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Abstract

This thesis book documents the design process for Lawrence Christian Church during the 1978-79 school year. It is organized chronologically beginning with the Program then going through the Design Process step by step: Schematic Design, Design Development, and Detail Design Development.

The Program states the problem and explains the context.

Schematic Design explores possible solutions considering the issues of orientation, site organization, parking, image, and building functions; as set down in the Program. Four concepts are developed as part of this exploration.

Design Development focuses on one concept and develops it further to a workable solution to the problem. The building form and image are primary issues during this stage. The marriage of building to site is also an important issue in this stage to create a working whole. This phase is in two stages, one each half quarter. Each stage takes into account the previous critique and changes are made accordingly.

Detail Design Development focuses on specific problems of the design. In this project these were the definition of the image, the interior design of the Sanctuary, and the circulation space along the sides of the Sanctuary. The final solution is then documented, concluding the Thesis Design.
Abstract

This thesis book documents the design process for Lawrence Christian Church during the 1978-79 school year. It is organized chronologically beginning with the Program then going through the Design Process step by step: Schematic Design, Design Development, and Detail Design Development.

The Program states the problem and explains the context.

Schematic Design explores possible solutions considering the issues of orientation, site organization, parking, image, and building functions; as set down in the Program. Four concepts are developed as part of this exploration.

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Detail Design Development focuses on specific problems of the design. In this project these were the definition of the image, the interior design of the Sanctuary, and the circulation space along the sides of the Sanctuary. The final solution is then documented, concluding the Thesis Design.
Credits

THESIS CRITICS:
Professor Paul Laseau - Architecture
Professor Dan Woodfin - Architecture
Professor Jack Wyman - Architecture
Professor Swartz - Landscape Architecture
Professor Robert Fisher - Structures

CLIENT:
Mr. Dan Pelfrey, Minister
Dr. Norman Ramp, Minister, Lawrence Christian Church
Mr. Roy Smith, Associate Minister, Lawrence Christian Church
Mr. Charles Cronin, Elder
Mr. Frank McClary, Elder
Mr. Tom Morris, Elder, School Administrator
Miss. Jane Cameron, Assistant School Administrator
Miss. Mary Jane Youngblood, Secretary/Receptionist

ORGANIZATIONS:
Indianapolis Department of Transportation
Indiana State Board of Health
Indiana Department of Public Welfare
Soil Conservation Service
Division of Schoolhouse Planning
Indiana Zoning Office
My proposal for a thesis project during the 1978-79 school year involves two major steps. First, I propose to do a Master Plan of Lawrence Christian Church for the development of their future facilities. Second, I propose to design Phase I of the Master Plan which at this point appears to involve some remodeling of the existing building and an extension to accommodate a church school for Daycare, Kindergarten, and Grades One through Eight.

Phase 1 will be approximately 19,000 sq. ft. additional space to the existing 18,000 sq. ft. building. Phase 2 will be approximately 29,000 sq. ft. and Phase 3 will be approximately 18,000 sq. ft. This will bring the Worship facilities up to approximately 40,500 sq. ft. and an attendance of approximately 1,500. Fellowship facilities will be approximately 8,000 sq. ft. for approximately 750 people. Educational facilities will be approximately 35,500 sq. ft. and accommodate Daycare, two Kindergarten classes and two classes each of Grades One through Eight.

The church would like to have high school facilities and eventually start a Bible College, however, additional land would be necessary and I plan to limit my development to the present site. The site may accommodate the High School so it is possible it will be considered in the Master Plan.
Problem

The physical structure of Lawrence Christian Church at the present time is inadequate for the educational and fellowship portions of the total church program and will soon be inadequate for the worship portion of the program. No long range planning and very little short range planning has been done concerning the expansion of these facilities.

A plan for church growth was done by Church Growth Services in 1974 and has since been forgotten. The church is now interested in implementing either this plan or one similar. They are in the process of developing a church school and the existing facilities have reached capacity.

Some specific problems apparent in the existing building include inefficient use of space, inconvenient location of some spaces, insufficient sanitary facilities, poor circulation, and inefficient mechanical system.

In response to these needs, this thesis will encompass the design of a Master Plan for future development and the design of the first building phase of the Master Plan along with some solutions for the problems associated with the existing building.
The church is defined as the whole body of Christians. The physical structure of the church is the building (or buildings) used as a place of worship. To meet the earthly needs of the church several issues must be understood during the design of the physical structure.

