater.

Criteria

Room Proportion
The maximum unaided throw for a speaker’s voice is 50 ft. to the front and within an arc of 140°. The axis of viewing from the teaching specialist to the center of the class should be kept as horizontal as possible.

Sight/Sound Paths
The teaching specialist must be able to be seen by all members of the class and if this condition is satisfied then the lines of sight mean also direct sound paths for his voice.

To achieve these sight/sound paths either the teaching specialist is sufficiently elevated by platform or the seating of the theatre is stepped to provide
an unobstructed view.

Visual Limits

Each theatre will contain a teaching panel which will feature 3D models and electronic exhibits. Included on the panel should be a screen for viewing films and slides. No viewers should be closer to the screen than twice the screen width, and no farther than 6 times the screen width. All viewers must be seated inside an imaginary 40 cone around the projection axis line.

Lighting

An artificial lighting system is satisfactory for the teaching theatre. Windows provide points of thermal and acoustic weakness together with problems of glare, direct sunlight, and/or visual distraction. The lighting system must be built in or designed to avoid glare, disturbing reflections or shadowing.

Any artificial lighting system needs access to it for maintenance and reclamping and this with the possibility of adjustment and change after install-
Acoustics

The distance of the teaching specialist to the farthest part of the audience will dictate the design for reflective surfaces and the design of internal elements to aid sound paths. The proper design of the walls, floor, and the ceiling surfaces will enhance or restrict the transmission of sound.

The theater should be designed to direct sound onto the audience. The teaching theatres must be insulated to provide protection from sounds from surrounding areas. All openings, and in particular windows, as mentioned earlier, represent weak points in a system of sound insulation.
INTER-SPATIAL RELATIONSHIPS

Indianapolis Life Development Education Center
DESCRIPTION OF RELATIONSHIP OF COMPONENTS

KEY: 1. Related Strongly  
      2. Related Slightly  
      3. No Relationship

CLUSTERS:
- ENTRY/WAITING: 1, 17, 18, 11, 136, 137
- EXHIBITION/LOBBY: 34, 84, 129, 17
- TEACHING THEATRES: 104 (Page 6 of 10)
- AUDITORIUM: 105
- PUBLIC RESTROOMS: 34
- FACULTY ROOM: 7, 23, 38, 52, 65
- OFFICE: 8, 7, 24, 39, 53
- CONFERENCE: 9, 23, 25, 8, 40
- CLERICAL/RECEPTION: 9, 10, 24, 38, 84, 101
- FACULTY RESTROOMS: 10, 25, 39, 52
- FACULTY STORAGE: 40, 53, 65
- A-V PREP: 104
- PROJECTION ROOM: 105
- GEN. STOR./JANITOR: 15
- RECEIVING/SERVICE: 15, 129
- PARKING: 136
Leadership Development
Career Development
Mechanical Storage
Circulation

Leadership Development
Career Development
Circulation

Craft Center at Barcelona, 1979
Mario Botta

House at Poggiocanale, 1980
Mario Botta

- Appreciation of urban texture
- Use of materials
- Geometry
- Volume (KAMN)
- Perforation of skin (SCHMITT)

10 Oct.
ENTRY/WAITING: RECEPTION

- **ENVIRONMENTAL NEEDS:** Primary source of light will be natural, although artificial light may be provided for the receptionist for specific task lighting.

- **HUMAN PHYSICAL NEEDS:** Since the UDEC will serve groups of all ages from pre-school children to the elderly, provisions must be made to ensure accessibility, comfort, & safety to all its potential users, including the handicapped (those in wheelchairs, visually-impaired, hearing impaired).

- Level changes should be avoided if possible in the area between the entry and the receptionist to provide direct, unobstructed access to the receptionist for the handicapped & the elderly.

- Entries should provide full minimum clearance for the handicapped.

- Security - the receptionist shall be located in close proximity to the major entry to facilitate supervision.
ENTRY/WAITING: RECEPTION

- **FUNCTIONAL NEEDS**: Circulation to the reception area from the entry/waiting area will be heavy. Access should be direct, unobstructed.

- **PSYCHOLOGICAL NEEDS**: The reception area should be easily identifiable to the user upon entering the public gathering space of the Center.

  - **Image**: lively, active, spacious area for large gatherings of people.
  - **Interaction**: there is a continuous interaction between the receptionist and the user, either inside the Center or outside. The receptionist will be the users' first formal contact/interaction with the Center and should make a favorable impression on the public by readily providing information concerning, fees, programs, reservations, or other activities.

