Relationships: The Building Process

The Architect's Role in a Project
Explored through
A New Facility for the Church of God
Muncie, Indiana

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Dedicated to Jill and Kayla
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See, when I could only look
Listen, when I could only hear
Walk, when I could only stand
and through it all
Grow and become a man.
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Abstract

My thesis deals with the process a building goes through from conception to completion. Over time, I believe that the role of the architect as building orchestrator has become a role of consultant and perhaps employee. In essence, the architect has become just a step in someone else’s process. I believe that this process is now controlled by developers, lenders, contractors, and people with little understanding of building other than the financial gains. The architect’s main objective of creating total quality buildings has been replaced by the “bottom line” financial return important to these other entities. If the architect is to achieve his/her design goals and implement ideals of social reform and betterment, an understanding of how buildings get built beyond physical construction and who controls it is needed. Beyond that, the architect must become involved in or become a part of that process.

My project entails defining that process. The physical side involves a master plan and first phase of building design for a local church facility. This design phase is only a portion of the total which includes:
Research; work with the local group/client to frame the project; contact developers and lending institutions to understand the criteria needed to finance and arrive at the design phase; find similar projects as precedents (case studies) for the overall process; define and explore ways to implement the architect at each phase of the total building, program the building and define what will be needed to construct it, and go through the stages of schematic design, cost estimates, and design development.

My design objectives include: Set a precedent by defining ways to empower the architect to gain more control over the building process; symbolize and facilitate the beliefs of the client through the physical building, develop relationships with as many entities of the building process as possible to establish the architect as a building orchestrator; and understand the aspects involved in a building through the process being defined.

"Today we find that the architect's design decisions are secondary to financial ones, to technological ones, and even to the design decisions made by others (client or community groups)." (Burgess, 11)
introduction

influences

It is important to understand the background and frame of reference that have led me to this thesis.

Architecture first interested me as a young man working with a local contractor. He took me under his wing and a wonderful mentor/apprentice relationship was developed. I soon found a love for both the design and details of construction. These early experiences painted a beautiful image of each person involved with a building working in harmony toward the best quality solution for the client. Later work experiences, and further exploration into the profession opened my eyes to a different image in which adversaries worked more for personal ease and gain than client interests and a total quality project. Instead of doing things "the right way," the people I worked with asked "What can we get by with?" I was disheartened by the relationships, or lack of, I saw between architects, engineers, contractors, consultants, owners, and especially between professionals and laborers. Because I was not forced into an adversarial role with my own work, I was able to converse with and learn from the various people involved with the project. One thing became apparent to me immediately: Amidst the rivalries and personal agendas, no one was in a real position of project leadership with the vision to coordinate and complete, quality built entity.

These factors, along with countless discussions with colleagues and faculty have helped me realize my interests, develop my goals, and understand what roads will lead me to them. My early exposure to, and interest in, the design, details, construction, and integration of a project have remained my love of the profession. Understanding all of the factors and team members that it takes to create a project are infinitely exciting to me. As I look back on my former experiences and project ahead with my future goals, I believe these experiences are the ones that will give me the most satisfaction and opportunity.
In defining the thesis and strategy, the vehicle to help me achieve these goals and ideals has been unclear. Through discussion and interaction with my colleagues, I believe the thesis is the sum total of what I am about and believe in, as an architect, as well as a person. As an architect, I have set forth the thesis topic. Now, as a person, I set forth the method to implement it.

My relationship with God parallels what I would like to do with the architect in the building process. As with my relationship to God, a close relationship and interaction with the different parties involved can establish the architect as a valuable and needed entity in each phase of a building. I do not propose to put the architect in a role of dictatorship, but rather establish him/her as the orchestrator of relationships and information to bring about a better built environment.
Introduction

historical factors
I have researched and cited sources of inspiration, as well as points of departure and hindrances to the architect's role in the building process.

"It is generally accepted that the history of the profession shows a continuous loss of ground in the domain of architectural tasks performed by the architect. In the pre-industrial and pre-modern era architects clearly have much better control of the totality of this domain than they do now. They conceived of what to do (programming) how to do it (design) and actually supervised the construction of their designs. They were the master-businessmen, the master-designers, and master-builders all at once..." (Burgess, 10)

Note: Countless factors have come into play to help and hinder the architect over time. In my search for the architect's place in the building process, I found these to be important factors.

I draw inspiration from the "Master Builder" architect of old. He was well versed in style, design, drawing, and executing projects. There existed a bond and cohesiveness between the different parts of the building process such as technology, aesthetic criteria, style, and an understanding of construction, because the Master Builder had an overall vision for the project in its entirety. Young, prospective architects worked as apprentices, learning everything from this source. Few people could be taught at one time, and their future success depended entirely upon the teaching of the Master Builder. At this point, the materials used in building consisted of little more than stone, wood, plaster, and some metal which allowed the apprentice to more thoroughly understand the properties, relationships, and connections of each material in the building palette.

The training of architects began to shift from the office to the campus in the mid 1800's, partially to achieve a more regulated, complete education. The Beaux Arts tradition was widely adopted as a model to provide that training. The emphasis of Beaux Art's training lies with the artist and aesthetic concerns over aspects of technology and construction. The university curriculum placed the design studio at the core of the program, above all other studies. These studios bred an atmosphere of competition among peers and an adversarial role between the designer and the "jury" who reviews the work. The shift from the real world
Introduction

office to the university began a separation that still exists. The emphasis on the individualistic designer has contributed to a profession seen as aloof, difficult, and unnecessary by others.

