St. Matthew’s
United Methodist Church
Carmel, Indiana
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Thesis 1983-84
College of Architecture
Ball State University
This book, and all it means, is dedicated to my parents, who never stopped believing even when I doubted myself.
Credits

Studio critics: Dan Woodfin
Stan Mendelsohn

Outside critics: J. Robert Taylor
Les Smith
Dave Ferguson

Consultant: Rev. Joe Trueblood

A big thanks to:
Pat, Gerrie, Sharon, Jeff and Dino
Dan Woodfin, critic and friend

All my St. Mark's friends who gave hints,
clues, suggestions, and moral support.

And a very special thanks to Robert P., who
taught me more about being an architect
than anything or anyone else in five
years of education.
The church is first and foremost the community of believers, and therefore is inevitably a collectivity.
# Table of Contents

Introduction ......................................................... 1  
Problem Definition .................................................. 2  
Site Analysis ......................................................... 4  
User Requirements .................................................... 8  
  Program ......................................................... 10  
Concept Development ................................................ 11  
  Concept Diagram .................................................. 15  
Design Development ................................................ 16  
  Approach/Entrance ............................................... 18  
  Circulation Spine ............................................... 20  
  Sanctuary ....................................................... 21  
  Outdoor Worship Area ............................................ 26  
  Fellowship Hall .................................................. 27  
  Outdoor Fellowship Area ........................................ 36  
  Education Wing .................................................. 37  
  Gymnasium ...................................................... 44  
  Administration ................................................... 48  
Solution .............................................................. 51  
Appendix ............................................................... 85  
References ........................................................... 91
Introduction

Throughout history, builders and architects have produced an amazing array of church solutions. Dictated by technological, political, economic, and social factors, the solutions, from the most simple to the most complex, are as varied as the ideas they have attempted to incorporate. To a certain degree, the issue has become more complex in the last century due to the elimination of a prerequisite building style which dictated certain emphases in plan and three-dimensional development. The result has been an ever-widening gamut of building solutions. After hundreds of years of development the set of issues is still fluctuating and no single approach or set of approaches has been dominant, unless it has been the lack of a consistent approach; there is no such thing as the prototypical church.

The variety of forms in church buildings, therefore, often seems to be a response to arbitrary or ambiguous requirements. However, the church, more so than most other building types, must respond to a diverse and multi-faceted set of needs. Most contemporary churches, in addition to community worship facilities, now seek to provide for a number of social and fellowship activities as well. The church must therefore attempt to reconcile a wide variety of very different functional requirements and still operate on an aesthetic and spiritual level beyond mere utility.

It is up to the designer to interpret the needs of each specific denomination and of each congregation within its denomination. From this, major issues and the ensuing approach, in conjunction with functional requirements, must be ascertained. All of this lends itself to the development of a complex design problem which can presuppose a complex solution. As such, it is the goal of the architect to create a building which responds to a diversity of needs without smothering itself in its own complexity.
Problem Definition

The outline of needs for St. Matthew's was developed with the help of Reverend Joe Trueblood of St. Mark's United Methodist Church, Carmel. Maintaining a hypothetical client/architect relationship we discussed congregation size, needs, and what the church's role within the community should be.

Carmel is a suburb of approximately 19,000 situated directly north of Indianapolis, Indiana. Household incomes, housing costs, educational levels, and percentage of children are all above census averages for a community of this size. For the most part, Carmel is predominantly populated by married professionals between the ages of 25 and 50, with two or three children per family. The number of blacks and elderly persons is significantly below average.

As a community, Carmel has a minimum of significant commercial centers and office complexes, having instead a number of small neighborhood shopping developments and single-business offices. The number of schools and churches is quite large, but community-oriented meeting spaces and public parks are virtually nonexistent. For this reason the client expressed an interest in developing a church complex that would help meet these community needs. Interior facilities would include a sanctuary, administration center, education wing, gymnasium, and fellowship hall; site facilities would include a softball diamond, outdoor worship area, and fitness course. Any of these areas could be used by public groups or individuals. This is a very logical relationship considering the ratio between hours of actual use and square footage requirements. While funding of the project would be undertaken by the church, a high frequency of use, especially when providing a community service, would justify the expenditure.
Since the complex is to be used by members of the community who may not belong to the church congregation, it will be important that architecturally the building maintain an "open-door" appearance. Public usage also demands a floor plan that easily facilitates newcomers.
Site Analysis

The site chosen for the project is on the east side of Carmel in a transition zone between housing subdivisions and neighboring farmlands. In all likelihood the site will be totally surrounded by single-family housing within the next five years.

A site in this growth area offers the opportunity to procure a relatively open, large portion of land which will soon be located in the midst of new housing developments. In the near future then, a church complex such as this can become a central neighborhood node, providing visual relief as well as recreational space within the surrounding housing areas.

