OUR LADY OF GRACE
Catholic Church Noblesville, IN

THESIS: Integration of natural light in a religious facility

Thomas J. Hellmann 1986–87

Prof. J. Robert Taylor Chairperson: Charles Sappenfield
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THESIS PROPOSAL

Daylighting is a vital element in architectural design. The qualities of natural light and its integration in design can accomplish many things: highlight spatial definers, spatial sequence, and areas of focus; imply the passing of time; and create a symbolic or mystic space. Daylight has been symbolic of purity and heaven presenting religious implications, therefore, these aspects of natural lighting will be investigated through the design of a religious facility. A site has been chosen adjacent to Morse Reservoir for the expansion of Our Lady of Grace Parish in Noblesville. A religious and educational facility with an administrative and community sector is required for a parish of approximately 650 families.
### SITE ANALYSIS

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<tr>
<td>BUILDING AREA</td>
<td>p 15</td>
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</tbody>
</table>
### CENTRAL INDIANA - Climate Conditions

<table>
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<tr>
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<tbody>
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<td>low</td>
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<tr>
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<td>A</td>
<td>85</td>
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<td>97</td>
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<tr>
<td>S</td>
<td>78</td>
<td>55</td>
<td>96</td>
<td>34</td>
</tr>
<tr>
<td>O</td>
<td>67</td>
<td>44</td>
<td>88</td>
<td>20</td>
</tr>
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<td>N</td>
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<td>32</td>
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<td>D</td>
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<td>23</td>
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<tr>
<td>Yrly</td>
<td>62</td>
<td>42</td>
<td>99</td>
<td>-18</td>
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<table>
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<th>Ave. # of days of</th>
<th>% Poss.</th>
<th>Normal Prec. (in.)</th>
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<tbody>
<tr>
<td>Clr. P.C. Cldy.</td>
<td>Sun</td>
<td>Rain</td>
</tr>
<tr>
<td>J</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>F</td>
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<td>N</td>
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<td>7</td>
</tr>
<tr>
<td>D</td>
<td>.5</td>
<td>7</td>
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<tr>
<td>Yrly</td>
<td>92</td>
<td>102</td>
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LOCATION

Morse Reservoir is located in Noblesville and Jackson Townships in central Hamilton County. The reservoir area has been a major attraction for residential development. An excessive increase in Catholic migration to Hamilton County has created a need for the of an additional parish in central Hamilton County.
### POPULATION GROWTH

**Hamilton County**

<table>
<thead>
<tr>
<th>Year</th>
<th>Increased %</th>
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<tbody>
<tr>
<td>'75</td>
<td>25</td>
</tr>
<tr>
<td>'80</td>
<td>20</td>
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<tr>
<td>'85</td>
<td>12</td>
</tr>
<tr>
<td>Proj.</td>
<td>16</td>
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</table>

**Increase by Township (%)**

<table>
<thead>
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<th>'80</th>
<th>'85</th>
<th>Proj.</th>
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</thead>
<tbody>
<tr>
<td>Clay</td>
<td>44%</td>
<td>16%</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>Delaware</td>
<td>17%</td>
<td>75%</td>
<td>38%</td>
<td>35%</td>
</tr>
<tr>
<td>Fall Creek</td>
<td>15%</td>
<td>17%</td>
<td>29%</td>
<td>41%</td>
</tr>
<tr>
<td>Jackson</td>
<td>15%</td>
<td>29%</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>Noblesville</td>
<td>14%</td>
<td>25%</td>
<td>8%</td>
<td>11%</td>
</tr>
<tr>
<td>Washington</td>
<td>22%</td>
<td>27%</td>
<td>19%</td>
<td>12%</td>
</tr>
<tr>
<td>Adams-Wayne/Wht. Rvr.</td>
<td>8%</td>
<td>6%</td>
<td>6%</td>
<td>7%</td>
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</table>
POPULATION GROWTH

Catholic Growth vs. Total Growth

<table>
<thead>
<tr>
<th>Hamilton County</th>
<th>'80</th>
<th>'85</th>
<th>'86</th>
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<tbody>
<tr>
<td></td>
<td>20%</td>
<td>12%</td>
<td>3%</td>
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</tbody>
</table>

