SITE DESIGN FOR THE INDIANA ACADEMY FOR THE SCIENCES, MATHEMATICS, AND HUMANITIES

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In fulfillment of BLA degree requirements for the Department of Landscape Architecture, Ball State University this fourth day of May, 1991

Ron Spangler, Advisor
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Bibliography
Dedicated to my wife Dawn.
How she put up with me I'll never know!
Abstract

The site for the Indiana Academy for the Sciences, Mathematics, and Humanities presents an excellent opportunity for in-depth study of an actual site. Historical research into residential education and campus design provided clues to the successful resolving of perceived problems.

Analysis of the site and personal interviews with students of the Academy and with all involved staff gave me insight as to how to develop a program which fit the needs of all involved while combining and bartering requests. The program relies heavily on specific site data and is, therefore, suited to the needs of the Academy.

The final solution is a mixture of grandeur historical allusion integrated with a functionality that serves as it beautifies.
Chapter One: Project Introduction

1.1 Problem Statement

The phenomenon of residential education, that is of sending children to a place of learning which requires them to reside there, has had its base deep within the roots of both American and European society. The problem occurs when attempting to organize a place of residential education.

Education has a two-fold purpose: it can be thought of as directed to personal development of an individual, or to his or her contribution to the community of which he or she is a member. Fraser exemplified the first of these purposes: "the practice in certain boarding schools of allowing the students to discover their own forms of self-expression in activities outside the formal classroom. . . . is recognition that there are conditions to be fulfilled before the growth of personality via intellectual satisfaction can be expected . . ." (Residential Education 1968). This idea of "self-expression" is the main thrust of the development of a site. The landscape surrounding a living place should be a facilitator of free thought. When given the opportunity for informal learning situations, the challenge given to the students contributes to their personal development.

The second purpose is meant to prepare the student for life after his/her education. To this end there are 4 goals of an educational residence to which I would like to subscribe (Riker, 1956):

1. The residence will foster the development and strengthening of important social values, including self-reliance, independent judgement, cooperative action, and cultural appreciation.
2. The residence will furnish informal training in the art of human relationships.
3. The residence will take a supportive role in assisting the student during the transition from the family environment to that of the
broader civic community.

4. The residence will provide an environment which will contribute to the physical and mental health of the student. These goals give a sense of meaning and perspective to the task of developing a residential facility.

Additional detailed studies and planning are vitally necessary when considering that the values/moral nurturing (previously provided by the family—now by the residence) and education of our children is one of the most important aspects of life. What is the purpose of existence if it is not to create a world that is more genteel to the progeny of humankind?

We need to take care of this precious commodity through thoughtful and responsible design. There are few guidelines to follow when designing a residential educational(R.E.) facility. Most residences are built to closely resemble an existing facility. Rarely are the individual needs of specific students taken into consideration. We need to solve this problem and its associated sub-problems.

1.2 Background and Site

The idea of residential education can be traced back as far as Aristotle and his school of philosophical endeavor. Throughout the middle ages and indeed even recently the young men of European aristocrats were sent to military academies. These early institutions paid little heed to the welfare of their charges in a time when landscape was hardly even a word of common use. It was not until the advent of colleges and universities that the grounds of a learning institution were thought of as a place to nurture ideas and to cradle students in a friendly environment.

Perhaps one of the best examples of a friendly environment was Thomas Jefferson's University of Virginia. Jefferson's concept of an 'academical village' found its culmination in the University. It was designed with a specific group in mind and served its purpose wonderfully.
With the revolutions in design concepts that the twentieth century brought came a new idea in residential education, the education park. At the turn of the century, Preston Search, Superintendent of Schools in Los Angeles, proposed a "school park" for that city which would house the entire population of students in Los Angeles in a development that would be a "community by itself and under one management" (CORDE 1966).

Radburn, New Jersey created a variation on this theme in 1928 with its system of combined open space, community recreation facilities, and new school construction. There have been other proposals and various built facilities, but in most every case the concepts reflect specific local needs of the students and of the communities. It is this personal involvement that every designer needs to strive for.

The site which I have chosen for the execution of this project is the Indiana Academy for the Sciences, Mathematics and Humanities at Ball State University. The Academy is located on the southern border of the University's campus in Muncie, Indiana, directly East of Ball Memorial Hospital on University Avenue. The "gifted academy" was started in August of 1990 in an effort to bring the best and the brightest of our children to a place in which they may stretch their minds in a wholly academic environment. The Academy illustrates the care and thoughtfulness which is being donated by people who wish to nurture the harbingers of our future. The project site has limitations, most notably the area of space in which to work. This compactness does allow, however, for the development of a truly inward focused design that will give the site a sense of presence. The design needs to be a space that doesn't force activity, rather it enhances the quiet atmosphere which is typical of a college campus.
The client will be Ball State University, but the true spiritual user/clients of the space will be the numerous resident students of the Academy. It is for these students that the challenge must be met.
Chapter Two: Program Objectives

2.1 Introduction

The site of the Indiana Academy for the Sciences, Mathematics and Humanities presents a unique opportunity for the design of a space which will serve as home and teaching ground for a large student populace. With an eventual population of 300 Academy students and 400 Burris students (grades kindergarten through 12), the site facilities need to be organized to make the best use of a limited size. The site is an educational facility containing outside classrooms and experimental laboratories; a recreational facility serving the needs of high school and university residents; and a common meeting ground so that students of different ages and view may share insight into one another's problems.