Approximately 21 acres in area, the site is located on the northeast corner of 106th Street (E-W) and Haverstick Road (N-S). The main north-south traffic axis through Carmel is just under one mile to the west of Haverstick. The north/northwest border (1,350 feet) is a small creek lined by tall deciduous trees. Just beyond the creek a new housing division is currently under construction. To the east (1,300 feet) is rolling farmland which has been purchased for further housing development. The south border (1,400 feet) is 106th Street, across from which are low-density, single-family dwellings on small acreages. To the west, Haverstick forms the site border (650 feet), and the area across the road is a recent housing development.

Access to the site, at this time, is predominantly from the north and west, along Haverstick and 106th respectively. Access from the south is not possible because Haverstick does not continue beyond 106th. With future housing development, an increasing level of traffic will come from the east along 106th.
Topographically the site is virtually flat. There is an elevation change of 15 feet north-south, with 8 feet of this occurring in the last 200 feet of the southeast corner. Ground cover is mostly prairie grasses, with little bush or tree cover. Along the southern edge is a small stand of trees which surround an old schoolhouse. Other tree cover is along the creek in the north, and small scrub trees along Haverstick and 106th.

Due to the large, open area of the site, new plantings will need to provide weather protection. The deciduous trees along the creek will provide little protection from the northwest winter winds. However, the lack of southern tree cover will allow southwest summer breezes to cross the site unimpeded.

Soil types are average to above average in bearing capacity, with tendencies toward water runoff instead of retention. The site drains southeast to northwest and is not included in the White River floodplain.
View of site and adjacent housing looking west

View of site looking northeast
User Requirements

The church complex will provide building and site functions for a Methodist congregation of approximately 1,500 men, women, and children. Within the building there needs to be a sanctuary, fellowship hall, education facilities, gymnasium, and administration center. Outside will be parking, an exterior worship area, softball diamond, and fitness course.

The sanctuary should seat 600-700 members, and should help promote the concept of worship as a "shared" experience, between pastor and congregation as well as between worshippers. Choir facilities should be included, as well as a cry-room, storage, and appropriate vesting rooms.

The fellowship hall must provide for a diverse group of functions, from banquets and receptions to dances and drama. It needs to be as flexible as possible, yet provide the best possible facilities for each function. It is crucial that the back-up spaces needed for each function are available, and ample storage as well.

The educational facilities will provide for private nursery school classes during week days, yet should be flexible enough to accommodate Sunday school classes on Sundays. Public meetings will probably also be held in these rooms during off-hours.

The gymnasium will be used mostly for church-sponsored and neighborhood teams in a variety of sports. Minimal locker rooms or dressing areas should be provided, as well as storage facilities and proper playing floor areas for a variety of sports.

The administration center will include offices for two full-time pastors, a Christian Education Director, and four secretaries. A small library, conference room for 15 persons, minimum, and a storage and computer room are also needed. The offices should provide for a desk/Chair arrangement as well as an informal lounge/seating area for conversation or small-group counselling.
Goals

-- To create a sanctuary which enhances the feeling of "shared worship" and de-emphasizes the performer/audience relationship.

-- To create a sanctuary which enhances the feeling of "shared worship" and which does not emphasize the performer/audience relationship.

-- To create a recreational node which will provide a green-space relief from surrounding housing developments.

-- To create a building which supplies the best possible facilities for as many functions as possible.

-- To design a building derived from user needs (functionally, spiritually, psychologically) as opposed to a building which requires user adaptation.

-- To create a building which visually upholds a community interest/open door attitude.
# Program

## Sanctuary

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanctuary</td>
<td>3,300</td>
</tr>
<tr>
<td>Seating: 5.5 sq. ft./person x 600</td>
<td></td>
</tr>
<tr>
<td>Chancel Area</td>
<td>500</td>
</tr>
<tr>
<td>Choir: 5.5 sq. ft./person</td>
<td>250</td>
</tr>
<tr>
<td>Sacristy/Vestig Room</td>
<td>150</td>
</tr>
<tr>
<td>Storage</td>
<td>200</td>
</tr>
<tr>
<td>Mechanical/Storage</td>
<td>100</td>
</tr>
<tr>
<td>Cry Room/Nursery</td>
<td>300</td>
</tr>
<tr>
<td>Choir Warm-up/Storage</td>
<td>350</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5,450</td>
</tr>
</tbody>
</table>

## Outdoor Worship Area

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seating: 5.5 sq. ft./person x 50</td>
<td>275</td>
</tr>
<tr>
<td>Pulpit Area</td>
<td>100</td>
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<tr>
<td><strong>Total</strong></td>
<td>375</td>
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</table>

## Fellowship Hall

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banquet/Seating: 12 sq. ft./person x 200</td>
<td>2,400</td>
</tr>
<tr>
<td>Stage Area</td>
<td>1,400</td>
</tr>
<tr>
<td>Kitchen</td>
<td>300</td>
</tr>
<tr>
<td>Storage</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4,400</td>
</tr>
</tbody>
</table>