Around the turn of the century, the industrial revolution ignited a growth in technology and materials that has continued to expand at an ever greater rate. Modernism, the style spurred by the revolution, made a shift from the Beaux Arts Style to an emphasis on material properties, structure, geometric forms, and the machine aesthetic that bred it. Modernism dealt more with the structure of buildings and viewed the beauty of a building through that technology. Structures were viewed more as machines for living, like the machines of the revolution that preceded them. The goal of this style was a placeless architecture that failed to deal with the people it was built for. The sister American Art Deco Movement dealt with building more as applied decoration and glitter. The lack of people based design and the idea of architecture as a style of applied decoration further distanced and devalued the profession in the eyes of the public and other professions.

The 1970's and 80's style of Post Modernism rejected the Principles of Modernism and moved away from it, but "Post-Modernism seemed more a move away from Modernism than toward any specific unified approach." (Boyer and Mitgang, 18)

Today, the idea of style, once so important, is now looked down upon. Designers treat each building as a totally new and independent entity, unrelated to other that have come before it.
While Architecture has remained removed and individualistic, fighting over issues of style more than addressing the world around them, they have continually given away liability and responsibility, while new trades and professions have been happy to take it from them. New frontiers in building related fields such as computers, robotics, plastics, production and assembly processes, etc., have been taken by other entities such as engineers, contractors, building scientists, and specialists within specific architectural areas.

In a profession that now, seems to be losing ground in its chosen area of expertise (style, art, and design), as well as what it has given up and lost to other trades and professions, what can it do to survive?

Amidst uncertainty on my part, I look back to the Master Builder of old.......

"...Habitat for Humanity is going to be the largest builder of affordable housing, while architects sit around debating the merits of deconstructionism. What's wrong with this picture?"
(Boyer and Mitgang, 37)

"...lack of integration of technical and practical knowledge into design work is probably the single most widespread area of program weakness."
(Boyer and Mitgang, 67)
The practice of architecture is a rigorous, intellectual experience, constantly bombarded with problems that may not have clear, easily defined answers. Architects must mesh, synthesize, and assemble vast quantities of diverse information. This, I believe, is where the strength of the architect lies.

The Master Builder was, in effect a building orchestrator, and I believe this is what the architect's role in the building process really is. In music, a conductor must have a knowledge of each instrument, its abilities and its role in the ensemble. More than that however, the conductor must establish relationships with each performer. He must guide and integrate each member's activity in relation to the whole. Without this overall understanding and guidance, the ensemble becomes only a conglomeration of individuals.

I see the building process as an ensemble of musicians, each well versed with their instrument, but not using the same sheet of music. I challenge the architect to use this broad knowledge not to try and play all of the notes, but rather to direct each music and when to play together to create Music. The architect must establish these relationships with such entities as clients, developers, contractors, users, public, lenders, etc. Beyond that, the architect must put together the relationships between the elements of a project, such as site program, climate, materials, context, etc.

The development of relationships in the framework of the building process will allow the architect to break barriers between education and the office, the profession and the public, and also establish value for the architectural service with definable, tangible steps of a process.
objectives
My first objective for this thesis was to establish a framework for the “building process”. Every project has its own set of unique criteria that should, and must, be addressed. I attempted to define some guidelines to find, recognize, address, and respond to those criteria. These steps serve as a checklist not only to help deal with projects in a more regular and comprehensive way, but also to help people understand what architects are capable of doing and give tangible value to the service.

Secondly, I sought to find a client that would work with me, to help lay the framework and define the process. The thesis helped to identify the parties involved in this particular process and establish a relationship as orchestrator of each person’s input, talents, and abilities. By becoming involved in the earliest stages of development with the client, developer, etc., the process defined helped give tangible value to the architect’s orchestrator relative to the project.

Thirdly, I tried to use this framework, and the relationships that come from it to design and develop a more comprehensive project for the client.

The fourth objective, and perhaps the most important, was for me to explore the different aspects of building and determine if this overall “Process Architect” is indeed where my future lies. My goal was not to write a Shakespearian masterpiece, but rather to explore and develop theories I have about the profession and where it will lead me.

"[architecture] must consciously recognize its role as part of the cultural superstructure and its value based foundations within the social sub-structure. In so doing, architecture will, inevitably, be "forced" to question and abandon its rarefied values and exclusivist paradigms, and "legitimize" alternate values, knowledge systems, and role models: that is, to become ethically responsible to the society which it rightfully serves." (Burgess, 18)

"The facilitator approach, however, tends to value both freedom and equality to the same high degree. As a result of this values construct, the facilitator architect can be characterized by his predilection for establishing clear and detailed understandings of the instrumental and terminal values which exist within the contextual societal milieu within which he practices. This explicitly accentuates the necessity for the establishment of effective interpersonal human exchange techniques—communication—between all of the people who will have control over and be affected by the design development process and product." (Burgess, 25)
This is not only a framework for the building process, it is a process under construction that will never be finished. As my knowledge and frame of reference change, and as the profession continues to change, the process defined below will continue to change.