% of Catholics to Total

<table>
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<tr>
<th></th>
<th>'80</th>
<th>'85</th>
<th>'86</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>11%</td>
<td>12%</td>
<td></td>
</tr>
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% of Influx that are Catholic

<table>
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<th></th>
<th>'80</th>
<th>'85</th>
<th>'86</th>
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</thead>
<tbody>
<tr>
<td>13%</td>
<td>26%</td>
<td>38%</td>
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</table>
## EXISTING PARISH BOUNDARIES & LOCATIONS

<table>
<thead>
<tr>
<th>Parish</th>
<th>Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sacred Heart</td>
<td>230</td>
</tr>
<tr>
<td>Cicero</td>
<td></td>
</tr>
<tr>
<td>Our Lady of Grace</td>
<td>640</td>
</tr>
<tr>
<td>Noblesville</td>
<td></td>
</tr>
<tr>
<td>Elizabeth Seton</td>
<td>853</td>
</tr>
<tr>
<td>Carmel</td>
<td></td>
</tr>
<tr>
<td>St. Louis deMontfort</td>
<td>450</td>
</tr>
<tr>
<td>Fishers</td>
<td></td>
</tr>
<tr>
<td>Our Lady of Mount Carmel</td>
<td>1250</td>
</tr>
<tr>
<td>Carmel</td>
<td></td>
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<tr>
<td>County Total</td>
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</table>
SITE SELECTION

The site on the lower end of Morse Reservoir was chosen for several reasons:

1) Due to population growth, Noblesville parish is in need of expansion or division. Present capacity is 350-400 persons, while 800-1000 person capacity is required.

2) The percentage of Catholics in the U.S. is 22%, while the percentage in Old Noblesville is 10%, and in the Harbours area 36%.

3) The Harbours area has the highest per capita income in the state, causing the financial development of a parish possible.

4) Isolation and Focus: This protruding point can be the focal point of the reservoir. Set among residential development, its isolation as a unique building type creates a possibility for community expression.
PRESENT ZONING

1 - Residential: Single Family Housing developed in the past 10 years.

2 - Shorewood Corporation Development Center: Office and Community Facilities.

3 - Undeveloped Wooded Area: Possible future residential development.

4 - Undeveloped Farmland

5 - Undeveloped Shoreline: Possible future development of a marina.
TRAFFIC PATTERNS

Vehicular:

Carrigan Road.
One of two passages across Morse Reservoir. Because of this, it is the major access road in the area.

Hague Road (Stringtown Pike)
Connecting road from Noblesville to Cicero. Provides moderate traffic flow between communities and residential areas.

Township Line Road, 211th, & 206th Sts.
Intermediate connectors to State Road 19.

Pedestrian:

Present.
Virtually no determined traffic patterns exist.

Future.
With the possibility of the development of a marina to the North-East, a heavy pedestrian flow may occur along the levee which follows along the reservoir.
VICINITY MAP

Approximate Distance & Travel Time

<table>
<thead>
<tr>
<th></th>
<th>D (miles)</th>
<th>T T (min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noblesville</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Cicero</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Harbours</td>
<td>0-5</td>
<td>1-10</td>
</tr>
</tbody>
</table>
VIEWS

Outward: As indicated

Inward: Due to the sites protruding location on Morse Reservoir, it may become a focal point from all sides. The reservoir partially surrounds three sides without obstruction. The existing levee limits view from the South-East at eye level only. This may be used to conceal parking while accentuating the verticality of the building.
SOLAR ANGLES

Summer Solstice
Rise & Set
Approximately
30° N of E & W

Winter Solstice
Rise & Set
Approximately
30° S of E & W

Altitude = 74°
Altitude = 26°
BUILDING AREA

Approx. s.f.  425,000
Approx. Acres  9.77

MORSE RESERVOIR

SITE

400'

1300'

350'

Existing Gravel Rd.