## Outdoor Fellowship Area

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patio Area</td>
<td>2,000</td>
</tr>
</tbody>
</table>

## Education Wing

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms: 400 sq. ft. each x 7</td>
<td>2,800</td>
</tr>
<tr>
<td>Meeting Rooms</td>
<td>2,500</td>
</tr>
<tr>
<td>Children's Assembly Area</td>
<td>1,500</td>
</tr>
<tr>
<td>Storage</td>
<td>250</td>
</tr>
<tr>
<td>Mechanical: 100 sq. ft. each x 2 rooms</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7,250</td>
</tr>
</tbody>
</table>

## Gymnasium

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing Floor: 84 x 50 + 10' perimeter</td>
<td>6,300</td>
</tr>
<tr>
<td>Track Area</td>
<td>2,880</td>
</tr>
<tr>
<td>Seating: 5 sq. ft./person x 300</td>
<td>1,500</td>
</tr>
<tr>
<td>Equipment Storage</td>
<td>400</td>
</tr>
<tr>
<td>Locker Rooms: 200 sq. ft. each x 2</td>
<td>400</td>
</tr>
<tr>
<td>Mechanical: 200 sq. ft. each x 2 rooms</td>
<td>400</td>
</tr>
<tr>
<td>Restrooms: 200 sq. ft. each x 2</td>
<td>400</td>
</tr>
<tr>
<td>Office</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>12,480</td>
</tr>
</tbody>
</table>

## Administration

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices: 200 sq. ft. each x 3</td>
<td>600</td>
</tr>
<tr>
<td>Conference Room</td>
<td>250</td>
</tr>
<tr>
<td>Library</td>
<td>200</td>
</tr>
<tr>
<td>Restrooms: 200 sq. ft. each x 2</td>
<td>400</td>
</tr>
<tr>
<td>Open Office/Reception</td>
<td>800</td>
</tr>
<tr>
<td>Computer/Storage</td>
<td>150</td>
</tr>
<tr>
<td>Mechanical</td>
<td>100</td>
</tr>
<tr>
<td>Coat Storage</td>
<td>250</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,750</td>
</tr>
</tbody>
</table>

## Parking

3 persons per car = 200 spaces optimum

## Totals

<table>
<thead>
<tr>
<th>Room</th>
<th>SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanctuary</td>
<td>5,450</td>
</tr>
<tr>
<td>Fellowship Hall</td>
<td>4,400</td>
</tr>
<tr>
<td>Education Wing</td>
<td>7,250</td>
</tr>
<tr>
<td>Gymnasium</td>
<td>12,480</td>
</tr>
<tr>
<td>Administration + 15% Circulation</td>
<td>4,850</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>37,180</td>
</tr>
</tbody>
</table>
In fulfilling this particular set of building goals, the architect must find a solution which can successfully join five large "pieces of building" without sacrificing the autonomy of each section. At the same time, the whole must pull together and operate as a cohesive unit. Despite public use, the primary purpose of the complex is to provide worship facilities for the congregation; therefore, the position of the sanctuary within the building becomes a major consideration. If its location allows it to be so predominant that it becomes overbearing, there may be persons within the community who would not use the facilities. Yet, pushing the sanctuary into the background not only negates the entire purpose of the building, but also gives the public facilities an undeserving position within the building hierarchy. (There is the ultimate hope that public visitors may be influenced to visit worship services in addition to community-oriented activities.)

A second major consideration is the relative size of each of the building sections. Pure function demands that the gymnasium be a huge mass of building, and since size is often equated with importance, there is the potential for a symbolic conflict between the gymnasium and the sanctuary. The sanctuary should exist without competition as the major function both physically and symbolically.

A third consideration within this project is access and circulation especially since the building may be used inconsistently (varied day and nighttime hours) and by members of the community. Ideally, each function area should have independent access, providing the chance to close off the remainder of spaces when not in use. At the same time, a number of entrances increases security risks and inhibits interaction between persons attending different functions.
These considerations led to the development of the concept of a circulation spine, an autonomous element in itself, which allows each of the other functions to branch off of the circulation and operate individually. This circulation spine becomes the element which joins the separate pieces into a cohesive whole, literally, the backbone of the building. To a certain degree, the building operates along the same lines as a shopping mall; any of the individual departments may be locked off while the circulation provides access to any that are open.

Between the circulation spine (public space) and the main spaces (private space) is a transition zone (semi-private) which sets the mood for the appropriate functional characteristics of that department. In some cases this transition zone may be shared or, as in the case of the sanctuary, this preparatory zone includes the spine itself.