The physical structure must harmonize the functioning of four basic areas within the church: 1) Worship  
2) Education  
3) Fellowship  
4) Service

These four areas will be discussed in depth in the Section on Functions. Within these areas many programs must be accommodated as they are initiated and combined with existing programs. This suggests a flexibility of design that allows varying programs to come and go within extensive and/or complicated changes in the physical structure.

Besides this "functionality" the physical structure must be inviting to the constituent area, an obvious place of peace and happiness in a world filled with violence and pressures.

The physical structure will serve people of all ages, so must meet a variety of needs involving scale and activities.

As part of their program, Lawrence Christian Church is developing a school to include Daycare, Kindergarten, and Grades One through Eight. They also plan to develop a High School and possibly a Bible College. As a place of learning, a school should also be functional, flexible, and serve a variety of age groups. The Church and School programs can be organized in such a way that they complement each other, providing a center of activity in an atmosphere not to be taken lightly as a developer of character.

Finally, the church believes in good stewardship of all assets. In economic terms the physical structure should meet the required issues as economically as possible.
Client

The client for my thesis project is the Lawrence Christian Church. The constituent area of Lawrence Christian Church is a five mile radius around the church site. Of this area a three mile radius around the church site may be considered the primary constituent area. This is the major source of new membership and is the area at which the programs of the church are aimed. The church consists of approximately 200-225 active members in the Worship Services and approximately 175 in Sunday School.

Lawrence Christian Church is a Restoration church. The Restoration Movement seeks to restore the church to its original state, the church described in the New Testament.

The Christian Churches do not belong to any denomination and do not have a denominational headquarters. Since the Bible teaches of no organization larger than the local congregation, Lawrence Christian Church is independent and governed by the congregation. Mature Christian men are chosen by the congregation as Elders to act as the main leaders. Any major decisions are brought back to the congregation.
Related Planning

The area around Lawrence Christian Church and south of 56th street is fully developed. No further development is being planned at the present time with the possible exception of the Elementary and Junior High schools located just west of the site. Specific plans for these schools are not known at this time.
Functions

The functions of the church can be divided into four areas:
1) Worship
2) Education
3) Fellowship
4) Service

Worship is communion, or communication with God. In the physical structure worship is manifested primarily in the sanctuary. The sanctuary is an assembly space for the congregation to hold worship services. The worship consists of singing hymns, praying, taking communion, hearing the Word of God, and baptisms.

Education as a function of the church is to produce and nourish disciples to minister the Word. Christian education must be practical and reach the total constituency—children, youth, and adults. The Sunday School at Lawrence is extensively graded from infants through adults. Lawrence has extended their educational program to include Daycare facilities, Kindergarten, and first through Second grades. It is in their desire to expand the program even more to include grades Three through Eighth, than High School, and possibly a Bible College.

Fellowship is best understood as the sense of brotherhood. In Christianity it has an even stronger meaning. It is a bond between one Christian and another, a bond that closely ties together the entire body of Christians. The function of Fellowship in the physical structure is manifested in space or spaces for meals, recreation, and small groups.

Service is more a programmatical function. However, the physical structure can serve the community in many ways. At Lawrence, the church school is a service to the community. The physical structure may also serve as a community center, park, or fallout shelter.
LONG RANGE ATTENDANCE PROJECTION

- 9.4% Annual Increase
- 8.4% Annual Increase


Attendance: 0, 300, 600, 900, 1200, 1500, 1800, 2100, 2400, 2700, 3000, 3300, 3600, 3900, 4200, 4500, 4800, 5100, 5400
Growth

The first meeting of Lawrence Christian Church was in February of 1952 in a private residence and totaled approximately 40 people. Property was purchased at 8139 East 46th Street, and an existing apartment house was remodeled into a meeting house ready for dedication on December 7, 1952.

In the Spring of 1960, five acres of property was purchased at 5450 Boy Scout Road, the present site. The first building unit was completed in 1961, the second in 1970, and the third in 1971. During this period an additional 2.5 acres of property with a small residence was purchased. Also, the Christian Daycare and Church School was started at this time.

At the present time the school is limited to Daycare, Kindergarten, First and Second grades due to inadequate facilities. The church is currently interested in expanding the school through the Eighth grade. They would also like to eventually develop a High School program and possibly start a Bible College.

The Sanctuary can accommodate 468 people, however, a leveling off point in attendance is 80% capacity or 375. It is important to remember the tendency to level off at 80% capacity and the importance of maintaining space for expansion to provide a "vacuum for growth". The Long Range Attendance Projection on page B-13 illustrates attendance growth up to the year 2000.
The Uniform Building Code sets forth regulations for buildings based on Occupancy, Location in Fire Zones, Types of Construction, and required exits.