RESIDENTIAL

FARMLAND

Carrigan Road

Hague Road
PROGRAM

SPATIAL SUMMARY  pp 17-19
SPACE DESCRIPTIONS pp 20-29
SPATIAL SUMMARY

Religious Spaces

<table>
<thead>
<tr>
<th>Space</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nave</td>
<td>6400 SF</td>
</tr>
<tr>
<td>Sanctuary</td>
<td>1200 SF</td>
</tr>
<tr>
<td>Chapel</td>
<td>500 SF</td>
</tr>
<tr>
<td>Choir</td>
<td>500 SF</td>
</tr>
<tr>
<td>Baptistry</td>
<td>300 SF</td>
</tr>
<tr>
<td>Cryroom</td>
<td>200 SF</td>
</tr>
<tr>
<td>Confessionals 2 @ 100 SF</td>
<td>200 SF</td>
</tr>
<tr>
<td>Vesting Sacristy</td>
<td>400 SF</td>
</tr>
<tr>
<td>Storage Sacristy</td>
<td>200 SF</td>
</tr>
<tr>
<td>Narthex</td>
<td>600 SF</td>
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Sub-Total: 10,500 SF

Public Spaces

<table>
<thead>
<tr>
<th>Space</th>
<th>Square Feet</th>
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<tbody>
<tr>
<td>Community Room</td>
<td>3000 SF</td>
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<tr>
<td>Parlor</td>
<td>1000 SF</td>
</tr>
<tr>
<td>Kitchen</td>
<td>500 SF</td>
</tr>
<tr>
<td>Nursery</td>
<td>500 SF</td>
</tr>
<tr>
<td>Room Type</td>
<td>Square Feet</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Cloak Room</td>
<td>300 SF</td>
</tr>
<tr>
<td>Rest Rooms 2 @ 200 SF</td>
<td>400 SF</td>
</tr>
<tr>
<td>Storage</td>
<td>700 SF</td>
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<tr>
<td><strong>Sub-Total</strong></td>
<td><strong>6,400 SF</strong></td>
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**Administrative Spaces**

<table>
<thead>
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<th>Room Type</th>
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<tr>
<td>Pastor's office</td>
<td>300 SF</td>
</tr>
<tr>
<td>Asst. Pastor's office</td>
<td>250 SF</td>
</tr>
<tr>
<td>Coordinator's offices 4 @ 150 SF</td>
<td>600 SF</td>
</tr>
<tr>
<td>Secretarial Area</td>
<td>250 SF</td>
</tr>
<tr>
<td>Conference - Library</td>
<td>300 SF</td>
</tr>
<tr>
<td>Waiting Area</td>
<td>100 SF</td>
</tr>
<tr>
<td>Copy - File Room</td>
<td>300 SF</td>
</tr>
<tr>
<td>Storage</td>
<td>150 SF</td>
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<td><strong>Sub-Total</strong></td>
<td><strong>2,250 SF</strong></td>
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**Educational Spaces**

<table>
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<tr>
<th>Room Type</th>
<th>Square Feet</th>
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<tr>
<td>Classrooms - Small 9 @ 400 SF</td>
<td>3600 SF</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
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<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Medium</td>
<td>2 @ 600 SF</td>
</tr>
<tr>
<td>Large</td>
<td>2 @ 750 SF</td>
</tr>
<tr>
<td>Restrooms</td>
<td>2 @ 200 SF</td>
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<tr>
<td>Storage</td>
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<tr>
<td><strong>Sub-Total</strong></td>
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**Miscellaneous**

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<th>Area</th>
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<tr>
<td>Mechanical</td>
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<td>1100 SF</td>
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<tr>
<td>Circulation</td>
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<td>3000 SF</td>
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**Total Building Area**

30,550 SF

**Parking**

<table>
<thead>
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<th>Area</th>
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<tbody>
<tr>
<td>270 Spaces</td>
<td>77,760 SF</td>
</tr>
</tbody>
</table>
SPACE: Body & Aisles
TYPE: Religious
APPROX. SIZE: 6400 s.f.

FUNCTION: Main gathering space for major religious functions as well as any other large focal demonstration.
POTENTIAL USERS: All members of the congregation.
TIME OF USAGE: Weekend mass and other special occasions.
ADJACENT SPACES: All other religious spaces.
FURNISHINGS: Fixed pews with kneelers.

SPACE: Sanctuary
TYPE: Religious
APPROX. SIZE: 1200 s.f.