The concept of an open circulation system with limited access addresses the problems of building security and user interaction. In a church, the most common and simplest system of security is a visual monitoring by staff and users. By limiting entrances, the administration staff can maintain a visual lookout for unknown users, and can monitor ingress and egress. In addition, few entrances plus one major circulation area induces a higher level of user interaction. All users must, at one point or another during their visit, make use of the central circulation, thus increasing user-to-user contacts.

Because of the potential diversity in building forms, structural integrity and uniformity of materials can play a major role in pulling the pieces into a cohesive whole. Due to the relatively small scale of the complex, an efficient and flexible system of construction is the most reasonable. A masonry bearing wall
construction allows the most variation in fenestration and treatment within the material's characteristics.

Since many of the spaces work best with a repetitious fenestration pattern, it is possible that the pattern dictates an expectation of regularity; the windows at set intervals lead the viewer to assume regularity, but when this doesn't or can't continue it is a visual disappointment. To detract from the visual importance of each window placement, some system of horizontal delineation which dominates and lessens the visual impact of fenestration patterns is an option. At the same time, a continuation of this horizontal element throughout can serve as a way to further promote the unity of the building as a whole.

A second consideration in masonry construction is the utilization of a lintel system. By using a limestone or concrete continuous lintel, and continuing this band throughout all the bearing walls, it solves both a structural and visual unity issue. The band also becomes the horizontal element needed to overcome the importance of fenestration patterns.

To help maintain the integrity of the circulation spine, a system of bearing columns is set up to delineate the circulation zones. These bearing points then dictate structural bays in each of the adjoining building pieces. For the most part, the roofing system is a metal deck supported on or hung from steel trusses or open-web joists. Where possible, the structure is left exposed.

Because of the small scale of the building, its fragmented nature, and the likelihood of non-uniform usage, the mechanical systems should be zoned, with each department supplied by its own independent system. This not only allows for
individual control within each area, but also gives the opportunity to use residential-scale equipment.

Controlling the size of the building pieces, and the relationship between them, is limited somewhat, especially on a site with little variation in elevation. However, since the building needs to be visually and physically accessible to the public, it should be clearly seen, especially on a corner site where twice the perimeter exposure exists. Because of this, the building would be ideally located toward the south or west of the site. By placing the building near the south edge, it is possible to utilize the elevation changes in that area. The change in elevation affords the opportunity to place the sanctuary on the highest point of the site, allowing the spine to tumble down to the west with the remainder of the building departments branching off at different levels. The sanctuary then, is placed at the top of a small rise, and looks out over the rest of the complex. The administration and entrance are next, allowing easy access along a path offering exposure to the outside and a view of the complex. Next to the entrance is the education wing, so located because its frequency of use, along with that of the administrative offices, is the highest in the complex. From the education wing the spine again changes levels down to the gymnasium, allowing the gym to be nestled a few feet into the ground so as to diminish the impact of its mass. By the time the spine terminates at the fellowship hall, it is once again at grade, allowing indoor/outdoor activities in conjunction with the fellowship area.

The two terminal points of the spine then are the sanctuary and the fellowship hall, the two functions devoted to fellowship and interaction. Between these end points are the varying functions that help draw together the different groups within the church community. The spine becomes the essence of the church -- the element which brings together the diverse and varied factions in a common goal -- unity.
Process

For the most part, many of the spaces included in this project are designed predominantly on the basis of functional demands. I began with a list of activities for each individual space, and started defining user groups and activity characteristics. These in turn led to the development of a flow chart. Aside from function are the performance characteristics needed in each space to create and enhance an atmosphere conducive to each specific activity.

From this input, each space was diagrammed conceptually, and assigned a more or less generic shape. The conglomerate of these concepts and shapes yields a single cohesive optimum space which then is detailed and adapted to the particular criteria governing this project (i.e. climate, materials, feasibility, etc.).

From this point on, the design process becomes a continual process of evaluation and re-evaluation. Bit by bit, each specific aspect of a space is considered, and choices are made which attempt to successfully join all the aspects into a cohesive whole with as little compromise necessary as is possible. All the while it is essential that the original concerns are still manifest in the ultimate solution.
Approach/Entrance

With most traffic approaching the site from the north and west, and since a view of the church while approaching is desired, the entrance to the site is in the southeast corner. Users progress up a small hill, alongside the sanctuary, and continue into the parking area.

Once within the parking zone, the pedestrian has been given primary significance. Due to the geometry of the entrance area, a radiating parking layout not only fits well within the building context, but orients all drives and walks toward the entrance. Each parking band consists of a two-way traffic lane, double-loaded with perpendicular parking spaces, and flanked by pedestrian walkways. This arrangement allows the people to leave the car and walk safely along the wedges of green space between parking bands without automobile intervention.