**Need/Idea**
- Client/Owner
- Planning
- Frame Project
- Options

**Type of Project**
- Scope
- People involved
- Take to get done
  - Feasibility
  - Financing
  - Codes/Permits/Approvals

THE,L, A, T, BUILDING, D, M, I, PROCESS, f
Processes

Relationships
   Between Entities involved
   Architect

Contracts
   Owner/Arch
   Others Planned

Case/Precedent Study
   Digestion
   Works Good/Bad
   Human Input

Program
   Location/Context
   Environmental Input
   Systems Suggestions
   Character/Form
   Spaces
   Materials
   Durability
   Flexibility
   Future Growth
   Circulation/Flow/Operating Strategies
   Specific Goals
Process

Client Organization
Where they are
Where they want to go
How they will get there
Long term objectives

Site
Utilities
Location
Zoning/Code/Permits
Costs-Taxes-Credits

Cost estimates
Type of Estimate
Discuss Strategies with others to Build
Financing Strategies

Schedule
Parts Definable by Arch.

Project Process
Digestion of
Site Evaluation
Program Evaluation
Climatic Evaluation
Most important criteria to design of building
ex. Climate, form, aesthetics, energy use, cost

Master Planning
Phases
Future Growth
Overall Form Character

Schematic Design
Overall shell/Massing
Spatial Relationships
Circulation/Flow
Conceptual Mech. Syst.
Conceptual Structure

Design Development
Evaluation with Client/Consultants/Advisers
Integration of All Aspects
Coordinate Parts Done By Others
Material Choices
Detail Work/Connections

Construction Documents
Contracts not already dealt with
Drawings-Quantity
Specs-Quality
Bidding
Types
Assistance
Method of Construction
Construction Schedule
Contractor

Construction
Roles
Supervision
Observation
Construction manager
Payments/Financing
Schedules/Progress
Completion/Punch Lists
Facility Management
Maintenance
Post Occupancy Evaluation
Documentation

Relationships
Communication
Client
Developers
Investors
Status of Projects
Communication
Marketing
In the exploration and definition of the building process, these were the areas I was able to explore within the thesis project.

**Need/Idea**

One of the main objectives of this thesis was to work with a client in the role of orchestrator. I wanted a realistic project that had the potential to be built and also dealt with issues we do not typically get in school. I was able to work with the Eaton Church of God in developing a project.

The current facility has been added to several times. The overall form is a conglomeration of these phases, leaving no “good” way to expand. The circulation is poor, with a narrow corridor that runs the length of the building. It has no suitable gathering spaces for the interaction of a congregation of their size. The youth, fellowship activities, and Christian education programs potential to serve are significantly affected by the sheer lack of space.

Despite its location in the small Eaton community and its shortage of facilities, the church continues to grow and thrive. The congregation is forming a planning committee to look at building options, so this has been an ideal time to work with them.

"... Most designers would agree with the adage that "good clients make good architecture." On many jobs, a "bad" client means nothing but an unhappy, unsatisfying, and unprofitable working relationship. Instead of this pot-luck approach, pursue the kinds of clients you feel best working with. Start with the types of services you want to offer (clarified in your goals and objectives statement) and work at finding the kinds of clients that can make it possible." (Ballast, 5)
Project Type

By defining the “Need/Idea” the solution may seem evident: “Well, just go and build a new church." However, many other issues come into play that, as architect and orchestrator, I can help identify and address. The goal of the Eaton Church is to become a hub and service entity for the surrounding community. In addition to an expanded church facility, the scope of the project included creating a campus setting with “greens” for activities, “garden atmosphere” spaces around the building, assisted multi-family housing, single family residences, and the potential for small business and market activity.

"... a conspicuous theme threading through the ongoing evolution in planning for religious buildings is a striving for community..." (Gaskie, 123)
The program for the facility came somewhat out of sequence because it was done as part of the thesis prep course. Subsequent client and advisor input, along with my own research, changed many of the spaces and their relationships to each other.

One of the tools used to define the client's needs and goals was a questionnaire of spaces, activities, and programs, now, and in the future of the church. These physical spaces are only a part of the program, which must also address the questions of:

- Where is the church at this point?
  
  General- The church is at a point of growth and expansion, with many young couples and a good demographic mix. It has outgrown the community it originally served, with the majority of members coming from the Muncie area. The location of the church is a disadvantage in regards to new members and visitors.

- Where does it need to be in the future?
  
  General- As the surrounding cities and towns as well as the congregation expand, with little or no planning and thought given to "community", the church would like to step into the role of core and service provider for the community.

- How will it get there?
  
  General- It must provide an open, accessible, friendly atmosphere and the facilities to accommodate varying activities. It must stand as a symbol of the service to others and unity that it strives to achieve. It must have the vision to look ahead and predict what the congregation and community will need in the future, and to help meet those needs.

"The challenge will be for architecture to directly address the real problems of our time: homelessness, urban decay and crime, and the destruction of 'community'" (Boyer; Mitgang, 42)
**Program**

**Design Criteria**
This space is the emphasis and focus of the church. It is a place for the total congregation to come together in fellowship and worship God. It should embody a communication and relationship with God, while being careful not to overpower them. Every seat must have good visual and acoustic interaction with the platform along with physical access to it. Each person should feel a sense of relation and belonging in the whole space. If balconies are required, they must have easy access to the floor and platform. The platform itself must have extreme flexibility for a variety of functions. The floors should slope to the stage and the seating should fan out in accordance with the cone of vision.

**Appearance**
The space should accentuate its purpose in simple, elegant forms, clean details, and honesty of materials and forms. A purity should be felt through the use of light, sound, fellowship, and communication.

**Users**
Visitors, congregation, staff, community

**Activities**
Viewing, singing, conversing, speaking, dramas, plays, baptism, weddings, musical performances, special events

**Equipment**
Platform, instrument pit, baptismal, lighting, sound, video, pews or theater seating, movable chairs, pulpit, altars

**Time of Use**
Mon.-Sat.; 1-2 nights/wk (varies) Sun.; 7am.-1pm. (evenings vary)

**Lighting**
Natural light should be capitalized upon to accentuate the experiences of the space. The space should have excellent overall quality mixing direct and indirect. The platform requires intense, flexible spotlighting, preferably from hidden ceiling fixtures. 150 lux for the congregation and 300 lux for key foci are recommended.