FUNCTION: Area of celebration and location of the 3 major elements; the altar, chair, and pulpit.
POTENTIAL USERS: Priest, Celebrate, or main speaker.
TIME OF USAGE: During the celebration or special event.
ADJACENT SPACES: Body, Choir, Chapel, and Storage Sacristy.
FURNISHINGS: Altar, Pulpit, Chair, and servants seating.
SPACE: Baptistry
TYPE: Religious
APPROX. SIZE: 300 s.f.

FUNCTION: Space for the sacrament of Baptism where an individual is annointed into the Faith.

POTENTIAL USERS: Priest, recipient and sponsors.

TIME OF USAGE: During the ceremony.

ADJACENT SPACES: Main body.

FURNISHINGS: Baptismal Fountain.

SPACE: Chapel
TYPE: Religious
APPROX. SIZE: 500 s.f.

FUNCTION: Space for storage of the tabernacle, daily mass, and private prayer.

POTENTIAL USERS: Priest and any members of the congregation.

TIME OF USAGE: Open 24 hours for prayer and used for daily mass.

ADJACENT SPACES: Main body, Vesting sacristy, and Storage sacristy.

FURNISHINGS: Tabernacle, altar, chair, pulpit, movable seating with kneelers.
SPACE: Choir
TYPE: Religious
APPROX. SIZE: 500 s.f.

FUNCTION: Area for musicians and vocal leaders of the congregation.

POTENTIAL USERS: Musicians and a selected choir.

TIME OF USAGE: During the mass or other special event.

ADJACENT SPACES: Main body and sanctuary.

FURNISHINGS: Organ, piano, and fixed pews.

SPACE: Cryroom
TYPE: Religious
APPROX. SIZE: 200 s.f.

FUNCTION: Separate space for mothers with children who are excessively restless. Still in view of the ceremony.

POTENTIAL USERS: Mothers and noisy children.

TIME OF USAGE: During the mass or event.

ADJACENT SPACES: Entrance, Main body, and Rest rooms.

FURNISHINGS: Fixed pews.
SPACE: Vesting Sacristy
TYPE: Religious
APPROX. SIZE: 400 s.f.

FUNCTION: Used for preparation of the mass by the priest and altar boys.

POTENTIAL USERS: Priest and altar boys.

TIME OF USAGE: Immediately before and after the mass.

ADJACENT SPACES: Main body, chapel and entry vestibule.

FURNISHINGS: 2 sinks, cabinets, and storage cabinets.

SPACE: Storage Sacristy
TYPE: Religious
APPROX. SIZE: 200 s.f.

FUNCTION: Used for the storage of sanctuary items and decorations, such as candles, and vases. Also, for cleaning such items.

POTENTIAL USERS: Altar boys and church cleaners and helpers.

TIME OF USAGE: Before and after mass and during cleaning periods.

ADJACENT SPACES: Main body, sanctuary and chapel.

FURNISHINGS: Sink, cabinets and storage closets.
SPACE: Entry Vestibule
TYPE: Religious/Public
APPROX. SIZE: 600 s.f.

FUNCTION: Used as a lobby or point of distribution into several possible spaces.

POTENTIAL USERS: All members of the congregation.

TIME OF USAGE: During any function of the church.

ADJACENT SPACES: Main body, vesting sacristy, community room, parlor, nursery, and rest rooms.
FURNISHINGS: Pamphlet and church information posting area.

SPACE: Confessionals -2-
TYPE: Religious
APPROX. SIZE: 2 @ 100 - 200 s.f.

FUNCTION: Enclosed space for the sacrament of penance.

POTENTIAL USERS: Priest and one individual of the congregation.

TIME OF USAGE: During listed times.

ADJACENT SPACES: Main body or chapel.
FURNISHINGS: 2 chairs and dividing screen.
SPACE: Pastor's office
TYPE: Administrative
APPROX. SIZE: 300 s.f.

FUNCTION: Working area and individual conference area.

POTENTIAL USERS: Pastor and 3 to 4 others maximum.

TIME OF USAGE: Any time the Pastor is available.

ADJACENT SPACES: Secretarial area, and Ass't Pastor's office

FURNISHINGS: Desk, table and 4 chairs, file cabinet, and shelves.