The arrangement of the parking bands in relationship to the entrance drive requires drivers to feed into the parking lanes from the outer edge of the lot. Drivers who wish to use the drop-off location near the entrance must continue to the far lane to approach the drive-up. By dictating this arrangement, traffic near the entrance is significantly decreased; since this is where the pedestrian walkways converge, the pedestrian/auto interaction is at a minimum. While this is a minor inconvenience to auto traffic, it minimizes safety risks during the potentially heavy pre- and post-activity traffic. During low-use hours and activities such as normal daytime staff arrival, any of the two-way parking drives can be utilized to arrive at the entrance.

As pedestrians approach the main entrance they walk up stairs or ramps to an entrance plaza. This heightens the sense of arrival and procession.
The entrance is formed by the interlocking of the spine at 90 degrees. The entrance foyer is glazed, breaking through the solids of the building to escort users into the main circulation.
Circulation Spine

One condition which is imperative to the success of this building project is the spatial integrity and independent identity of the circulation spine. To keep this uniformity, the spine is structurally supported along a series of masonry columns which in turn support the brick band beneath the glazing structure. From these bearing points the structural systems of the other building elements begin, but the spine maintains its identity through being visually uniform and independent.
Sanctuary

It is in the sanctuary that the most important function of the church occurs; it is the reason for the existence of the entire complex. The primary goal of the sanctuary is to provide a space which allows for communal worship in an atmosphere which promotes the feeling of a shared experience and celebrates the joy of worshipping a common God.

It is important that as one enters the sanctuary there is a focal point which draws attention. It is here that the cross and pulpit should be located. A fan-shaped layout assumes a natural focal point, while providing a greater chancel perimeter, and thus, the capacity to seat more of the congregation closer to the altar. Allowing natural light in along the chancel walls lights up the altar without silhouetting the speaker. Indirect lighting from above achieves the same result while adding an element of intrigue and mysticism to the chancel area.

As the worshippers approach the sanctuary the circulation spine becomes the narthex, or preparatory zone. Just before the sanctuary is a small gathering area which opens off of the spine and provides an exterior view. Beyond this point, the character of the spine changes, with the view to the exterior and the complex on the right, and a view into the sanctuary on the left. Thus, as a person walks toward the sanctuary there is suddenly a view into the height and character of the worship area before actually reaching the entrance.

As the worshippers enter the sanctuary, then, the shape draws them to the center/chancel area, pulling their attention naturally to the altar. This is symbolic of entering into the shelter of the sanctuary (literally) and being drawn to God. As one exits, the back of the sanctuary is glazed, allowing one to literally go back out into the world and celebrate the existence of the world around us.

A ceiling geometry which increases in height toward the chancel indicates the symbolic importance of that area. By varying ceiling planes, clerestory lighting projects toward the altar and the light streaming from above the chancel.

Structurally, the sanctuary is divided into three pie-shaped wedges. Each of these wedges is formed by an open-web exposed truss, bearing on the rear wall of the sanctuary and converging to a common area along the bond beam in the chancel wall. Each roof plane is progressively lower from west to east, with the ceilings being alternately supported on or hung from the trusses. This allows the depth of the truss to become clerestory lighting running from the back of the sanctuary to the chancel.

Mechanically, the sanctuary is fed from two independent systems; the front system blows toward the rear and the rear system toward the front.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
</table>
| Services | - Worshippers  
All ages | - Choirs  
- Pastors  
- Worshippers  
- Music  
- Prayer  
- Procession / recess | - Natural lighting  
- Artificial lighting  
- Acoustic control  
- Arranged seating |

**Flow Chart**

- **Enter**
  - Choir Prep
  - Sit / Converse
  - Process
- **Service**
  - Communion
  - Prepare / Robe
  - Re渐
- **Converse / Mingle**
  - Prepare to greet
  - Exit

**Concept**

- Choir
- Altar
- Choir Altar
- Seating
- Lighting Controls

**Generic Form**

- choir
- Altar
- Choir Altar
- Seating
- Lighting Controls
Sanctuary
Outdoor Worship Area

The outdoor worship area is located directly across from the main entrance, nestled between the sanctuary/spine and the education wing. The orientation of the spine and meeting rooms creates a natural triangular space which implies an assumed focal point near the church entrance. These facades provide the side edges of the space, while the glazing of the spine provides the backdrop to the pulpit area. To accommodate water run-off and to establish a focal point both for the entrance and the outdoor worship area, a small pool is set in the corner of the spine/entrance joint.

The worship area seating is provided on varying levels of grass areas within retaining walls. As these levels progress outward from the building they become increasingly organic and natural. Thus, the worship space becomes the interaction and overlap of planned and unplanned landscapes set within the building environment.
Fellowship Hall

The fellowship hall provides the facilities for celebrations in friendship and fellowship between church members. This space needs to be the most versatile, adapting to functions of widely-varying characteristics such as bazaars, dances, and small-scale drama.