Occupancy requirements are concerned with location on property, allowable area, maximum building height, and separations in buildings of mixed occupancies. Buildings must be located at least 20' from the property line and have their main entrance on a public street or on the access way. Daycare, Kindergarten, First and Second grades shall not be located above the first story. The allowable area for a building as set forth in the Building Code may be increased by upgrading the type of construction, providing approved fire separations, or providing an automatic fire-extinguishing system. The maximum building height is given in feet and stories and may be increased by upgrading the type of construction or providing an automatic fire-extinguishing system. There are no requirements for fire separations between occupancies for this project except for a one-hour fire separation between Occupancy B-2 and Occupancies A-2.1 and B-1.

The site is located in Fire Zone No. 3 which has no special requirements.

The Type of Construction used dictates the allowable area and maximum height of a building for each occupancy. The only specific requirement is a parapet requirement.

The Occupant Load and number of Required Exits is set forth in Table 1, page B-17. Every story having an occupant load of 500 to 999 shall have not less than three exits. Every story having an occupant load of 1,000 or more shall have not less than four exits. The number of exits from any story of a multistory building shall be figured by adding the occupant load of that story to 50% of the occupant load of the first adjacent story above and/or below and 25% of the occupant load of the story immediately beyond the first adjacent story.

The Building Code also specifies the
### TABLE 1: AVAILABLE SQUARE FEET/OCUPANT AND EGRESS FACILITIES

<table>
<thead>
<tr>
<th>Minimum of 2 exits other than elevators are required where number of occupants is over</th>
<th>Square feet per occupant</th>
<th>Egress by means of a ramp or an elevator must be provided for the physically handicapped as indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly (Concentrated)</td>
<td>50</td>
<td>7&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Assembly (Less than concentrated)</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>Classrooms</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Nurseries for Children (Daycare)</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>Offices</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

<sup>1</sup>Figure number of occupants by fixed seats.

### TABLE 2: RATIO WATER CLOSETS / STUDENTS

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary Schools</td>
<td>1/100</td>
</tr>
<tr>
<td>Secondary Schools</td>
<td>1/100</td>
</tr>
<tr>
<td>Urinals for Boys (Both Schools)</td>
<td>1/50</td>
</tr>
</tbody>
</table>

At least one lavatory for each two water closets or urinals and at least one drinking fountain on each floor.

B-17
requirements for toilet facilities for schools as shown in Table 2, page B-17.
Financial

Financial support of the programs of Lawrence Christian Church is provided by the members of the church through tithes and offerings. Tithing is practiced by many and is generally defined as giving 10% of an individual's income to the church. Offerings are gifts or monetary giving over and above the 10% given in tithing.

The church as a whole can afford as much as is necessary to meet its needs, however, economical construction and life-cycle costs must be considered as the church believes in the program of good stewardship. Stewardship is the way we use the resources and talents God has given us. Good stewardship should be considered in this project as meeting the needs of the church programs as economically as possible. Trade-offs between economy and esthetics will be frequent and decisions varied.
Site Analysis

DESCRIPTION:
The present site is a 7.5 acre plot located at 5450 Boy Scout Road in Lawrence, Indiana, a suburb of Indianapolis. Three plots totaling approximately 8.6 acres located across the street from the present site could possibly be purchased as the program outgrows its present site.

MACRO-CONTEXTUAL: THE SITE REGION

SOIL:
As illustrated on page B-32, approximately two-thirds of the site is Crosby series soil. The other one-third is Miami series soil. The Crosby series characteristically drains poorly and percs slowly. In this instance the slope is between 0-2% (nearly level). This indicates a drainage problem and also the poor possibility of using a septic tank absorption field. The Miami series drains well but percs slowly. The slope is between 2-6% (gentle slope) and has a moderate degree of erosion. This also indicates the poor possibility of using a septic tank absorption field as well as the need to keep the soil protected from erosion.

ENVIRONMENT:
The area is predominantly upper-middle income. The site is bordered by residential development on the North, East, and South. To the West are two schools, one elementary, the other, Junior High. The two residences directly to the East are set back from the road leaving large front yards. The residences to the North are housing units developed by Palander Homes. The majority of the residences in the area are to the South.