The clients for the project are the University and Academy administrators. The primary users of the facility will be the students and staff members who will utilize the space on an everyday basis. These are the people who must be satisfied with the space.

On the following pages is the initial response to my study of the need of the Academy and the appropriate responses to several major concerns which I set up as design criteria.
2.2 Project Area Measurements

<table>
<thead>
<tr>
<th>Description</th>
<th>Area (sq. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Site Area</td>
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</tr>
<tr>
<td>Total Building Area</td>
<td></td>
</tr>
<tr>
<td>Burris</td>
<td>58,500</td>
</tr>
<tr>
<td>Wagoner</td>
<td>28,600</td>
</tr>
<tr>
<td>Dining</td>
<td>14,300</td>
</tr>
<tr>
<td>Elliott</td>
<td>10,600</td>
</tr>
<tr>
<td>Total Exterior Space</td>
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<tr>
<td>Total Paved Surface (existing)</td>
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<tr>
<td>Total Green Space</td>
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</tr>
<tr>
<td>Playground</td>
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<tr>
<td>Ballfield</td>
<td>25,600</td>
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### 2.3 Site Programmatic

<table>
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<tr>
<th>FACILITY</th>
<th>EXISTING AREA</th>
<th>PROPOSED</th>
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</thead>
<tbody>
<tr>
<td>1. Outdoor Classrooms</td>
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<td>25,000s.f.</td>
</tr>
<tr>
<td>2. Stage/Performance Area</td>
<td>0</td>
<td>20,000s.f.</td>
</tr>
<tr>
<td>3. Open Fields</td>
<td>177,400s.f.</td>
<td>100,000s.f.</td>
</tr>
<tr>
<td>4. Structured Play Area</td>
<td>18,900s.f.</td>
<td>25,000s.f.</td>
</tr>
<tr>
<td>5. Science Land Lab</td>
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<td>40,000s.f.</td>
</tr>
<tr>
<td>6. Atrium Spaces</td>
<td>existing</td>
<td>existing</td>
</tr>
<tr>
<td>7. Dining/Community Terrace</td>
<td>0</td>
<td>20,000s.f.</td>
</tr>
<tr>
<td>8. Paved Recreational</td>
<td>0</td>
<td>20,000s.f.</td>
</tr>
<tr>
<td>9. Pathway System (fitness areas)</td>
<td>0</td>
<td>7,500s.f</td>
</tr>
<tr>
<td>10. Academy Entry</td>
<td>0</td>
<td>integrate</td>
</tr>
<tr>
<td>11. Parking</td>
<td>52,000s.f.</td>
<td>90,000s.f.</td>
</tr>
</tbody>
</table>

**TOTAL AREA PROPOSED** 347,500s.f.

**TOTAL AREA EXISTING** 348,000s.f.
2.4 Proposed Site Facilities

1. Outdoor Classrooms
   - council rings
   - spaces defined clearly as rooms
   - integrated indoor-outdoor teaching spaces
   25,000s.f.

2. Stage/Performance Area
   - amphitheatre
   - theatre in the round
   - terraced seating with raised dias
   20,000-25,000s.f.

3. Open Field
   - ball sports i.e. baseball, football, soccer, kickball
   - sledding hill for winter
   - informal recreational space
   - playground area (K-12)
   125,000s.f.

4. Structured Play Area
   - existing and future play structures
   - soft play area
   25,000s.f.

5. Life Sciences Land Laboratory
   - experimental planting plots to be used by all levels of
   Burris and the Academy
   - native plantings i.e. approx 70-100 species native
   Indiana trees and shrubs on site
   *these will work in conjunction with the wildlife
   habitats which are currently being proposed
   20,000-40,000s.f.

6. Atrium Spaces (existing)
   - Burris
     * greenhouse and/or animal habitation facilities
   - Wagoner
     * private social gardens for Academy residents

7. Exterior Dining/Community Terraces
   - adjoining Elliott/Wagoner dining facility and/or other
     buildings.
   - provide eating and community gathering space
   - integrated to buildings for best use
   30,000s.f.
8. Paved Recreational Surfaces 25,000s.f.
   - provide area for hard surface games i.e. basketball, boxball, etc.
   - multi-use also suited to skate-boards, radio-control

9. Walking/Jogging Pathway System integrated
   - provide low-risk paths safe from auto arteries
   - fitness stations for use by physical education classes

10. Academy Entrance integrated
    - unique entry for the Academy which says "we are here"
    - promote Academy's theme of "Academy Without Walls"
    - primarily a design problem

11. Parking Facilities 50,000s.f.
    - needed for handicapped and service vehicles
    - low key to integrate into site

2.5 Extrapolations on Site Facilities

1. OUTDOOR CLASSROOMS

   The inclusion of outdoor classrooms is considered to be essential to the site. There are problems associated with providing this type of facility, however. The classroom must be designed in such a fashion as to not allow interference of the class by outside sensory stimulation. Care must be taken to avoid excessive noise interference, visual distractions, and uncomfortable environmental conditions. Another concern is that of visibility into the classroom for safety purposes.

   In order to better create this type of environment, three types of outdoor classrooms are envisioned.