Each of these functions requires a different layout; some demand wide-open clear spans while others work best in an arrangement of smaller spaces. For example, a dance requires a clearing for a dance floor. Drama, too, requires a large area for seating as well as a stage area, preferably at a different level. However, parallel smooth walls in a drama or music presentation are not as desirable as walls set at different angles or broken intermittently. In a bazaar or banquet situation it is desirable to have a simple circulation pattern with small areas feeding off to allow for displays, seating, or small gatherings.

It is critical that the space be able to adapt to handle each of these functions reasonably well. Facilities are usually better utilized if little spatial adaptation is necessary; the concept of "fixed flexibility." If there are too many physical changes to be made for different functions then in all likelihood, they will not be made. Therefore, the hall has been designed to allow ample clear space but also contains smaller subspaces. A gathering area has been fit into the floor; this space can be used for seating, lounging, displays, dancing, etc. During drama or music presentations, chair seating at the lowest level allows a level change between seating and stage. At another time, the lower area could become stage with the seating feeding up from there. The use of an acoustical shell or display panels can again provide a variety of characteristically different spaces.

The fellowship hall is masonry wall construction, with roof decks set on open-web steel supports.

The fellowship hall feeds out into a large open patio area defined by the circulation spine, education wing, and the hall itself. The fourth side is delineated from the remainder of the site by a band of trees which define the space and provide shade from the summer sun.
### Bazaar
- Displays, people wander and maybe purchase.
- Small group conversations.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bazaar</td>
<td>All ages</td>
<td>Crowds, Mingling, Feed &amp; Drink, Money exchanges, Displays, Children, Tickets/Control</td>
<td>Acoustic Control, Artificial lighting, Sun control, View to the outside, Natural lighting</td>
</tr>
<tr>
<td></td>
<td>Predominantly female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variety of user groups</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Flow Chart
- Talk
  - Enter
  - Wander/browse
  - Pay for purchase
  - Depart
- E.R. Check
  - Return to display

### Concept
- Displays
- Controlled Ingress/Egress

### Generic Form
- Diagram showing a flow chart with nodes and arrows.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Meetings</td>
<td>Predominantly adults</td>
<td>Acoustics</td>
<td>Sight lines</td>
</tr>
<tr>
<td></td>
<td>Varied user groups</td>
<td>Display</td>
<td>Acoustic Control</td>
</tr>
<tr>
<td></td>
<td>Both sexes</td>
<td>A-V</td>
<td>Artificial lighting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Speakers</td>
<td>Natural lighting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arranged seating</td>
<td>Sun control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Podium optional</td>
<td>Large seating area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refreshments</td>
<td></td>
</tr>
</tbody>
</table>

Flow Chart

<table>
<thead>
<tr>
<th>Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversation/Refreshments/R.R</td>
</tr>
<tr>
<td>Exit</td>
</tr>
<tr>
<td>Meetting</td>
</tr>
<tr>
<td>Seating</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Generic Form</th>
</tr>
</thead>
</table>

FELLOWSHIP HALL 29
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dinners/Receptions</td>
<td>All ages, all groups</td>
<td>- Music</td>
<td>- Acoustic control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Arranged seating</td>
<td>- Artificial lighting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Kitchen access</td>
<td>- Natural lighting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Money exchanges</td>
<td>- View outside</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Food &amp; Drink</td>
<td>- Seating area + mingling areas</td>
</tr>
</tbody>
</table>

Flow Chart

Concept

Generic Form
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dances</strong></td>
<td>- All ages&lt;br&gt;- Predominantly couples or singles&lt;br&gt;- Few families</td>
<td>- Crowds&lt;br&gt;- Mingling&lt;br&gt;- Music&lt;br&gt;- Food &amp; Drink&lt;br&gt;- Tickets/Control</td>
<td>- Acoustic Control&lt;br&gt;- Artificial Lighting&lt;br&gt;- Temperature Control</td>
</tr>
</tbody>
</table>

**Flow Chart**

**Concept**

**Generic Form**
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama, A-V</td>
<td>- All ages</td>
<td>- Arranged seating</td>
<td>- Acoustic control</td>
</tr>
<tr>
<td></td>
<td>- All groups</td>
<td>- Tickets/Control</td>
<td>- Natural and artificial lighting control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Snacks</td>
<td>- Sightlines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Music</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Projection</td>
<td></td>
</tr>
</tbody>
</table>

**Flow Chart**

- Enter
- Prepare
- Program
- Program Cleanup
- Exit
- Seating
- Snacks
- Exit

**Concept**

- Prep
- Stage Area
- Snacks
- Seating
- Mingling
- Projection
- Music

**Generic Form**

- Prep
- Stage Area
- Snacks
- Music
Outdoor Fellowship Area

The outdoor fellowship area is designed for use in conjunction with the fellowship hall and, indirectly, with the gymnasium and education wing.

From the interior of the circulation space it becomes the exterior visual relief across from the gymnasium lobby space. As with the gym space, the outdoor area is wide and open, encouraging fellowship activities as diverse as small-group conversation to children's outdoor rambunctiousness, in a large area designed to accommodate celebrations in fellowship.