**Acoustics**
The space must have excellent, even distribution to each seat. Probably locate source above front center of the platform. The space and its materials must have the correct balance of absorption and reverberation to create crisp, clear sound at all points. More square or radial plans are preferred to linear ones. Try to keep seating within 75’ of source to reduce need for enhancement. Opposite surfaces, such as floor/ceiling should not be parallel to each other.

**Thermal/Air Quality**
Solar energy, cross ventilation, or high mass systems may be used to address heating and cooling issues as well as work with natural lighting strategies to achieve an integrated whole. Mechanical sources will be needed, due to the variations in Indiana's weather, but may be reduced through these other possibilities. The use of a separate system here will increase efficiency due to the space's sporadic use.

**Adjacent Spaces**
Entry/narthex, sound/video control, audio/video editing, reception, classrooms, restrooms

**Square Footage Notes**
Initially based on (10 people/sqft)x(1200)=12000sqft
+ Sound video control (250sqft) + Platform area (100sqft/senior minister)+(33sqft/add. minister)x(9)=(397sqft)
+ Choir (6.5sqft/member)x(1200x(.12))=(936sqft) + Instruments (96sqft)x(3)+(36sqft)x(4)=(432sqft) + Preaching/Skit (200sqft)

**Square Footage**
14,215sqft
Design Criteria  This space gives a "first impression" of the facility to visitors as well as serving to welcome the congregation. It must be inviting, friendly, and laid out in such a way that it easily orients people to their desired area. It serves as circulation purposes as well as being an area that encourages interaction and communication. Provide larger and smaller spaces within it to slow people down and allow intimate as well as casual conversation.

Appearance  This space should provide equality and a sense of easiness and belonging while still sparking interest and stimulation through materials and textures. Variety, especially in more intimate areas, should be addressed through natural light, materials, and closeness of materials.

Users  Congregation, staff, visitors, community

Activities  Coat storage, observing, conversing, displaying, information

Equipment  Movable seating, couches, movable lighting, tables, information desk, telephone, display cases, coat storage

Time of Use  Mon.-Sat.: 8-5 (evenings vary) Sun.: 7am.-1pm. (evenings vary)

Lighting  Natural light should be used for good overall rendering and brightness. Spotlights and movable lighting should be used to emphasize displays and circulation. Lower levels will be needed in more intimate and seating areas.

Acoustics  The materials of the space should absorb sound and facilitate individual conversations more than overall sounds.

Thermal/Air Quality  Solar energy, cross ventilation, or high mass systems may be used to address heating and cooling issues as well as work with natural lighting strategies to achieve an integrated whole. Mechanical sources will be needed, due to the variations in Indiana's weather, but may be reduced through these other sources. Control of this space is not as critical except during times of high interaction and occupancy, such as arriving and leaving on Sundays. High cooling and heating at entries and exits will be needed for times of extreme exterior conditions.

Adjacent Spaces  Reception, information, sanctuary, classrooms, offices, restrooms,

Square Footage Notes  Initially Based on (12000x(.75))=(9000sqft)  
+ Coats (1200x(.75))=(900sqft)  
+ Information (120sqft)  
+ Commons Area (13sqft/person)x(40)=(520sqft)

Square Footage  10,540sqft
Design Criteria: This space is the emphasis and focus of the church. It is a place for the total congregation to come together in fellowship and worship God. It should embody a communication and relationship with God, while being careful not to overpower them. Every seat must have good visual and acoustic interaction with the platform along with physical access to it. Each person should feel a sense of relation and belonging in the whole space. If balconies are required, they must have easy access to the floor and platform. The platform itself must have extreme flexibility for a variety of functions. The floors should slope to the stage and the seating should fan out in accordance with the cone of vision.

Appearance: The space should accentuate its purpose in simple, elegant forms, clean details, and honesty of materials and forms. A purity should be felt through the use of light, sound, fellowship, and communication.

Users: Visitors, congregation, staff, community.

Activities: Viewing, singing, conversing, speaking, dramas, plays, baptism, weddings, musical performances, special events.

Equipment: Platform, instrument pit, baptismal, lighting, sound, video, sews or theater seating, movable chairs, pulpit, altars.

Time of Use: Mon.-Sat.: 1-2 nights/wk (varies) Sun.: 7am.-1pm. (evenings vary)

Lighting: Natural light should be capitalized upon to accentuate the experiences of the space. The space should have excellent overall quality mixing direct and indirect. The platform requires intense, flexible spotlighting, preferably from hidden ceiling fixtures. 150 lux for the congregation and 300 lux for key foci are recommended.

Acoustics: The space must have excellent, even distribution to each seat. Probably locate source above front center of the platform. The space and its materials must have the correct balance of absorption and reverberation to create crisp, clear sound at all points. More square or radial plans are preferred to linear ones. Try to keep seating within 75' of source to reduce need for enhancement. Opposite surfaces, such as floor/ceiling should not be parallel to each other.

Thermal/Air Quality: Solar energy, cross ventilation, or high mass systems may be used to address heating and cooling issues as well as work with natural lighting strategies to achieve an integrated whole. Mechanical sources will be needed, due to the variations in Indiana's weather, but may be reduced through these other sources. The use of a separate system here will increase efficiency due to the space’s sporadic use.