SPACE: Asst. Pastor's office
TYPE: Administrative
APPROX. SIZE: 250 s.f.

FUNCTION: Working and individual conference area.

POTENTIAL USERS: Asst. Pastor and 2 to 3 others maximum.

TIME OF USAGE: Any time the Asst. Pastor is available.

ADJACENT SPACES: Secretarial area and Pastor's office.

FURNISHINGS: Desk, table and chairs, file cabinet, and shelves.
SPACE: Conference - Library

TYPE: Administrative

APPROX. SIZE: 300 s.f.

FUNCTION: Used for conferences up to 12 people as well as book storage.

POTENTIAL USERS: Priests, secretaries, coordinators, and others involved in conferences.

TIME OF USAGE: Any time necessary.

ADJACENT SPACES: Waiting area, offices.

FURNISHINGS: Book shelves, conference table and chairs.

SPACE: Secretarial - Waiting Area

TYPE: Administrative

APPROX. SIZE: 350 s.f.

FUNCTION: Working area for two secretaries and seating for waiting guests.

POTENTIAL USERS: Secretaries and guests.

TIME OF USAGE: During standard office hours.

ADJACENT SPACES: Copy-File room, and all offices.

FURNISHINGS: Two work stations, and seating for six guests.
SPACE: Coordinator's offices - 4 -

TYPE: Administrative

APPROX. SIZE: 4 @ 150 - 600 s.f.

FUNCTION: Working area and individual conference area for 1 or 2 persons.

POTENTIAL USERS: Coordinator and 1 or 2 guests.

TIME OF USAGE: During regular offices hours.

ADJACENT SPACES: Secretarial and waiting area.

FURNISHINGS: Desk, file cabinet, and 2 chairs.

SPACE: Copy - File room

TYPE: Administrative

APPROX. SIZE: 300 s.f.

FUNCTION: Filing and copying of related information.

POTENTIAL USERS: All administrative personnel

TIME OF USAGE: During regular offices hours.

ADJACENT SPACES: Secretarial area, storage, and offices.

FURNISHINGS: Copy machine, file cabinets and kitchenette.
SPACE: Community Room
TYPE: Public
APPROX. SIZE: 3000 s.f.

FUNCTION: Gathering space for up to 200 people for special events, banquets, and large meetings.

POTENTIAL USERS: Any members of the congregation and guests.

TIME OF USAGE: Any time possible.

ADJACENT SPACES: Entry vestibule, kitchen, rest rooms, storage, and cloak room.
FURNISHINGS: Moveable tables and chairs, and removeable stage.

SPACE: Kitchen
TYPE: Public
APPROX. SIZE: 500 s.f.

FUNCTION: Food preparation for special events for small and large groups.

POTENTIAL USERS: Appointed personnel or occasional caterer.

TIME OF USAGE: Prior and during special events.

ADJACENT SPACES: Community Room, parlor, and storage.
FURNISHINGS: Fully equipped with institutional facilities.
SPACE: Parlor
TYPE: Public
APPROX. SIZE: 1000 s.f.

FUNCTION: Gathering room for social functions, wakes, or entertaining.

POTENTIAL USERS: Any member of the congregation and guests.

TIME OF USAGE: Any time possible

ADJACENT SPACES: Entry vestibule, kitchen, rest rooms, and cloak room.

FURNISHINGS: Settings of lounging furniture, and tables.

SPACE: Nursery
TYPE: Public
APPROX. SIZE: 500 s.f.

FUNCTION: Supervised area for babies and toddlers to be left during any event.

POTENTIAL USERS: Supervisor, children, and any parents.

TIME OF USAGE: During and events of the public or religious areas.

ADJACENT SPACES: Main body, community room, parlor, and entry.