ACCESSIBILITY:
Vehicle: The site is approached from and has access to Boy Scout Road along the East line of the site. Major access roads in the area include 56th Street about .2 mile to the North which has access to Interstate 465 about .8 mile to the West. Secondary access roads include Franklin Road about .3 mile to the East, Richard Avenue about .25 mile to the West, and 33rd Street about .3 mile to the South. Other secondary roads have access to the site by these
stretches. Pedestrian: There are no developed pedestrian paths to the site, however, there are sidewalks running along both sides of 56th Street, and throughout the residential areas to the South and West.

MAJOR REGIONAL ACTIVITY NODES:

The only shopping center located in the immediate area is located about .5 mile Southeast of the site. It's small size and the nature of it's shops make it of local importance only and has no direct influence on the church.

Three schools in the area generate varying activities. An Elementary School Southwest of the site and a Junior High School to the Northeast share a large plot of ground bordering the west property line of the church and have playground and track facilities. A High School about .5 mile Northwest of the site has additional facilities including a track/football stadium, a gymnasium, and auditorium. These facilities are used not only during the daylight hours but also in the evenings for various recreational, social, and administrative events.

A small sewage treatment plant is located about .3 mile Southwest of the site which creates unpleasant odors in the residential area there, however, there have been no complaints of odors at the site; probably due to a hill between the site and the sewage treatment plant.

CLIMATE:

Precipitation- Rain/Snow-38.05" Departure from Normal (1977): -.69"

Temperature- Average: 52.9° Departure from Normal (1977): +.66° Highest: 95° on July 19 (and others) Lowest: -20° on January 17 (and others)

Sun Days: Mean Percentage of Possible Sunshine; Annual: 55%; Possible annual hours of sunshine (at 50° N. Lat.): 2487; Mean total hours of sunshine, annual: 2648
Relative Humidity: Average 61%

MICRO-CONTEXTUAL: THE SITE

TOPOGRAPHY:
The site is slightly hilly. The highest point is about 660 feet above sea level. The lowest point is about 353 feet above sea level. See page B-34.

EXISTING VEGETATION:
Trees vary in height from about 10-20 feet and in spread about 10-15 feet and consist mainly of deciduous trees with a few coniferous trees. See page B-36.

Shrubs are generally kept close to the buildings and fences. See page B-36.

Ground Cover is totally grass.

DRAINAGE:
Water drains to the East end of the site to a ditch running North/South along the East property line. See page B-34. Off-site the water drains North to 56th Street then East along 56th Street to a major drainage ditch which runs North to Fall Creek.

UTILITIES:
Water: A 4" water main running parallel to Boy Scout Road on the East side of the street supplies water to a 2" line which runs around the South and West sides of the church building to the Mechanical Room located at the midpoint of the West elevation. See page B-38.

Gas: A 3" gas main running parallel to Boy Scout Road on the West side of the street supplies gas to a 1" line which runs around the South and West sides of the church building to the Mechanical Room. See page B-38.

Power: Electric power is supplied by an overhead line running across the middle of the site from the West to the Mechanical Room. See page B-38.

VIEWS:
Views into the site are all pleasant but not particularly exciting. From Boy Scout Road the site jumps into view from both directions as you come over a hill and clear some houses from B-26
the South and as you clear the housing development from the North. The dynamic impact of this sudden openess can be used to advantage by developing the influence the site and facilities have upon the viewer's first impressions. See photographs, pages B-41 to B-62.

From Site: Views from the site are generally fair. The view to the East is the worst, looking out over the school facilities and dominated by a water tower located about .25 mile away. To the North at eye level the view is blocked by a privacy fence above which the top portion of the housing development is visible. The view to the East is good as it looks over two open lots with trees and a couple of small buildings in the background. The view to the South is blocked by a hill with several residences visible adjacent to the site. See photographs, pages B-41 to B-62.

EDGE CONDITIONS:
The only "hard" edge is along the North property line in the form of an eight foot privacy fence. The West and South property lines have soft edges formed by chain link fences, some trees and shrubs. The East property line is a very soft edge cut and defined by Boy Scout Road.

INCESS/EGRESS:
Vehicular traffic flows through the site on a two-way "U" which surrounds the building. The parking lot is on the West side of the building between the legs of the "U". Traffic generally enters and exits by the North leg of the "U". Use of the South leg of the "U" is considerably less. This causes congestion problems when large groups leave the site at once. See page B-40.

The main entrances to the building are located on the North and South (just west of the Sanctuary). These entrances are rarely used because of their separation from the parking lot. Pedestrian traffic flows primarily from the parking lot to the Northwest entrance of the building. Drop-off and pick-up at the same entrance is very common. The same entrance is used by the school children to reach the play area located North of
the building along the North property line. Pedestrian circulation is hazardous primarily as a result of the vehicular congestion in the area of the Northwest entrance. See page B-40.