   A. The first type would be a council ring space in the tradition of Jens Jenson. The classroom would consist of a seating circle of stone or concrete design and having a diameter of between 25-35 feet. There would be a raised dias at the center of the circle which the instructor would use as a display or lecture space. A small retracting chalkboard may be incorporated into the dias for lecture purposes. The ring would be broken on one side to allow entry and seating would be provided for approximately 25 students.
The ring would be surrounded by vegetation in the form of shrubs or trees or a combination of both. This vegetative barrier will serve a dual purpose; it will act as a buffer to keep outside noise and sights away from the students and it will encourage students within the ring to focus their attention on the instructor. The drawback of the vegetative buffer is in the compromised visibility it offers to instructors concerned about the safety of their charges.

B. The second type of classroom would consist of an earthen berm arranged in a semicircle about a central presentation area. The presentation area may consist of a slightly raised platform backed by a wooden or stone wall in which a platform would be placed. The instructor would use the board for exercises or for pin-ups. A podium may also be incorporated into the platform.

The semi-circular berm would provide seating for up to 30-40 students or individuals. Seating would be directly on the ground and underground drainage would be provided to assure dry seating. The berm may be of 2 types: sloped berm or terraced steps. In both configurations the berm would have on its outward side a vegetative screen. The vegetation would act in the capacity of buffer and as a stabilizer for the berm (Figures 1 & 2) The "room" would be oriented facing South and the vegetative screen would also act to shade the students from the sun.

C. The third type of classroom would be a facility which is an integrated indoor/outdoor construct. Modification of the building structure of Burris would be required for the joining of an outdoor classroom into the indoor space. These "rooms" would adjoin the building and would be constructed of so called "hard" materials such as concrete, wood, and stone. The concept behind the integrated classroom is to offer the advantages of an open, outdoor learning atmosphere while having the convenience and time saving factors of being within the building.

The 2 halves of the classroom will be connected by a movable, partitioned wall unit which is easily closed at the end of the school day. This would allow greater flexibility of class scheduling, the possibility of larger classes utilizing the space; and seasonal closing for a completely closed winter environment.
2. STAGE/PERFORMANCE AREA

The performance area concept is one that is not new, yet it is often excluded in many projects which do not involve a large park. The stage for this project would be a slightly scaled-down version of the typical. Two concepts are proposed for this area; a theatre in the round and an amphitheatre. The facility would be made to accommodate approximately 100 people seated in a semi-circular fashion. Common elements of both ideas include the arrangement of seating and the orientation on the site. Both ideas can make use of the ground seating idea introduced in discussion of the outdoor classrooms. A naturally sloped berm or one constructed with terraces would be ideal for either application. The terraced seating may work better due to the large number of people using the site at one time. The facility would be placed on the southern half of the site to guard against interference from University Avenue.

A theatre in the round would be constructed so that an unobstructed stage area would be the focus of a nearly enclosed seating mound. One or more performances may be enjoyed at the same time by an audience ranged on the mound. The stage may also be below grade with a rise in above grade mounding totalling only a couple of feet.

The amphitheatre would consist of a centralized dias or platform constructed with a backdrop and facing a semi-circle of seating area. The platform would be below grade and seating may extend slightly above grade or several feet above grade to provide relief for the open-area sledding hill. The outside of the mounded circle would be a planted buffer area consisting of an area large enough to be of use as a university wildlife attractant.

3. OPEN FIELD

The necessity of a large open field on the site is due to the versatility of such an area and to the need of physical education classes at Burris. The field would be used by residents for informal recreation, i.e. touch football games and playing catch, as well as for more structured play such as school wiffle-ball games and a supervised
playground area for the elementary school.

The field would be a rectangular area able to accommodate a football field, a soccer field, and other sports utilizing a field of similar size. Also incorporated into the site would be enough area for a pony league size baseball field to be placed. The baseball field may coincide with the area of the main field. A buffer zone of trees and understory vegetation will surround the field to define and insulate it from other areas on the site.

A site for a sledding facility and a playground would be incorporated into the open field. The playground can be either separate or integrated into the sports field and should be supervisable at all times. It would be most beneficial if the sledding area were situated at one end of the sports field and had a slope of at least 15 percent.

4. STRUCTURED PLAY AREA

A structured playground comprised of built playground equipment and imaginative structures will lay next to Burris School. This area will be large enough to accommodate the existing playground equipment and any future play structures. The area will be divided into two distinct units.

A. Grass/open area this space will contain minimal play structures and be surfaced in turf to facilitate activities such as kickball, tag, and maypole. It will be within visual sight of the primary unit for improved supervision.

B. Absorbent surface area the area containing most of the play structures will be surfaced in a non-interactive, shock absorbing surface. The surface will stand up under the high traffic to be experienced and will reduce injuries to young students. Play structures will range from traditional playground equipment to modern interactive play structures. This area is servicable to the elementary school-aged children.

5. LIFE SCIENCES LAND LABORATORY

The land laboratory will give those students who have never had the chance to work with plants an opportunity to plant, grow, and harvest their own garden. It
will also afford biology classes the chance to experiment with the type of native plantings which covered the area before human intervention took place.

Small plots of the land lab will be reserved for the planting of various species of herbs, vegetables, flowers, and fruits. The individual student or an entire class may utilize the space for science projects and for personal satisfaction. The area will be arranged in geometric patterns and will rate high on the scale of aesthetic visibility.

The native plantings will be incorporated into the exiting university desire for a series of microcosms to attract wildlife. There will be approximately 70-100 species of trees and shrubs native to Indiana grouped into their pre-civilization ecological systems (i.e. oak-hickory associations, beech-maple associations). The plantings will be arranged as buffers to various other site amenities and will be integrated into the overall landscape.