FURNISHINGS: Cribs, playpens, and small desks and chairs.
FINAL PRESENTATION

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Our Lady of Grace

Floor Plan

ELEVATION

GROUND LEVEL - MAIN LEVEL

Section

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MAIN LEVEL PLAN
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Introduction

Daylighting is a vital element in architectural design. The integration of natural light can accomplish many things. If direct daylight is allowed to enter a space, then spatial sequence or the passing of time can be highlighted or directly implied. Spatial definers and areas of focus can be achieved with daylight integration. Also, if natural light is used in a variety of intensities, then a symbolic or mystic space may become present. All of these hypotheses become valid when daylight is considered an integral part of design. Daylighting in the past has been representative of purity and heaven, so careful analysis of religious facilities and their use of daylight have been investigated. Building observations, building type studies, and a brief questionnaire have all been used as tools for investigation of these hypotheses in order to acquire several conclusions.

Historical References

Daylighting in a religious facility can be incorporated in such a way that it can become the major artistic feature within the space. Daylight penetration with careful placement of openings created bright areas signifying special areas in past and present designs. The Greeks oriented their temples to the east so early light at sunrise could enter through the doorways to illuminate the statues within. The Early Christians introduced the clerestory windows. Their reduced illumination at the upper level enhanced the mystical nature of the space. The aspe, where the
altar was located, was surrounded by windows to create visual emphasis. During the Byzantine era, the transept was covered with a dome, creating a canopy over the altar area. Small windows were introduced around the base of the dome to create the illusion of a floating dome above the structure. The Gothic period strived for total illumination. The structure was pushed to its limits to provide maximum glazed area. Solar orientation was the major factor introduced here. The facade always faced west resulting in an east-west layout to maximize southern exposure. During the Renaissance, the natural light entered through recessed openings to emphasize the architecture and dramatize the internal space. Presently however, all these past issues concerning daylighting are dealt with in some form in the development of current religious facilities.

Building Type Study

A building type study of contemporary religious facilities as well as some old European designs has been useful resource for studying the integration of daylighting by others. Gunnar Birkerts has been known for his use of natural lighting in religious facilities. His Albion church relates the architectural form in proportion to the daylighting scheme. As the verticality increases toward the altar wall, the intensity of daylighting also increases. This creates emphasis on the backdrop with daylight while spatial dominance is acquired over the altar platform by the architectural form. In Birkert's University Reformed Church,
the space is defined by the flooding of natural light on the aisle walls. Sunlight
never enters directly, but the light reflected off the structure illuminates the
entire area.

Other prominent facilities are noted for their use of natural light on focal
areas. Covenant United Presbyterian Church by Crites & McConnell used a protruding
element to harness the sunlight to illuminate the altar platform while creating the
altar canopy as well. St. Jude's Church by the Progressive Design Associates uses
a huge skylight which floods the back wass with light while the canopy creates an
interesting lighting pattern as the intensity of light diminishes towards the floor.
The baptistry also receives emphasis from a skylight that illuminates the entire
sacramental area. The baptistry receives preference in Ramey-Jones-Ahre's
University Lutheran Church. A cylindrical form rises and penetrates the ceiling
plane allowing natural light to enter. The font becomes the major focal point since
it is the only area daylight is allowed to enter.

Predominately, the altar platform and baptistry receive significance by the way
of daylighting. A space can gain enormous power by the integration of natural lighting
if it is allowed to dominate and become a focal point. Although if natural lighting
is used elsewhere, it is necessary that alternate use complement the major lighting
scheme and not distract from it.
ALBION CHURCH
by: Birkerts & Straub

"intensity of light is increased"
"light on the altar wall increases with altitude"
UNIVERSITY REFORMED CHURCH
by: Birkerts & Straub

"sunlight never enters the space directly"
"walls illuminated by daylight"
"daylight is more intense on the interior ... than ... exterior"

SECTION

PLAN
COVENANT UNITED PRESBYTERIAN CHURCH

Canopy/Skylight emphasize altar platform.
ST. JUDE

Skylight floods backdrop for spatial dominance.
UNIVERSITY LUTHERAN CHURCH

Baptistry receives the only daylight creating focal point.
Building Observation

Personal observations have also been helpful in the study of prominent architects' integration of natural light. Eero Saarinen's Concordia Academy Chapel in Fort Wayne uses natural lighting significantly. A south facing side-light illuminates the entire altar platform and backdrop creating a dominant focal area. The top ridge has a lattice skylight which allows sunlight to filter into the main space. The roof structure protrudes out over the side aisle walls allowing reflected light to enter the main space and define the area. This feature is also present in Eero's North Christian Church. This perimeter lighting is much more prevalent in this space as the filtered light illuminates the entire ceiling plane. The hexagonal skylight is the only other area that daylight is admitted. Filtered light illuminates the altar area.