**Orientiation:**

Sun: At 40° North Latitude
Summer Altitude: 74°
Winter Altitude: 27°

Prevailing Winds: Winter winds from the Northwest at an average of 11 MPH.
Summer winds from the Southwest at an average of 2.5 MPH.

**Other Site Sensory Features:**

Sounds: Noise from the Interstate is buffered well so is not unpleasant. The only other significant noises would be generated by the activities of the nearby schools. Similar noise would be generated from the church facility itself.

Odors: There is an odor problem around the sewage treatment plant, however, there has been no problem with odors on the site.

**Site Scale:**

The site and the surrounding area are of a small scale easily related to by humans. The church building is on a slightly larger scale, however, still relatable to humans.

**Conclusions:**

The major issues concerning the site are:

1) Response to Residential and Educational edges.
2) Utilize the sudden view of the site to strengthen the image.
3) Keep the parking from becoming an overpowering visual obstacle.
Soils

- CrA - Crosby Series
- MmB2 - Miami Series

B-32
Westminster Presbyterian Church, Muncie, Indiana by Donn Treece
Space: Zoned by function
Structure: Organized on grid
Circulation: Linear distribution
Siting: Set by existing entry

First Community Church, Monongahela, Pennsylvania by David Marness
Space: Zoned by function and hierarchy
Structure: Organized on grid
Circulation: Linear distribution
Siting: Set by entry and orientation

Church of the Brethren, Live Oak, California by Dutcher, George and Hanf
Space: Organized for composition
Structure: Enclosure
Circulation: Circular distribution
Siting: Orientation
Bethlehem Lutheran Church, Santa Rosa, California by Duncombe/Roland/Miller

Space: Zoned by function and composition
Structure: Module and enclosure
Circulation: Distribution
Siting: Entry and orientation

First & Second Church in Boston by Paul Rudolph

Space: Organized for composition
Structure: Enclosure
Circulation: Distribution
Siting: Set by boundaries

Episcopal Church of the Epiphany, Houston, Texas by Clovis, Helmath Associates, Inc.

Space: Zoned by function
Structure: Enclosure
Circulation: Distribution
Siting: Set by entry and orientation
Concordia Senior College, Lutheran Church
Fort Wayne, Missouri by Eero Saarinen & Associates

Space: Zoned by hierarchy around entrance, lake, and elevation

Structure: Organized on grid

Circulation: Distribution

Siting: Hierarchy by elevation

CONCLUSIONS:
Generally, churches of this type consist of Worship Space and Educational Space related to each other by Fellowship Space which also provides the main point of entry. Circulation and Relationships within these areas vary as do the regional and site considerations.

Although economy is a consideration, there is a need to maintain a strong religious and community image (as supported by the client for Lawrence Christian Church).

Access is important as is the necessity of easily finding specific areas in the building or buildings, keeping in mind the overpowering and negative effect of a large parking area on the image of the church.
Plazas

KEEP THE CENTER FREE.
Monuments and fountains should not lie
on the main axes of the traffic. This
prevents conflicts with traffic and con-
flicts with line of sight. This would
work the same for buildings.

Public squares should be enclosed entities.
The plaza should be a defined space. To
do this put only one street at each
point and make them enter at different
angles so no more than one view out of
the plaza is possible at a time. This
way there is only one interruption in
the enclosure.

The size and shape of plazas.
There are two categories for the shape
of plazas: 1) Deep type
2) Wide type
In deep plazas the principle building
should be taller than it is wide. This
suggests that church plazas should pre-
ferably be treated as deep plazas and
squares in front of town halls treated
as wide plazas.

Regarding size, plazas should be in pro-
portion to the size of the principle
building. The height of the principle
building is roughly the minimum dimen-
sion of the plaza and the absolute max-
imum would be twice that. If the plaza
is too large its buildings become less
impressive. The same rule can be
applied to streets.
IRREGULARITIES OF OLD PLAZAS.
Irregular plazas enhance the feeling of naturalness, stimulates interest, and displays monumental buildings to their best advantage.

Verona: 1) Piazza Erbe
2) Piazza dei Signori

Modena: 1) Piazza grande (Maggiore)
2) Piazza della Torre
3) Piazza della Legna (Piazzale Duomo)
CRITIQUE:
The mid-quarter review for Arch. 404 was held on October 9, 1978. The following questions and/or comments were raised:
1) Is the church conservative or liberal? Re-evaluate.
2) Give a visual summation. i.e. square footage, building type study.
3) What are your goals? How will this project help meet those goals?
4) What are the limits of the Master Plan? What is involved?
5) Because they are a fundamentalist church, will the form be fundamental?