6. ATRIUM SPACES

There are four atriums located on the site, two in Burris and two in Wagoner Hall. These space are to be used according to the appropriateness of their locations:

- Burris atriums

   It is proposed that one of the atriums in Burris be enclosed and utilized as a greenhouse environment for the education of students at the facility. Ventilation systems and possible two-level construction of planting areas could be addressed during development of upgrade plans for the Burris interior. The other atrium space would be a combination open-air/closed animal habitation facility for the housing of experimental animals.

- Wagoner atriums

   The Wagoner atrium spaces would be developed into private gardens catering specifically to the Academy students. These spaces would be such that each had a specific theme and would be appealing to the student who wished to enjoy the tranquility of silence or of the burbling of a small fountain.
These atriums will be noted but not developed as a part of my overall concept. They would be left to be designed at a later date.

7. DINING/COMMUNITY TERRACE

The concept of an outdoor dining and recreational space would constitute an adaptation of an existing idea. This type of space would contribute to the aesthetic quality of the site and to the dining enjoyment of students and faculty alike. An outdoor terrace should, at least, occupy a space as large as that of the indoor dining area. It should be adjacent to the dining facility and as near to the other buildings it services as possible. The terrace would be of an intimate scale with a canopy of shade trees to provide filtered sunlight during the warmer months of the year. Enclosure along the North and West sides would ensure seating shielded from prevailing winds. Amenities such as stationary and movable seating, as well as a water feature to provide white, noise will be included.

The space may serve a dual role as dining area and as classroom area. Permanent seating would be arranged so that a class may use the terrace between meals periods. It would be advantageous to locate the facility near Wagoner Hall for ease of movement of Academy students. Ideally, the dining terrace would be located along the West face of the new dining facility. The configuration of the building would allow direct access from the indoor dining hall to the terrace. A system of sliding doors may be utilized to gain access to the facility.

8. PAVED RECREATIONAL

An area of asphalt or concrete paver hard surface will provide for the inclusion of hard surface games on the site. Games, such as basketball, four-square (box ball), tetherball, and handball, will utilize the space. It will also serve as a multi-use area for activities such as skate-boarding, radio control racing.

The paved space will consist of an area large enough to contain two full basketball courts. The area will have a noise buffer on at least two sides and will be
fitted into an area of low-visibility on the site. The facility will have a shaded rest area on one side with water available.

9. JOGGING/PATHWAY SYSTEM

A miniaturized version of the university's existing fitness trail system will be incorporated into the site. This system will encourage the use of the trail by Academy students who may be recalcitrant in using the university system due to the numerous streets it crosses and the current state of the system.

The Academy trail will include 10-12 fitness stop stations and will make a circuit of the entire site. The trail will be well lighted and integrated so that travel along its length will be pleasant and interesting.

10. ACADEMY ENTRY

A formal entry statement for the Academy will assist in providing the Academy students with a sense of identity and location. The entry will be located in front of Wagoner Hall along Talley Street. There will also be some type of marker, or indicator, of the location of the Academy at the intersection of University Avenue and Talley. This indicator will be of a style so as to compliment the University signage and yet pronounce that it is unique.

11. ACADEMY SQUARE

This node or gathering point will be used to honor those Academy students who have graduated and gone on. The space will serve as an inspiration to those students at the Academy and as an incentive to those who might need the push. The space will be paved in concrete paver and as each student graduates his/her name will be inscribed on one of the pavers. This will be done before graduation exercises so that parents of the student may observe the unveiling.
12. PARKING

Parking on the site will be restricted to a minimum and will primarily service the handicapped. Several spaces will also be provide for University service vehicles and total spaces is not to exceed 15. The parking will be separate and screened from any play area.
Chapter Three: Analysis of the Site

3.1 Context

The site of the Indiana Academy for the Sciences, Mathematics, and Humanities is on the southern border of Ball State University's campus in Muncie, Indiana. The site is bordered on the North by University Avenue, to the East by Talley Avenue, and to the South by Nichols Street. It shares a common property line with Ball Memorial Hospital to the West.

Located on the fringe of campus, the site enjoys the advantages of a mixed neighborhood context. To the North and East lays the main University campus...
with campus tennis courts; Lucina Hall, the proposed campus welcome center; and the University Student center within close proximity. Directly South of the site are several campus parking areas and, beyond those, a residential neighborhood characterized by middle-class homes and numerous churches. The site adjoins the grounds of the largest Catholic church enclave in Muncie, St. Mary’s Cathedral. Situated on the western property line is a six story parking structure servicing Ball Memorial Hospital. To the west of the property line also lays Mariah Bingham Hall, a building leased by the University for nursing classrooms.

On the site are located four buildings; Elliott Hall, Wagoner Hall, Burris Laboratory School, and the Elliott/Wagoner Dining facility. Elliott is a six story, gothic residence hall catering only to those students who have attained the status of senior. There are also some Academy classrooms located in the basement of Elliott.

Wagoner Hall is a four story modern structure which is the home base of the Academy. All Academy students, residential and administrative staff are housed in Wagoner. Wagoner abuts both Talley Ave. and Nichols Street with the building entrance on Talley below grade.

Burris Laboratory School is the largest structure on the site and houses both the Academy instruction and a K-12 regular school. The two story, Gothic structure lays parallel to the western property line and forms a dark arcade with the hospital parking structure.