Adjacent Spaces: Entry/narthex, sound/video control, audio/video editing, reception, classrooms, restrooms.

Square Footage Notes: Initially Based on (10 people/sqft)x(200)=2000sqft
+ Platform area instruments (96sqft)x(2)+(36sqft)x(2)=(246sqft)
+ Preaching (300sqft)
+ Sound/video control (150sqft)

Square Footage: 2,714sqft
Design Criteria: This space should be casual, and reflect its flexibility and varied uses. Occupants should feel at ease and free to interact. Since it accommodates many functions, it should draw from that and not become a generic box space.

Appearance: Materials must be high wear, but can still make use of stimulating colors and varying textures. Its openness should facilitate social interaction and activity.

Users: Congregation, staff, visitors, community

Activities: Sports, dining, casual meetings, planning, youth and adult events, viewing, listening

Equipment: Tables, chairs, carts, sports equip., wall panel dividers, couch(es), audio/visual

Time of Use: Mon.-Sat.; (varies) Sun.; (varies)

Lighting: Natural light should be used for good overall rendering and brightness. Good overall artificial lighting is needed for activities, but movable, flexible, more intimate lighting may be needed for other activities.

Acoustics: The space should allow for good sound quality during gatherings and presentations, and also absorb sound to facilitate individual conversations during times of high occupancy. The large, boxy, reverberating nature of the space must be counteracted through the breaking up of large, hard surfaces and the use of absorbing materials.

Thermal/Air Quality: Solar energy, cross ventilation, or high mass systems may be used to address heating and cooling issues as well as work with natural lighting strategies to achieve an integrated whole. Mechanical sources will be needed, due to the variations in Indiana’s weather, but may be reduced through these other sources. High ventilation and refrigeration may be needed for times of high occupancy and activity.

Adjacent Spaces: Kitchen, classrooms, sanctuary, storage, changing/shower rooms, restrooms

Square Footage Notes: Initially based on BB court (84+20)x(50+20)= (7280sqft)
Or Dining (13sqft/person)x(1200x(.8))= (12480sqft)
+Drink/Food Bar (48x2)+ (64x2)= (224sqft)

Square Footage: 12,740sqft
**Design Criteria**  The nature of this space is utilitarian. The appliances, as well as the space should reflect its efficiency, ease of cleaning, and simple elegance. The design should address circulation, ergonomics, and the use of high wear materials.

**Appearance**  The appearance should be clean and sanitary for food preparation. Reductive, elegant features and colors that accentuate the tasks, such as greens, reds, and earthy color accents, best suit the space.

**Users**  Staff, cooks

**Activities**  Food storage, food preparation, conversation, planning

**Equipment**  (All should be heavy duty) Refrigerators, stoves, ovens, microwaves, freezers, garbage receptacles, audio, telephone, cabinets, countertops, sinks, shelves

**Time of Use**  Mon.-Sat.; (varies) Sun.; 11am.-5pm. (evenings vary)

**Lighting**  Natural light should be used for good overall rendering and brightness. Ambient artificial lighting should be supplemented with flexible task lighting.

**Acoustics**  The materials of the space should absorb sound and facilitate individual conversations more than overall sounds.

**Thermal/Air Quality**  Cross ventilation, or high mass systems may be used. Mechanical sources will be needed, due to the variations in Indiana’s weather and the high heat produced by equipment. High refrigeration and venting will be needed to eliminate smells and production of heat.

**Adjacent Spaces**  Fellowship/multi-purpose, storage, deliveries

**Square Footage Notes**  Initially based on Food Prep. (600sqft)
  + Dishwashing (200sqft)
  + Ref/Freezer (50sqft)x(3)=(150sqft)
  + Dry Food Storage (200sqft)

**Square Footage**  1,150sqft
Design Criteria: The nature of this space is utilitarian. The appliances, as well as the space should reflect its efficiency, ease of cleaning, and simple elegance. The design should address circulation, ergonomics, and the use of high wear materials.

Appearance: The appearance should be clean and sanitary for food preparation. Reductive, elegant features and colors that accentuate the tasks, such as greens, reds, and earthy color accents, best suit the space.

Users: Staff, cooks

Activities: Food storage, food preparation, conversation, planning

Equipment: (All should be heavy duty) Refrigerators, stoves, ovens, microwaves, freezers, garbage receptacles, audio, telephone, cabinets, countertops, sinks, shelves

Time of Use: Mon.-Sat.; (varies) Sun.; 11am.-5pm. (evenings vary)

Lighting: Natural light should be used for good overall rendering and brightness. Ambient artificial lighting should be supplemented with flexible task lighting.

Acoustics: The materials of the space should absorb sound and facilitate individual conversations more than overall sounds.

Thermal/Air Quality: Cross ventilation, or high mass systems may be used. Mechanical sources will be needed, due to the variations in Indiana’s weather and the high heat produced by equipment. High refrigeration and venting will be needed to eliminate smells and production of heat.

Adjacent Spaces: Fellowship/multi-purpose, storage, deliveries

Square Footage Notes: Initially based on Food Prep./Stor (50sqft)
  - Ref./Freezer (50sqft)

Square Footage: 100sqft
Program: Choir Room

Design Criteria: Classrooms must provide an intimate, friendly atmosphere, conducive to learning and interaction. Although flexible, the space should feel safe and comforting, not temporary.

Appearance: The appearance should convey the coherence of the class, and encourage an open, learning experience. The elegance and simplicity of materials and forms should stimulate thinking and emphasize the purpose for being there.