Soon after this review, recommendation was made by the thesis critics to assume a clear site and proceed with the project as a total design. It was felt that the problems involved with dealing with the existing physical structure would complicate and subtract from the thesis experience. All future development of this thesis project will follow this recommendation.
Schematic Design

PROCESS:
The primary design criteria used to evaluate the Schematic Design phase consists of: the image of the church, functionality, response to winds (acceptance of summer breezes, rejection of winter winds), response to sun (open to winter sun, closed to summer sun), response to edges (hard edge to the North, entrance from the East, soft edges to the South and West). The Sanctuary will seat 375 and there will be parking for 188 cars. Parking is a major problem as it can easily be visually overpowering.

Using the Building Types Study as a guide, four concepts are being considered. See pages - to -. Each concept is worked to its strongest response to the design criteria. Evaluation of these responses show Concepts 1 and 4 to be the strongest. All concepts have paved parking, for a relatively low volume, high use area near the building's entrance and open-core paving for the high volume, low use parking. Parking is best related to the relatively hard edge to the North of the site put up by the housing development. This appropriately puts the recreation areas beside the schoolyards and residential backyards.

CRITIQUE:
The final review for Arch. 404 was held on Tuesday, November 7, 1978. The following questions and/or comments were raised:

1) Consider the possibility of not totally segregating the Sanctuary.
2) Relate the Sanctuary to the school more. Maybe a "Multi-Purpose" Sanctuary space.
3) Establish criteria to determine a form that is "best" symbolic image.
4) Consider the role of symmetry.
5) What kind of image do you want? Nail it down.
6) Graphics need work.
7) You're "playing it safe". Stick your neck out. Be open. Put it all on paper.
8) Look at the acoustical properties of your Sanctuary closely.
PROCESS:
Schematic Concepts 1 and 4 are being combined. The relationship of the Sanctuary to the balance of the building is stronger in Concept 4 while the diagonal layout of the school in Concept 1 creates a less fragmented site and begins to define an outdoor space that will serve nicely as a controlled play space.

The image of the church is a prime consideration and the Sanctuary is the strongest expression of the image, due to both its location and its function. Its location takes advantage of sudden, strong views of the site as one approaches from both the North and the South and its function, Worship, is the primary function of the Christian Church.

Parking is a major consideration in the image of the church. The required parking is large and very visible so must be dealt with to keep it from overpowering the total facility. Open-core paving is used for the majority of the parking to soften its effect, and breaking up the paved parking will keep it from reading too strongly.

Using the Relationship Diagram on page D-1, and the Space Area listing on page D-3, suggested the Lobby as the main distribution space to all the main function spaces. The Lobby is the intersection of two primary axis, one on the line of the entrance and the other in line with the Sanctuary and the Fellowship Hall. The entry axis extends to the outdoor play space and will need to be stopped visually by some means.

A study of the Sanctuary space resulted in a combination of a circular plan and a rectangular plan. The circular plan creates a strong sense of oneness but responds poorly to a uni-directional program. The rectangular plan is efficient but tends to separate the congregation from the service itself. Combining the two plans suggests a fan shaped plan compromising unity and directionality. This begins to emphasize the Chancery which is at the front of the site. This emphasis is carried further by housing the support functions in a
# Space Areas

**SITE:** 7.01 acres  
305,594 sq. ft.

**WORSHIP:**
- Sanctuary (750 people @ 2'-0"/person) ............. 6,300 sq. ft.
- Baptistry ........................................... 90 sq. ft.
- Preparation (2 @ 72 sq. ft. ea.) .................... 144 sq. ft.
- Chancery ............................................. 700 sq. ft.
- Practice/Robing ..................................... 450 sq. ft.
- Cry Room ............................................. 120 sq. ft.
- Corridor to Chancery ................................ 460 sq. ft.

**SUBTOTAL:** 8,284 sq. ft.

**FELLOWSHIP:**
- Lobby .................................................. 750 sq. ft.
- Entry ................................................... 36 sq. ft.
- Coat Rack Area ....................................... 300 sq. ft.
- Multi-Purpose (Fellowship Hall) ..................... 4,000 sq. ft.
- Kitchen ............................................... 225 sq. ft.
- Pantry ................................................ 100 sq. ft.
- Rest Rooms
  - Boys - 6 urinals, 2 water closets, 4 lavs .... 300 sq. ft.
  - Girls - 6 water closets, 4 lavs w/ Lounge .... 350 sq. ft.