Finally, the dining facility is a new building erected to feed the Academy students and Elliott residents. It is 1 1/2 stories and lays adjacent to Wagoner along Nichols Street.
3.2 Circulation

Vehicular circulation around the site is primarily via University and Talley Avenues. University is a major access corridor to the University and handles a great deal of traffic on the average day. Talley is a secondary route and has traffic headed primarily for the adjacent neighborhood and the campus parking lots south of the site. Nichols Street is largely unused and serves primary duty as a service access to Burris and to the hospital.

Pedestrian circulation on the site includes movement on the site by the occupants and movement across the site by university students using it as a shortcut from the parking lots to campus. The students who park to the South of the site find it expedient to simply cut across the site in order to make it to their classes in Lucina, Cooper, and North Quad. Travel is almost always next to Wagoner and Elliott and constitutes a light to moderate flow throughout the day.

Academy students from Wagoner move daily from the entrance of Wagoner(facing Talley) to Burris, Elliott, and the dining facility. Movement of students will also be moderately heavy from Burris to the dining facility. An intersection space or node has developed between Elliott and Wagoner halls that creates a hesitation in pedestrian flow to occur. Interestingly enough, this node also happens to be the point of intersection for the path of Elliott students travelling to the dining facility.

Additional peripheral circulation occurs along each of the streets and along the sidewalks leading from University to Burris School.

3.3 Physical Characteristics

A. Vegetation

The site is sparsely vegetated with approximately three species of evergreen trees, several species of deciduous trees, assorted shrubs, and one area of groundcover. The majority of the site is open field covered in a mixture of turf and clover. Most of the trees form a loosely connected network lining the North and East boundaries of the property. The highest concentration of trees is that around
Elliott Hall, mostly mature specimens of the oak-hickory association.

A row of junipers fronts the North-west edge of the property, acting as a visual and acoustical buffer from the parking lot of the hospital. Small shrubs, mostly of the family *taxus*, are arranged around Elliott in a series of ornamental plantings. Additional *taxus* are also arranged around the entrance to Wagoner Hall.

B. Topography

The site benefits from relatively little relief and gentle slopes. The maximum elevation change on the site is one of twelve feet. The high point occurs at the northeast corner of Elliott and the low point is at the intersection of Talley and Nichols Avenues. A slight ridge crest runs between Elliott and the northeast corner of Burris.

The elevation of building foundations are largely level, excepting that of Wagoner Hall. The northern side of Wagoner is built into the side of the slope coming down from Elliott. There is an entrance to the building on what would normally be the second floor. Retaining walls projecting from Wagoner to the sidewalk running along Talley Avenue and South enclose a courtyard space in which the entrance to Wagoner may be found. The South end of the courtyard is at grade with Nichols Avenue and opens upon that street. The West elevation of Wagoner has the first floor gradually revealed as the ground slopes down to street level.

3.4 Architectural Patterns

There are two distinct and diametrically opposed architectural styles existing on the site. The first is the Gothic Revivalist, represented by Elliott Hall and Burris School. These two structures were constructed in the 1920's and exhibit a level of detail and craftsmanship that is not apparent in many of today's buildings. Dormered fascias and black slate roofs characterize both of these buildings. Elliott is constructed of Indiana limestone with double-sash windows and hand-carved cornice pieces above the doors. Burris is constructed primarily of red brick, but
possessing limestone cornices and adornments. These two buildings are typical of the type of structure found at the older "Ivy League" schools.

The other two structures, though, are modern constructs in every sense of the word. Both are modern "box" structures with little to distinguish one from the next other than size and configuration. Wagoner and the Dining Facility are constructed of red brick, having flat roofs and no visible adornment. Very utilitarian in appearance, these buildings give the impression of having no character or sense of place. Typical of institutional buildings of the latter half of this century, they are uniquely fitted to be adjacent to one another.

The extreme contrast in building type creates a problem in visual quality for the site. The gothic buildings are visually stimulating and should be viewed. The modern buildings, on the other hand, have negative visual quality and should be screened from initial viewing.

3.5 Views and Visibility

Views from and into the site constitute a large portion of public opinion about the aesthetic quality perceived. Travelling along University Avenue affords a view of the front face of Burris school and of Elliot Hall. The open field between the two is noted only for its lack of notability. Factors contributing negatively to the view is the overpowering mass of Ball Memorial Hospital before reaching the site and the clash of architectural styles between Elliot and Wagoner Halls. Owing to the volume of traffic on this street, the area of the site adjacent to the avenue is classified as a high-visibility profile area.

The only view into the site afforded by Talley Avenue is of the East entrance of Burris School framed by the walls of Elliott and Wagoner. Ball Memorial’s parking structure looms over Burris like an avalanche over a ski lodge. The proximity of both Elliott and Wagoner to the street affords a good view of only their first two floors. This area is classified as medium-visibility area.

The view from Nichols gives one the perspective of the South sides of Burris and the Dining Facility. An exceptional view of Lucina Hall and of the tennis
facilities is available between these two structures. This service area is classified as a low-visibility area.

Views from the site are very similar to several views which cross the site with the exception of the views of the interior fascias of the on-site buildings. The interior of the site is a semi-buffered area similar to a courtyard enclosed on three sides. A view of Lucina is experienced to the North and a view of the campus parking lots lays to the South. The southern edge of the site also affords a view of the church enclave across the street. The site has high aesthetic quality and is viewed as a parklike setting.
Chapter Four: Concepts

4.1 Concept "A"

A bold statement is made with this concept, a statement saying "I am here!!". The concept starts off with a broad sweeping auto turnaround in front of Burris school on University Avenue, matching the existing turnaround in front of Lucina Hall farther down the street. The turnaround acts as a drop off point for students and also serves the purpose of enclosing a series of radially geometric herb and vegetable gardens. These gardens will be alive with color and augment the formal entry into Burris.