Users: Congregation, staff, visitors, teachers.

Activities: Teaching, conversing, displaying, children’s groups, viewing, listening.

Equipment: Table(s), chairs, marker board, shelves, cabinets, visual, audio.

Time of Use: Mon.-Sat.; (varies)

Lighting: Natural light should be used for good overall rendering and brightness. Spotlights and movable lighting should be used to emphasize displays and teachers. Levels may be lower here to promote an intimate atmosphere.

Acoustics: Privacy for close interaction amongst the class is needed. The materials should be sound absorbing and facilitate conversation.

Thermal/Air Quality: Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

Adjacent Spaces: Sanctuary, Fellowship/multi-purpose, restrooms, offices, storage, narthex.

Square Footage Notes: Initially based on Choir (6.5sqft/member)(1200x(.12))=(936sqft)
+ Robe Storage (1200x(.12))x(.75sqft)=(108sqft)
+ Instruments (96sqft)x(2)+(36sqft)x(2)=(264sqft)

Square Footage: 1,308sqft
Program: Adult Education

Design Criteria: Classrooms must provide an intimate, friendly atmosphere, conducive to learning and interaction. Although flexible, the space should feel safe and comforting, not temporary.

Appearance: The appearance should convey the coherence of the class, and encourage an open, learning experience. The elegance and simplicity of materials and forms should stimulate thinking and emphasize the purpose for being there.

Users: Congregation, staff, visitors, teachers

Activities: Teaching, conversing, displaying, children's groups, viewing, listening

Equipment: Table(s), chairs, marker board, shelves, cabinets, visual, audio

Time of Use: Mon.-Sat.; (varies) Sun.; 7am.-1pm. (evenings vary)

Lighting: Natural light should be used for good overall rendering and brightness. Spotlights and movable lighting should be used to emphasize displays and teachers. Levels may be lower here to promote an intimate atmosphere.

Acoustics: Privacy for close interaction amongst the class is needed. The materials should be sound absorbing and facilitate conversation.

Thermal/Air Quality: Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

Adjacent Spaces: Sanctuary, Fellowship/multi-purpose, restrooms, offices, storage, narthex

Square Footage Notes: Initially based on (12sqft/person)x(20-40 people)=(240-480sqft)
  + Work activity (30sqft)ea.

Square Footage: 270-510sqft
Design Criteria  Classrooms must provide an intimate, friendly atmosphere, conducive to learning and interaction. Although flexible, the space should feel safe and comforting, not temporary.

Appearance  The appearance should convey the coherence of the class, and encourage an open, learning experience. The elegance and simplicity of materials and forms should stimulate thinking and emphasize the purpose for being there.

Users  Congregation, staff, visitors, teachers

Activities  Teaching, conversing, displaying, children’s groups, viewing, listening

Equipment  Table(s), chairs, marker board, shelves, cabinets, visual, audio

Time of Use  Mon.-Sat.; (varies) Sun.; 7am.-1pm. (evenings vary)

Lighting  Natural light should be used for good overall rendering and brightness. Spotlights and movable lighting should be used to emphasize displays and teachers. Levels may be lower here to promote an intimate atmosphere.

Acoustics  Privacy for close interaction amongst the class is needed. The materials should be sound absorbing and facilitate conversation.

Thermal/Air Quality  Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

Adjacent Spaces  Sanctuary, Fellowship/multi-purpose, restrooms, offices, storage, narthex

Square Footage Notes  Initially based on (16sqft/person)x(15-25)=(240-400sqft) + Work Activity (30sqft)ea.

Square Footage  270-430sqft
**Program**  

**Elementary Education**

**Design Criteria** Classrooms must provide an intimate, friendly atmosphere, conducive to learning and interaction. Although flexible, the space should feel safe and comforting, not temporary.

**Appearance** The appearance should convey the coherence of the class, and encourage an open, learning experience. The elegance and simplicity of materials and forms should stimulate thinking and emphasize the purpose for being there.

**Users** Congregation, staff, visitors, teachers

**Activities** Teaching, conversing, displaying, children’s groups, viewing, listening

**Equipment** Table(s), chairs, marker board, shelves, cabinets, visual, audio

**Time of Use** Mon.-Sat.; (varies) Sun.; 7am.-1 pm. (evenings vary)

**Lighting** Natural light should be used for good overall rendering and brightness. Spotlights and movable lighting should be used to emphasize displays and teachers. Levels may be lower here to promote an intimate atmosphere.

**Acoustics** Privacy for close interaction amongst the class is needed. The materials should be sound absorbing and facilitate conversation.

**Thermal/Air Quality** Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

**Adjacent Spaces** Sanctuary, Fellowship/multi-purpose, restrooms, offices, storage, narthex

**Square Footage Notes** Initially based on (28sqft/person)x(16-25)=(448-700sqft)

+ Work Activity (30sqft)ea.

**Square Footage** 478-730sqft
Design Criteria  Classrooms must provide an intimate, friendly atmosphere, conducive to learning and interaction. Although flexible, the space should feel safe and comforting, not temporary.

Appearance  The appearance should convey the coherence of the class, and encourage an open, learning experience. The elegance and simplicity of materials and forms should stimulate thinking and emphasize the purpose for being there.

Users  Congregation, staff, visitors, teachers

Activities  Teaching, conversing, displaying, children’s groups, viewing, listening

Equipment  Table(s), chairs, marker board, shelves, cabinets, visual, audio

Time of Use  Mon.-Sat.: (varies) Sun.; 7am.-1pm. (evenings vary)

Lighting  Natural light should be used for good overall rendering and brightness. Spotlights and movable lighting should be used to emphasize displays and teachers. Levels may be lower here to promote an intimate atmosphere.