**SUBTOTAL:** 6,061 sq. ft.

**EDUCATION:**
- Administration
  - Minister's Office ................................ 144 sq. ft.
  - Associate Minister's Office ..................... 144 sq. ft.
  - Secretary/Receptionist Area .................... 100 sq. ft.
  - Work Room ......................................... 144 sq. ft.
  - Administrator's Office ............................ 144 sq. ft.
- Classrooms
  - Kindergarten (2 @ 1,100 sq. ft. ea.) .......... 2,200 sq. ft.
  - Toilet (2 @ 30 sq. ft. ea.) ...................... 60 sq. ft.
  - Storage (18 @ 150 sq. ft. ea.) .................. 2,700 sq. ft.
  - Grades 1 - 8 (16 @ 900 sq. ft. ea.) .......... 14,400 sq. ft.
  - Library (25 sq. ft./student @ 10% of total) .. 900 sq. ft.
  - Audio-Visual Storage ............................. 100 sq. ft.

**SUBTOTAL:** 21,036 sq. ft.

- Circulation (12% of total)  
- H.V.A.C. (10% of total)
- Walls (3% of total)

**SUBTOTAL:** 8,840 sq. ft.

**TOTAL:** 44,201 sq. ft.

**Parking** (½ of 750 people = 188 cars @ 350 sq. ft./car)  
60,000 sq. ft.
mass that receives and stops the lines of the Sanctuary. A skylight lights the Baptistry by means of a light well through the service spaces. In elevation the Sanctuary begins with a horizontal statement at the back and rises toward the front of the Sanctuary giving a vertical statement suggesting the meeting of God and man.

The Fellowship Hall looks over an outdoor courtyard through a corridor which provides access to the school.

It has been decided to concentrate the design effort on the Church while developing the school to a schematic level. The school will be low in height to relate to the nearby residences, open to the South and minimum openings to the North.

A change has been made in the service spaces at the front of the Sanctuary. The raised form was emphasizing the service spaces as well as the Baptistry, excluding the Chancery. By shifting the raised portion to a position over the Chancery and lowering the height of the service spaces emphasis is now correctly placed on the Chancery and Baptistry. A screen separates the Chancery from the Baptistry, and forms the access corridors to the service spaces. Light is allowed over the screen to light the Baptistry just as the Chancery is lighted in front of the screen.

An outdoor vesper area will serve as the visual stopping point of the entry axis and act as the East definition of the controlled play space. The vesper area reflects the function of the Sanctuary in a more natural, outdoor setting.

CRITIQUE:
The mid-quarter review for Arch. 405 was held on Friday, January 19, 1979. The following questions and/or comments were raised:

1) The sloping roof of the Sanctuary blends into the flat roof of the Fellowship spaces, de-emphasizing their individual expressions. Keep these spaces separated.

2) The Fellowship Hall looks like the
classroom boxes. The expressions should change.

3) Consider more roof height variations for more articulation. As it is, it appears over-articulated at the altar end and under-articulated at the opposite end.

4) Need a better delineated site plan.

5) The Administration area needs a better relationship to the courtyard, Entry, and Fellowship Hall.

6) Light at the front of the Sanctuary is good; possibility of doing some things with the wall plane.

7) Churches have a sense of mystery which has not yet been developed in this project.

8) Signal that you can get into the church from the other side.

9) Articulate side facade. Give people something to look at.

10) Programmatic problems; Library could be better placed, perhaps at joint of corridor. (Presently in weak, uninspiring position).

11) Check skylights for emphasis.

12) Study Administration elevations at a larger scale.

13) Baptistery may possibly be done in a less complicated manner.

14) The service spaces seem "tacked on". Integrate them into the total form.

PROCESS:
Site development will center around the areas at either end of the entry axis. The entrance of the building is visible as one enters the site and should be clearly expressed. A traffic loop is provided from the paved parking area which begins to mirror the form of the Sanctuary. Plantings carry this idea further, enclosing the paved parking into an "automobile space" and also serving to break up the parking. The courtyard off of the controlled play space is a patio space suitable for large groups as well as a garden for walking. The controlled play space is defined by the building and plantings as spaces, rather than plain open areas, and reduces grounds maintenance. Plantings are varied to provide a source of study for science classes and also serve as buffers for the nearby residences.

The Sanctuary walls are broken in a saw-
tooth manner with light entering the "teeth" to articulate the side walls and open the Sanctuary a little more. This articulation is carried around the Chancery by the walls of the service spaces and reversed to throw the focus back to the Chancery.