To the East of Burris and extending South to the existing sidewalk is a large, rectangular open field which rests slightly above street level. Rotated nearly eighty degrees to the street, the field presents a view across half the site to the passing motorist. A fifteen foot band of planted wildflowers lines the sidewalk and creates a visual buffer all along University. The confines of the sports field are determined by a number of plantings of pine, spruce, juniper, oak, hickory, maple, and others. An "orchard" of geometrically planted crabapple and cherry trees extends from the eastern edge of the turnaround and runs almost the entire length of the open field. Their transposed grid crashes into the strict north-south orientation of Burris and surrounds it with a grove of silence and tranquility.

The southern edge of the sports field contacts the edge of Academy Square. Actually formed in the shape of a circle, The Square gathers four walks from each of the four directions and acts as a gathering space for students off on their daily rounds who want to stop and chat. Limestone walkways intrude upon the geometry of the dark red cobblestone pavement and converge in a fountain which is markedly off center. Each of the paving stones hold the inscription of a name of a student who has graduated from the Academy.

Between the node of the Square and the entrance to the Dining facility lies the Academy's amphitheatre. Buffered on the North and West by a wildlife planting area, and to the East by a stand of pines, the amphitheatre slopes sharply down to arrive at a podium which is six feet below current ground level. A courtyard just
outside the dining entrance affords an overlook of the entire amphitheatre. The outside edges of the space are defined by walkways originating at the courtyard and extending to both Burris and to Academy Square.

Pedestrian traffic through the site is routed along a pedestrian/service corridor reaching from Nichols Street to Academy Square. From that point it continues past Elliott(making a detour around the terrace) and connects with the sidewalk along University. The corridor will be used infrequently by University vehicles servicing Elliott Hall.

The dining terrace is a tightly enclosed space which connects up to the dining facility on its Western face. Three individual areas are separated by a viaduct sunk into the terrace floor and constructed of water flowing from the building, over a roughly set brick "bed," and into a wall of thick vegetation. The effect is that of a mountain brook gently burbling over rounded stones. A canopy of honeylocusts allows one to eat in dappled sunlight during the day and in a calmed, intimate atmosphere at night. Each of the dining areas are ended in a semi-circular stage where meetings or classes might be held.

The other side of the dining terrace buffer experiences a drop in elevation of a few feet and the water from the terrace cascades into a long narrow pool which overlooks the hard surface play area. A sidewalk also makes its way past the pool to meet with one of the corridors from Burris to the Dining facility. The hard surface area and the playground are integrated for maximum visibility by supervisors. Vegetative buffers separate the playground from the street and from the parking area, located on the southwest corner of the property.

Outdoor classrooms are integrated into the entire site including two unique spaces which are part of an indoor/outdoor symbiotic relationship. Integrated into the side of Burris, these classrooms are separated only by a series of opaque doors which may be retracted during warm weather to make use of the entire space. The class may be taught indoors, outdoors, or both in an effort to enable the class to experience while they learn.

The eastern boundary of the project is treated as an evolving landscape,
gradually emerging limestone pillars forming the basis of a constricting wall around Elliott Hall. An incongruous blue granite pier marks the corner of University and Talley and indicates that there is more here than meets the eye. If one follows the wall south on Talley Street, there is a sudden dissolution of the wall and a sculpted brick wall-sign proclaiming the existence of the Academy erupts. This wall is the first sign of the courtyard space in front of Wagoner that is the entrance proper to the Academy.

Geometric granite steps lead down into a courtyard faced on the buildings side by a series of columnar junipers. The doorway into the Academy is announced by a wireframe facsimile of the roofline of Elliott Hall perched atop two granite columns. An identical structure occupies a spot across the street in the pickup/dropoff area for the Academy. The implied message is of a desire to be of the caliber of the University, and yet not have all of the accompanying restrictions which might apply.

The bold landscape sets a new standard for institutional design and visual standards. Unorthodox though it may seem it will become the ring for which all others must reach.
Chapter Five: Master Plan

5.1 Concept of Site

The site for the Academy for Science, Mathematics, and Humanities will reflect an idea, that of the quest for scholarship and for knowledge. It will be dedicated to those persons in all times and cultures who were considered scholars and who dedicated their lives to the search for knowledge. It will also serve as a place of inspiration to those who will visit the site and those of the Academy who will go on to contribute to the betterment of mankind.

In quest of this tribute, the Academy grounds will have a marked historical allusion. This allusion will be toward Oxford University and the virtual beginnings of the university system.

[Diagram of Christ Church Cathedral, Oxford, 1546]
5.2 Academy Square

Located outside the east entry to Burris is Academy Square. This space serves as the functional and visual keypoint for the entire site. The entrance itself is announced in the overhead plain by a pergola which assumes the form of a gothic pointed arch. The focal point of the Square is a twenty-five foot stained glass sculpture depicting the goals of the Academy and some of the history which lays in its lineage. The sculpture is placed so that the morning and afternoon sun will reflect from its surface and nighttime internal illumination will assure that it is no missed at night.