There is the potential to open the glazing of the circulation spine to encourage literal indoor/outdoor interaction. The major entrance during inclement weather is through the fellowship hall.

The outdoor space borders the fellowship hall and circulation spine on the west and north, respectively. This provides protection from winter winds or chilly fall breezes. Along the east are the meeting facilities. A distance of 24 feet has been allocated as a buffer zone between the meeting rooms and the outdoor space. This zone is maintained by a three foot retaining wall which gradually descends to grade as it continues south. Along the south edge of the space is a line of trees which not only provide shade in the summer months, but serve as a means of delineation between planned and unplanned landscape without eliminating interaction between the two.
Education Wing

The education wing is divided into two parts, the nursery school classrooms and the adult classrooms/meeting rooms. Each of these areas is separated from the spine by a lounge/gathering area which provides a buffer zone between classroom activity and circulation activity.

Each of the large meeting rooms has the chance to be subdivided into two smaller rooms, to accommodate various group sizes and functions. Each of the nursery school classrooms is divided into two sections. One side of the room is solely for crafts and art exercises, with a tile floor and ample work and storage space. The other side is a carpeted play area/assembly space with a raised platform and deep stairs allowing informal seating. The two areas are separated by low-height coat and materials storage. Deep windows and ledges give the opportunity for an added indoor/outdoor feeling as well as a space for display or small planting projects.

The roof structure for the assembly areas runs from the columns of the spine to the front wall of the classrooms. The depth of the trusses forms clerestory lighting into the spaces. Inside the classrooms, open-web steel joists are exposed beneath the roof deck.

Each side of the education wing is served by an independent mechanical system which feeds through a bulkhead at the front of the rooms and diffuses into each room accordingly.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday School</td>
<td>Small children</td>
<td>- Crafts</td>
<td>- View to outside</td>
</tr>
<tr>
<td></td>
<td>Some adult superv.</td>
<td>- Snacks</td>
<td>- Natural lighting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Singing</td>
<td>- Artificial lighting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Displays</td>
<td>- Appropriate floor coverings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- A.V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Running, playing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Reading, writing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Group play</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Single playing</td>
<td></td>
</tr>
</tbody>
</table>

Flow Chart

<table>
<thead>
<tr>
<th>Concept</th>
<th>Generic Form</th>
</tr>
</thead>
</table>

Enter

Crafts

Snacks

Play

Exit

Play/Crafts Assembly

Exit

Play/Crafts Assembly

Exit
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
</table>
| Nursery School | - Under 5's  
- Adult supervisors | - Children playing  
- Reading  
- A-V  
- Singing  
- Crafts  
- Refreshments  
- Displays | - View to outside  
- Natural lighting  
- Artificial lighting  
- Appropriate floor coverings |

**Flow Chart**

```
Enter
↓
Playing
↓
Sleeping
↓
Group Activity
↓
Snacks
↓
Playing
↓
Exit
```

**Concept**

```
outside
↓
↓
↓
Play
↓
Crafts
↓
Assembly
```

**Generic Form**

```
Play / Assembly / Crafts
```
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday School</td>
<td>- Teens</td>
<td>- Discussion</td>
<td>- Lighting Control</td>
</tr>
<tr>
<td></td>
<td>- Adults</td>
<td>- A-V</td>
<td>- View outside</td>
</tr>
<tr>
<td></td>
<td>- Some adult supervision</td>
<td>- Meetings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Reading</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Singing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Refreshments</td>
<td></td>
</tr>
</tbody>
</table>

**Flow Chart**

1. **Enter**
2. **Discussion**
3. **Activities**
4. **Discussion**
5. **Exit**

**Concept**

**Generic Form**
<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery</td>
<td>2</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>3</td>
</tr>
<tr>
<td>Elementary School</td>
<td>4</td>
</tr>
<tr>
<td>Middle School</td>
<td>5</td>
</tr>
<tr>
<td>High School</td>
<td>6</td>
</tr>
</tbody>
</table>

**Additional Notes:**
- There are 10 adults in the Young Adult group.
- 5-20 children per class in the Education Wing.
- The diagram shows a flowchart with labels indicating different sections of the facility.
* Ages 3-9
  thru 4th grade

- Craft
- Carpet
- Crafts
  plumbing
- Craft

flexibility of various rooms
Sunday

10 craft (5 on Sunday)
10 A
4 w/ stage
6 w/o

nursery

Week

E' +9
H' x 10
30' long x 10

Education Wing 43
Gymnasium

The gymnasium houses the functions which are potentially the most boisterous and outgoing in the complex. As such, its lobby zone is the largest in scale, with a fixed access and entry point into the gym to heighten the sense of anticipation. The majority of users will be seated in bleachers, so the main access to the seating brings spectators into the gym at the top of the bleachers above the playing floor level.