- the area shall be arranged to promote and allow for interaction with different groups (comm-unity, school, church, professional) and age levels (small children, teens, adults, elderly).
ENTRY/WAITING: RECEPTION

NATURAL NEEDS: Because of the link between the Grand Entry and the central public space of the Quadrangle and the strong pedestrian axis it creates, it seems only natural to establish a major entry along this axis with the receptionist in close proximity and the various functions of the Center spinning off this axis.
ENTRY/WAITING: RECEPTION
ENTRY/WAITING: RECEPTION

1. Reception
2. Other activities
3. Entry waiting
4. ENT. WAIT.
5. RECEPT.
6. LOBBY/EXHIBIT
7. REG.
ENTRY/WAITING: RECEPTION

WAITING
REC.
Lobby/Exhibits

THRU TRAFFIC

ENTER

WAITING

REC.
Visual Control

THRU PEDESTRIAN TRAFFIC

THRU TRAFFIC

WAITING

REC.

Lobby/Exhibit/Exit

TO CENTER

ILDEC

ILDEC
ENTRY/WAITING: EXHIBITION/LOBBY

- **FUNCTIONAL NEEDS:** There must be as few as possible public entrances to the center to facilitate supervision and security measures in the exhibition area.
- The exhibition/lobby area should function right off the entry waiting area. Circulation between the two areas should be direct, free. This will be a heavy traffic area.
- Flexibility - exhibit area should be flexible to allow for variety among travelling and permanent displays; exhibits.
- Order - the exhibits may be arranged so the user takes a predetermined path thru the exhibits or they may be arranged so the user may wander freely from exhibit to exhibit in no specific order.

- **PSYCHOLOGICAL NEEDS:** Visual access from entry/waiting area to exhibition area, enough to arouse curiosity and interest.
- Image - lively, spacious, active,
- Interaction - may occur between students & teachers, students & students, staff & teachers, adults & staff, etc.
ENTRY/WAITING: EXHIBITION/LOBBY
ENTRY/WAITING: PUBLIC RESTROOMS

- **FUNCTIONAL NEEDS:** The public restrooms need to be close to the waiting area, and easily identifiable by the user. The receptionist should be able to give quick & easy directions to the public facilities (without having to say its around the corner, two doors down turn left, then make another right and its in the corner).

- **This area should be provided with drinking fountains and public telephones (accessible to the handicapped & elderly).**

- **Circulation:** The public facilities should function off of a major circulation path (out of flow of rigid traffic).

- **Provide fixtures at heights accessible to children as well as handicapped.**

- **PSYCHOLOGICAL NEEDS:** Privacy - place entries out of flow of rigid traffic.

- **Habits:** Children will probably want or need to use the facilities upon arriving to the center or before leaving it.

- **Interaction:** Among the users will probably take place around this area or at the drinking fountains, telephones, waiting area, etc.
ENTRY/WAITING: PARKING

- **HUMAN PHYSICAL NEEDS**: A drop-off area on Park Avenue will allow loading/unloading of buses, vans, cars, etc. Parking is provided about a block south of the Center. The proposed drop-off area on Park Avenue will be re-evaluated and possibly designed to incorporate parking for the handicapped. It is also possible to provide such parking off the service access/entry.

- **PSYCHOLOGICAL NEEDS**: The sense of arrival to the IUBEC is important. Users arriving to the Center by car will approach it via the Grand Entry. As the user progresses from the Grand Entry to the IUBEC, there should be a gradual transition from the "grandiose" scale of the Grand Entry to an environment with a more "human" scale. The same should hold true whether approaching from the drop-off or the central public space of the Quadrangle on the opposite end of the site.

- **Aesthetics**: Water from the Canal will flow through the site and/or around the Center. This element will help make the transition from the hard surfaces of the parking area to the more soft, textured character wanted for the site, up to the entry and hopefully carried out throughout the Center.
ENTRY/WAITING: PARKING

- **PSYCHOLOGICAL NEEDS** aren't. Users should be able to view out of the center to watch for rides if necessary.
- **Image** - "full of life", stimulating.
- **FUNCTIONAL NEEDS**: Physical link from Grand Entry to ILDEC. Circulation - heavy, direct
- **ENVIRONMENTAL NEEDS**: the path from the parking area to the entry/waiting area should be well lit at night to ensure safety and facilitate security.

- A portion of the path between the Grand Entry and the ILDEC should be covered or enclosed to provide shelter during bad weather conditions.
ENTRY/WAITING CLUSTERS