The sculpture forms the focus of the two formal entries onto the site. Located at the point of their intersection, it will be the first site that most visitors will have of the Indiana Academy. It is also the center point of an arc formed by an Indiana limestone wall. The wall thrusts from the ground as if it were a natural outcropping, but engraved into the face of the wall are the names of every student who has graduated from the Academy along with their year of graduation. The Wall Garden is isolated from the rest of Academy Square by a curvilinear stand of trees which are extended from the border of the formal entries and intersects the arc of the limestone wall.

*First concept for Academy Square.*
5.3 Formal Entries

Entry into the site is facilitated by two primary formal entries, one leading from the parking area to the East of the site (and, incidentally, from the Pittenger Student Center Hotel), and the second coming off of Gilbert Street to the South. These entries run in a true East-West and North-South directions, respectively. The accessways converge, both physically and visually, on the stained-glass sculpture located in Academy Square.

The primary entryway continues the sightlines of the street which accesses Talley Avenue to the South of the Student Center. The overhead plane is dominated by a series of non-structural tubular space frames which form a pointed gothic arch over the entry and give the impression that one is moving through a vaulted hallway. The sensation is heightened by a series of Zelkovas planted along the "hall" and trained to closely match the form of the gothic arch. The design intent is to pay tribute to the ideal of the academy or university environment epitomized by such institutions as Oxford University and the University of Hamburg. The historical allusion is that these fine schools are found in the lineage of the Indiana Academy.

Underfoot, the promenade is comprised of three sections of ten feet each. The two outer sections are the intended traffic areas and are paved in a very formal design of concrete pavers. The inner core of the promenade, however, is a planted corridor that begins at the entry with grass and slowly evolves into a brilliant cacophony of colors as a cultivated flower garden.
The outer boundaries of the entire promenade
are lined with 18"x36" limestone pavers forming a border along its entire length. Engraved on each stone is the name of a scholar who has, in some fashion, contributed to the enlightenment of mankind. The names laid down would represent men and women from all cultures who represent the best of their fields. Depicted would be scholars, philosophers, artists, poets, engineers, architects, composers and inventors. Along with the scholars name, the year of his birth and death and his achievements would be listed. This "walk of knowledge" will serve as the core of the Academy grounds and as a showpiece for the Academy itself.

5.4 Burris Dropoff

The other source of primary access to the site is a union of vehicular and pedestrian circulation. This is the drop-off on the North side of Burris. A gently curving drive allows access to the drop-off site from University Avenue. The auto court is screened from the street and from the University Heat Plant by a linear planting of White Dogwoods in an island between the drive and the street.

The entry court into Burris is an open green space roughly in the shape of a square. Crafted wooden pergolas extend from the dual entrances of Burris which face University and embrace the court as if to shelter it. Visitors to the building walk trough a stand of red oaks and may enter either of the pergolas from the inner forecourt area. Several burbling fountains guide the path of the visitor and encourage one to sit and enjoy the quietness of this isolated clearing. Dense forest stands to the East and West of the court create the sense of the building being placed in a forest glen. The only measurable visual activity occurs on the Western edge of the green space where a mirror from the entrance to the Arcade throws a glimmer of sunlight onto the slick surface surrounding the fountains.
5.5 Burris River Corridor

Traveling along the path of the Western pergola of the Burris court, one comes upon a winding band of blue in the otherwise uniform gray of the paving. This band gradually widens and veers to the right towards a break in the trees where a vibrant flash of color is barely discernable through the branches. This innocuous trail is the beginning of ones entry into the Burris Arcade. This vertical space located between Burris and the Ball Memorial parking garage incorporates a visual playground and a geologic classroom into its 25 foot width.

The vertical face of the parking structure is painted in the mirror image of the building which faces it across the alley. Where the parking structure ends, a space frame (same material as the arched entryway) continues the roofline of Burris. Within the painted windows formed on the structures face, there are mirrored panels which will reflect the faces of the children actually in the classrooms. This "fun house" effect will provide endless amusement for the students in school.

The gradually widening band of blue is the head or beginning of a ground plane fluvial classroom with the "river" depicted in multi-colored paving tiles. The concept is that the student will be able to walk along the river and experience the different things that happen to a river during its course. The river itself will gradually widen and go through meanders, braided streambeds, oxbow lakes, and, finally, a delta. The color of the stream also changes from a blue-white to a sandy brown to a yellow-red to parallel the change in a real river.

In addition to the changes in the "river", changes in composition and vegetation occur as one traverses the river's length. At the head of the river, element such as granite and gneiss benches along with scrub pine will be prevalent. Further down shale, limestone, and oak-hickory association trees will occur. Near the mouth, sandstone and siltstone seating will be interspersed with irrigated planting beds containing Willows and Baldcypress.
5.6 Academy Core

The Academy Core is the dynamic center of the site. Defined to the North and West by the Promenade, and to the South and East by the dining facility and Wagoner Hall, the core contains a variety of spaces integrated into a single, functioning entity. The space contains a dining terrace located on the Northwest corner of the dining facility which operates on an open air cafe theme. Direct access to the interior of the building via sliding doors and extended operating hours serve to create an environment to be enjoyed by faculty and student alike. A pair of sunken volleyball courts between the terrace and the street pay homage the proud tradition of volleyball at Burris while providing entertainment to those on the overlook area above.