Eliel Saarinen's First Christian Church uses natural light to a greater extent. The west wall has glazings that illuminate the entire nave to a satisfactory level. The backdrop is flooded with natural light from an eastern side-light as well as a skylight giving the altar end spatial dominance. Harry Weese's First Baptist Church also allows the altar backdrop to dominate the space. With its architectural form and the skylight at the ceiling plane on both sides, the entire east end of the space is totally highlighted. The baptismal font is located near the south wall directly under the skylight for visual emphasis. The side aisles are illuminated in the same fashion as Eero Saarinen's churches, defining the space as a linear form culminating at the altar platform.
CONCORDIA ACADEMY CHAPEL
by: Eero Saarinen

Seating capacity - 770 persons
CONCORDIA ACADEMY CHAPEL

Daylighting on altar platform creates spatial dominance

Lattice skylight admits some overall daylight.
NORTH CHRISTIAN CHURCH
by; Eero Saarinen

Seating capacity - 600 persons
NORTH CHRISTIAN CHURCH

Perimeter lighting defines the space.

Hexagonal skylight creates a focal point on centralized altar.
FIRST CHRISTIAN CHURCH
by: Eliel Saarinen

Seating capacity - 920 persons

PLAN

SECTION
FIRST CHRISTIAN CHURCH

Sidelight and skylight at altar platform.

East facing sidelight illuminates backdrop.
FIRST BAPTIST CHURCH
by: Harry Weese

Seating capacity - 580 persons

PLAN

fised seating

SECTION
FIRST BAPTIST CHURCH

Skylights flood altar platform and backdrop to dominate the space while reflected daylight defines the space.
Questionnaire Summary

1. Do you feel that natural lighting is essential in religious facilities?
   * (X) yes * All respondents felt that natural lighting is valuable in a religious facility.
   ( ) no

2. Is the control of natural light and its intensity desireable for alternative functions?
   * (X) yes * The control of natural light is desireable for audio-visual capabilities.
   ( ) no

3. What type of daylighting is predominantly preferred or affective?
   ( ) direct
   ( ) diffused * Diffused lighting is predominantly desired, since it provides lighting without glare.
   ( ) reflected

   If more than one, list specific areas.

4. Does daylight play any role in a religious ceremony?
   ( ) yes
   ( ) no

   If so, what? * Daylighting doesn't play a direct role in any specific part of the ceremony but it plays a significant role in setting the mood for different religious seasons. Many seasons involve a light or dark theme referring to coelbration or contemplation.
5. In a religious facility, does natural light add to the symbolic quality of the space?
   *(X) yes  * Natural lighting has many symbolic meanings. Nature, warmth, and seasonal aspects are all enhanced by sunlight.
   ( ) no

6. In a religious facility, does natural light add to the mystical quality of the space?
   *(X) yes  * The presence and absence of light together can create a mystical space by creating an atmosphere of personal reflection.
   ( ) no

7. Is natural light useful in focusing the attention of the audience?
   ( ) yes  * Respondents were undecided, but all felt that natural light is important around focal areas.
   ( ) no

8. What areas of the facility do you feel are enhanced by natural light?
   * The Altar, Baptistry, Tabernacle, Chapel, Confessionals, and the Narthex all received some response.

9. Please list these areas desiring natural lighting in order of importance.
   * 1) Altar - Sanctuary
     2) Baptistry
     3) Narthex
Conclusion

Natural lighting is a dominant feature in a religious facility. Daylighting alone can be the major architectural element creating a changing space that can have many symbolic meanings for any individual. Daylight can be used to define space as well as attracting the attention of the audience to a desired focal area. A variety of intensities of daylight can be symbolic of a religious season as well as create a desired mood within the audience while attending the religious ceremony. Focal areas and special functions can be greatly enhanced by the integration of natural light to create an uplifting, symbolic space.
PRELIMINARY DESIGN

PRESENTATION DRAWINGS

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Preliminary Design Presentation
Preliminary Plans and Model