The Administration area is now beside the entrance although compromising some-what the relationship of the Fellowship Hall to the Sanctuary. Access to the courtyard is by means of the entry axis to minimize conflicts caused by direct access across the corridor to the school.

The Lobby and corridor are glass to read transparent and have a lower roof line to separate them from the Sanctuary and Fellowship Hall which read solid.

The Library is now where the Administra- tion area was, beside the courtyard. This allows easier access to the Library and puts it in a more inspiring location.

CRITIQUE:
The final review for Arch. 405 was held on Saturday, February 17, 1979. The following questions and/or comments were raised:

1) Show what happens in the controlled play space.
2) The service spaces still appear too segregated. Work on integrating them even more.
3) The land in front of and beside the Sanctuary is a "no-man's land". Explore uses for this space.
4) The expression of the Chancery as important is a little weak compared to the surrounding expression.
5) The screen at the front of the Sanctu- ary is important and needs more work to express it as such.
6) The Baptistry opening in the screen is just a punched hole. Explore other expressions of the screen to show the importance of the Baptistry.
7) The facade of the Sanctuary is still too plain. The entrance and the Fellowship Hall are nicely expressed.
8) What is the image of this church? Be specific.
Detail Design Development

PROCESS:
The question of the image has been re-evaluated. The conclusion is that no specific image is desired so that the "image" would be more appropriately called the architectural expression. This expression might recognize the Church (meaning the people) as the "Body of Christ"; the physical structure as "a Touchpoint with God". The best descriptions would be the terms: inspiring, interesting, and inviting; terms previously used lightly. It is very apparent at this point that re-evaluation and feedback are constantly necessary in the design process.

To solve the problem of integration of the service spaces into the total form the Sanctuary walls are pulled out so that they are in the same plane as the service space walls. The sawtooth effect is left out and the walls are the same height. The walls are separated by a space, revealing the form of the Chancery. The Chancery has increased in height to make it visually stronger. The additional width of the Sanctuary is used as exterior circulation to increase the use of the spaces in front and beside the Sanctuary. An arcade breaks the wall down to human scale and articulates the facade. Low walls along this arcade for seating heightens the sense of human scale.

Grading down to the lowest level of the service spaces recognizes them as people spaces themselves although different from the rest of the building.

The Baptistry opening is extended upward to open it more and keep the screen subservient to it rather than vice versa. A stained glass panel in this opening maintains the idea of a screen while increasing the strength of the expression of the Baptistry.

CRITIQUE:
The mid-quarter review for Arch. 406 was held on Monday, April 2, 1979. The following questions and/or comments were raised:

1) Exterior circulation is a weak justification for the space used.
2) The opening to the Baptistry is improved but still weak.
3) The screen is still plain considering its impact on the Sanctuary as a whole.

PROCESS:
The space used for exterior circulation has been divided to provide two circulation spaces on each side of the Sanctuary. One on each side is an additional interior circulation space, semi-separated from the side aisle by an arcade that keeps distractions to a minimum. The other circulation space on each side is still exterior circulation but on a more reasonable scale. Stained glass openings in the separating wall reflect the arcades found in the interior and exterior walls. Access to exits has been improved by making the exits more visible and more direct.

Vertical ribbing on the screen expresses more clearly the verticality of the front of the Sanctuary. Lowering the height of the screen makes it less imposing. Wood ribbing on a plain background gives a crispness of detail without elaborate decoration. The Baptistry opening is expressed the full height of the screen for emphasis, vertical expression, and to help break up the size of the screen. The screen at the front of the Sanctuary and the back wall of the Sanctuary are both considered as screens and will be treated identically except the back wall uses carpeting under the ribbing for sound absorption. Reveal strips around structure, ceiling, and floor keep the back wall visually separate from these other systems.
Bibliography


Church Growth Services, *Plan for Church Growth: A Comprehensive Plan for Lawrence Christian Church*, South Bend, IN, 1974


"Dominican Priory", Architectural Record, July, 1960, v. 128


Leasing, Lawrence, Architectural Forum, July, 1960, v. 113, no. 1


Thompson, Elizabeth K., "Church of the Brethren", Live Oak, California, Architectural Record, July, 1973, v. 154, no. 1

Thompson, Elizabeth K., "Bethlehem Lutheran Church", Santa Rosa, California, Architectural Record, July, 1973, v. 154, no. 1

Treuese, Donn, Westminster Presbyterian Church, Muncie, Indiana, 1975-76