The terrace is also visually accessible to the amphitheatre area. The hardscape amphitheatre lies directly North of the entry to the dining facility and can more aptly called a theatre in the round. Four levels of grass and retaining wall seating afford those wish to enjoy a performance comfortable seating. Additional seating is indicated by four quarter-circle arcs set into the paving on the opposite side to the grass seating.

A much larger grass "bowl" extends from the stage to the promenade on the West with its focus at the edge of the dining terrace. This area will be used for performances and recitations whose audiences may exceed the capacity of the smaller theatre. The upper rim of the "bowl" will coincide with the walk leading from the Graduate's Wall to the amphitheatre. This walk also mark the boundary of the Arts Garden which will offer a space for students to display artwork and to study or meditate in quiet. Pathways are created by the placement of trees and of sculpture dias'.

The final area of the core is the Small Green, a space where students may go to unwind when the large open green space is being used or just when they want a little sun. Oriented North-South the green offers maximum sunny area while allowing the activities happening within it to be viewed by Academy residents from their rooms.
5.7 Wagoner Dropoff

Access to Wagoner Hall and to the Academy reception desk is gained by descending a set of steps from Talley Avenue. The entrance drops from street level to the building entry level and is topped by a smaller version of the archway which announces the main Academy entry. On either side of the entryway are small garden terraces highlighted by Hawthorn and juniper plantings.

Brick paving accentuates the entry and also defines the crosswalk leading from the covered dropoff across the street from Wagoner. This shelter reflects the same materials used in the Burris pergola with its crafted wooden supports and glass roof. The dropoff creates a signal point for visitors to the Academy and as a point for students to make use of the shuttle to the Academy. Beyond the shelter is the university parking lot to have spaces reserved for Academy parking.

5.8 Recreation and Playground Spaces

Located in the low-visibility zone along Gilbert Street are the recreational facilities for the site. Two basketball courts and a children's playground provide excellent opportunity for enjoyment of the site. Buffered against the traffic of the street, the parking lot, and the main promenade, the playground area is an enclosed "courtyard" in which supervisors may keep track of their charges more easily. The basketball courts parallel Gilbert and serve as a deterrent to small children who might wander into the street.

The playground itself revolves around an "ocean of sand" which has the delta of the Burris River as its source. Imaginative play will be encouraged through the use of a
nautical theme based on abstracted constructs of ships and of sea monsters. The ships would be based on several distinct historic models and will also serve as inspiration into a further exploration by the child. An "island" in the midst of the sea will support the image of a wrecked ship with the masts and rat's rigging providing a set of climbing challenges for the child.

Entry to the playground area is achieved via a primary node in the Promenade which also serves as access to the core area. A wooden boardwalk provides access to Burris School and acts as a pier to the ocean of sand.
5.9 Outdoor Classrooms

The site will act in the function of outdoor classroom in much of its entirety. There are two areas, however, which will specifically be for outdoor teaching. The first is a council ring located in the interior of the Oak-Hickory plantings on the North side of Burris. Created in the image of works by Jens Jenson, the council ring offers an opportunity for instructors to teach nature courses on site.

The second classroom area is just South of the council ring and adjacent to Academy Square on the East side of Burris. This location affords the opportunity for a combined indoor-outdoor classroom complex. The indoor classrooms have a glass wall which recesses into the wall to open the room up for an open air effect. Tiered seating allows a view of the chalkboard even from outside.
Chapter Six: Summary

The design of a site for the Indiana Academy could be several months work for a full production design team. The historical allusions and intricate detailing of areas like Academy Square and the central core represent the fruition of a semester's work for me. Unfortunately, I don't have several more years to spend working out all of the details. There are some things, though, which can be addressed right now.

This report presents a possible solution for the problems that exist at the Academy. This is not the only solution nor is it possibly the best. It is, however, a good representation of the conditions which exist at the site and of the impact the Academy will have on secondary education and learning at the university level.

Some of the proposed facilities are in desperate need at the moment and these improvements could be implemented in phases. Such areas as adequate pedestrian circulation and safe areas for a playground are two of the issues of immediate urgency. Perhaps the University would not consider it appropriate to begin construction of the entire project; they need, however, to address items which will enhance the safety, health, and welfare of those in their care.
ANNOTATED BIBLIOGRAPHY
FOR THE INDIANA ACADEMY SITE


Looks at the residence within the University. Emphasizes on planning of the University working with residences in Canada.


Explores requirements for citing schools and school grounds through many criteria and using existing projects for illustration.


Deals with issues concerning college orientation for gifted students. Makes an attempt to explain needs of gifted students in the University environment.


Brief abstract covering some of the projects which Eckbo has worked on over the years and the future of campus design.


Overview of residential and boarding schools in Great Britain and across Europe. Gives insight into the social and environmental aspects of these schools.


Describes in detail the history and architecture of Oxford University. Includes multiple photos, engravings, and prints.


Book is an overview of Jefferson's landscapes and other designs. One
chapter focuses on University of Virgina and its environs: a unique residential environment.


Historical notes on the University of Virginia and on its grounds. Mentions radical new treatment of university residences.


Tables and recommendations for suiting the residential environment to the student.


Provides groundwork for developing housing, not only as a place to live, but also to learn and grow. Also has guidelines for administration of such.


Gives guidelines for planning college housing with special emphasis on relationship of student to his environment.


Study of student in traditional residences and decreasing impersonality.


Report focuses on the development of urban parks around schools which are devoted to education.


Summary of criteria for selection of school sites with special emphasis on utilizing the space for school activities.