Acoustics  Privacy for close interaction amongst the class is needed. The materials should be sound absorbing and facilitate conversation.

Thermal/Air Quality  Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

Adjacent Spaces  Sanctuary, Fellowship/multi-purpose, restrooms, offices, storage, narthex

Square Footage Notes  Initially based on (35sqft/person)x(15-20)=(525-700sqft) + Work Activity (30sqft) ea.

Square Footage  555-730sqft
Design Criteria
Classrooms must provide an intimate, friendly atmosphere conducive to learning and interaction. Although flexible, the space should feel safe and comforting, not temporary.

Appearance
The appearance should convey the coherence of the class, and encourage an open, learning experience. The elegance and simplicity of materials and forms should stimulate thinking and emphasize the purpose for being there.

Users
Congregation, staff, visitors, teachers

Activities
Teaching, conversing, displaying, children's groups, viewing, listening

Equipment
Table(s), chairs, marker board, shelves, cabinets, visual, audio

Time of Use
Mon.-Sat.; (varies) Sun.; 7am.-1pm. (evenings vary)

Lighting
Natural light should be used for good overall rendering and brightness. Spotlights and movable lighting should be used to emphasize displays and teachers. Levels may be lower here to promote an intimate atmosphere.

Acoustics
Privacy for close interaction amongst the class is needed. The materials should be sound absorbing and facilitate conversation.

Thermal/Air Quality
Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

Adjacent Spaces
Sanctuary, Fellowship/multi-purpose, restrooms, offices, storage, narthex

Square Footage Notes
Initially based on (35sqft/person)x(8-10)=(280-350sqft)
+ Work Activity (30sqft)ea.
+ Sleeping Area (100sqft)

Square Footage
410-480sqft
Design Criteria: Provide a quality, semi-private work space for Senior Pastoral members day to day office activities as well as counseling and sermon preparation. The atmosphere should be warm and friendly for visitors, while stimulating for the everyday occupants. Space will be needed for personal items, reading and preparation materials, as well as flexible space for contemplation and thought.

Appearance

Users: Senior staff, visitors

Activities: Reading, writing, planning, meetings

Equipment: Office desk, office chair, computer, shelves, cabinets, table, visitor chairs, telephone

Time of Use: Mon.-Fri.: 8-5 Sat.-Sun.: av. 2hrs. (varies)

Lighting: Make use of daylighting, controllable with blinds. Provide even ambient artificial light with direct, flexible task lighting options.

Acoustics: The space must be able to have total privacy for confidential meetings. Provide controllable ambient background noise to facilitate work.

Thermal/Air Quality: Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

Adjacent Spaces: Secretaryal, offices, conference, copy/supply, office storage, restrooms, kitchenette,

Square Footage Notes

Square Footage: 160sqft
Program: Associate Staff Office

Design Criteria: Provide a quality, semi-private work space for Associate Pastoral members and laypeople to perform day to day office activities. The atmosphere should be warm and friendly for visitors, while stimulating for the everyday occupants. Space will be needed for personal items, reading and preparation materials, as well as flexible space for contemplation and thought.

Appearance

Users: Associate staff, laypeople, visitors

Activities: Reading, writing, planning, meetings

Equipment: Office desk, office chair, computer, shelves, cabinets, table, visitor chairs, telephone

Time of Use: Mon.-Fri.: 8-5 Sat.-Sun.; av. 2hrs. (varies)

Lighting: Make use of daylighting, controllable with blinds. Provide even ambient artificial light with direct, flexible task lighting options.

Acoustics: The space must be able to have total privacy for confidential meetings. Provide controllable ambient background noise to facilitate work.

Thermal/Air Quality: Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.

Adjacent Spaces: Secretarial, offices, conference, copy/supply, office storage, restrooms, kitchenette,

Square Footage Notes

Square Footage: 120sqft
Design Criteria
Provide a comfortable space for copies, supplies, and a table for cutting, pasting, etc. It should be well lit and well identified, with extra circulation space to prevent accidents.

Appearance
Should be easily accessible for staff and others needing it, but be lockable and out of public way.

Users
Staff, Teachers

Activities
Making copies, arranging/modifying documents, getting supplies

Equipment
Shelves, cabinets, copy machine, supplies, work table

Time of Use
Mon.-Sat.: 8-5 (evenings vary) Sun.: (varies)

Lighting
Daylighting may be possible, but some of the materials may be light sensitive. Task lighting may be needed for cutting or repairing of materials.

Acoustics
The space should be able to muffle

Thermal/Air Quality
Must be aware of humidity and temperature sensitive equipment and materials. Ventilation and possibly extra cooling may be needed due to the equipment used.