The gym itself is ringed by an elevated running track, and is lit by clerestory windows and windows lining the track.

The primary roof support is located along the inside edge of the running track, and forms an arcade around the perimeter of the playing area. The exterior walls support the roof plane over the track itself, the other side of which is suspended from the main gymnasium trusses. The structural depth of the track roof provides a mechanical space through which to run supply ducts and diffusers which blow into the playing area.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports</td>
<td>All ages, All groups</td>
<td>Noise, cheering, Action, movement, Refreshments, Conversations</td>
<td>Natural lighting control, Sightlines, Crowd/Access control, Acoustic control, Artificial lighting/equivalency, Arranged seating, Specific dimensional requirements</td>
</tr>
</tbody>
</table>

Flow Chart

- Enter
- Activity
- Prepare
- Snacks
- Coffee
- Preparatory Zone
- Exit
- Cleaning

Concept

- Playing Area
- Conclusion
- Seating
- Snacks
- Coffee
- Preparatory Zone
- Prep Zone

Generic Form

- Playing Zone
- Seating
Gymnasium

Seating

Sports/Playing Surface

track above

running track

support functions
Administration Wing

The administration wing is oriented around an "open-office" area, with the pastors' offices and support spaces opening off of this central core area. For the most part, the secretaries will monitor access to each of these spaces; thus, the core organization.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Users</th>
<th>Activity Characteristics</th>
<th>Performance Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>- vics, Pastors</td>
<td>- Secretarial work</td>
<td>- Temp. control (computer)</td>
</tr>
<tr>
<td></td>
<td>- Worshippers, small groups</td>
<td>- Counselling</td>
<td>- Interaction of workers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Correspondence</td>
<td>- View outside</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Computer</td>
<td>- Visual monitoring of entrance</td>
</tr>
</tbody>
</table>

**Flow Chart**

**Concept**

**Generic Form**

![Diagram of Open Office with Library, Waiting Area, etc.]

![Diagram of Office Plan with Open Office and Specimen Office]
Final Solution

The final solution is the culmination of nine months of research and development. These last nine months, in turn, have been the culmination of five years of education. Thus, this project becomes the first full-scale effort to make a statement and create architecture. As such, it embodies the philosophy and ideals with which I will enthusiastically join the profession and continue my development as an architect.
Fellowship Hall
Section
0 14 6 12 20
Appendix

There were several sources which influenced the development of my design. A study of existing successful projects utilizing a "spine" approach yielded one solution in particular which captured my attention. Peter Q. Bohlin's Conference Center of Luzerne County Community College in Nanticoke, Pennsylvania, is organized along a gabled circulation spine. The spine maintains its integrity through a repetitive bay system, creating an effect similar to the long nave of Gothic cathedrals; both height and length are accentuated in this approach.

Two religious projects provided some influence as well, because each uses elements or effects similar to those for which I was striving. The Immanuel Presbyterian Church in McLean, Virginia, (Hartman-Fox Architects) has a sanctuary which utilizes indirect lighting from above, a notion I was exploring in the early stages of design. The rear wall of the sanctuary is also glazed, while the simplicity and lack of ornamentation appealed to me.

Richard Meier's Hartford, Connecticut Seminary contains a sanctuary which is so simple it's almost austere, providing a virtual background for religious and worship activities. Meier also uses indirect lighting over the altar to heighten the mystical ethereal quality of the chancel area.

In examining educational facilities, especially for younger children, I became aware that nursery school classrooms must provide for a vast array of daily functions, ranging from sleep and inactivity to dancing and crafts. The Middlebury School's kindergarten rooms begin providing an economical versatility I found attractive. In addition, some of the group spaces feed off of a circulation path with a similar geometry to what I was developing in my own education wing.

Within the classrooms I wanted to enhance the indoor/outdoor potential, and was looking for a fenestration system or pattern which would do this. A narrow greenhouse-type window currently used in a library overseas came to my attention as a possible solution. Incorporated in the classrooms it takes on the dual function of window seat and/or display and growing space.

A major consideration in the final solution was image, or appearance. I wanted to stay with a vernacular or local, small-scale aesthetic which still allowed some architectural integrity. At the same time I was seeking a building system which satisfactorily joined brick and glazing, functionally, structurally, and aesthetically. A city project in Zeven, Germany, provided the impetus for a solution which accentuated both the masonry work and the glazing as two independent but interwoven elements.
Conference Center, Luzerne County Community College, Nanticoke, Pennsylvania, P. Bohlin
Seminary, Hartford, Connecticut, Richard Meier

Immanuel Presbyterian Church, McLean, Virginia, Hartman-Fox Architects
ZEVEN TOWN HALL — Zeven/1980
APB (Architektengruppe Planen & Bauen)
References


Lutheran Church - Missouri Synod, Architecture and the Church, St. Louis, 1965.