Adjacent Spaces
Offices, reception, restrooms, kitchenette, storage

Square Footage Notes

Square Footage
200sqft
<table>
<thead>
<tr>
<th><strong>Design Criteria</strong></th>
<th>Provide a private, controlled access space for meetings, planning, and counseling. The space should feel secure, but still friendly in its materials and volume.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Users</strong></td>
<td>Staff, congregation, community</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Meetings, counseling, planning, conversations, viewing, listening, eating</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td>Tables, chairs, storage, video equip, telephone, audio equip, shelves, cabinets, computer</td>
</tr>
<tr>
<td><strong>Time of Use</strong></td>
<td>Mon.-Sat.; 8-5 (evenings vary) Sun.; (varies)</td>
</tr>
<tr>
<td><strong>Lighting</strong></td>
<td>Make use of daylighting, controllable with blinds. Provide even ambient artificial light with direct, flexible task lighting for nook areas.</td>
</tr>
<tr>
<td><strong>Acoustics</strong></td>
<td>The space must be totally private and absorb sound for crisp, clear conversations.</td>
</tr>
<tr>
<td><strong>Thermal/Air Quality</strong></td>
<td>Utilize natural ventilation when possible. Provide variable temp/humidity control for varying comfort levels.</td>
</tr>
<tr>
<td><strong>Adjacent Spaces</strong></td>
<td>Offices, reception, restrooms, copy/supply room, kitchenette, storage</td>
</tr>
<tr>
<td><strong>Square Footage Notes</strong></td>
<td>Initially based on (12-14 person table)</td>
</tr>
<tr>
<td></td>
<td>+ Work Activity (30sqft)ea.</td>
</tr>
<tr>
<td><strong>Square Footage</strong></td>
<td>300sqft</td>
</tr>
</tbody>
</table>
Program: Bookstore

**Design Criteria** Provide an atmosphere that is quiet, well lit, and inspiring for research and study. Natural light should be available, but controlled by blinds. Controlled access is required, but the space should be tall and open, giving a sensation of strength and wisdom. Circulation will be slow and meandering, with open tables and nooks for private study.

**Appearance**

**Users** Staff, congregation, community

**Activities** Reading, writing, viewing, listening

**Equipment** Tables, chairs, books, video equip, audio equip, shelves, cabinets, computers

**Time of Use** Mon.-Sat.; 8-5 Sun.; 7am.-1pm.

**Lighting** Make use of daylighting, controllable with blinds. Provide even ambient artificial light with direct, flexible task lighting for nook areas.

**Acoustics** The space must control and absorb loud noises and facilitate studying areas. Ambient background noise may drown out any unwanted disturbing noises.

**Thermal/Air Quality** More precise control of temperature and humidity are needed due to the delicate nature of books and equipment.

**Adjacent Spaces** Copy space, storage, narthex, reception, offices, classes, fellowship/multi-purpose

**Square Footage Notes** Initially based on Merchandise Shelving (200sqft) + Checkout center (120sqft)

**Square Footage** 320sqft
**Program**

**Library**

**Design Criteria** Provide an atmosphere that is quiet, well lit, and inspiring for research and study. Natural light should be available, but controlled by blinds. Controlled access is required, but the space should be tall and open, giving a sensation of strength and wisdom. Circulation will be slow and meandering, with open tables and nooks for private study.

**Appearance**

**Users** Staff, congregation, community

**Activities** Reading, writing, viewing, listening

**Equipment** Tables, chairs, books, video equip, audio equip, shelves, cabinets, computers

**Time of Use** Mon.-Sat.: 8-5 Sun.: 7am.-1pm.

**Lighting** Make use of daylighting, controllable with blinds. Provide even ambient artificial light with direct, flexible task lighting for nook areas.

**Acoustics** The space must control and absorb loud noises and facilitate studying areas. Ambient background noise may drown out any unwanted disturbing noises.

**Thermal/Air Quality** More precise control of temperature and humidity are needed due to the delicate nature of books and equipment.

**Adjacent Spaces** Copy space, storage, narthex, reception, offices, classes, fellowship/multi-purpose

**Square Footage Notes** Initially based on (5000 vol)x(.1sqft)=(500sqft)

+ Reading Table Area (108sqft)x(2)= (216sqft)
+ Checkout center (120sqft)

**Square Footage** 836sqft
<table>
<thead>
<tr>
<th>Space</th>
<th>Square Feet</th>
<th>Number</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanctuary</td>
<td>13,718</td>
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<td>13,718</td>
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<tr>
<td>Backstage Dressing/Toilet/Shower</td>
<td>194</td>
<td>2</td>
<td>388</td>
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<tr>
<td>Backstage/Storage</td>
<td>400</td>
<td>1</td>
<td>400</td>
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<tr>
<td>Choir Room</td>
<td>1,200</td>
<td>1</td>
<td>1,200</td>
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<tr>
<td>Storage</td>
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<td>1</td>
<td>120</td>
</tr>
<tr>
<td>Chapel</td>
<td>1,914</td>
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<tr>
<td>Narthex/Commons</td>
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<td>Storage</td>
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<tr>
<td>Toilet</td>
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<td>Fellowship/Multi-Purpose</td>
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<tr>
<td>Shower/Toilet</td>
<td>450</td>
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<td>900</td>
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<td>Toilet</td>
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<tr>
<td>Kitchen</td>
<td>1,150</td>
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<tr>
<td>Adult Education</td>
<td>240 to 480</td>
<td>8 to 16</td>
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<td>Jr/Sr Education</td>
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<td>Elementary Education</td>
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<td>Preschool Education</td>
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<td>Children’s Toilet</td>
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<tr>
<td>Nursery</td>
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<td>Storage</td>
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<td>Kitchenette</td>
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<td>Senior Office</td>
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<td>Associate Office</td>
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<td>Reception/Secretarial</td>
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<td>Conference</td>
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<td>Workroom/Storage</td>
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<td>Storage</td>
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<tr>
<td><strong>TotalNet/Main Space Square Footage</strong></td>
<td></td>
<td></td>
<td>55,966</td>
</tr>
</tbody>
</table>

**Efficiency Ratio**
- 70/30

**Circulation**
- 16%

**Mechanical**
- 5%

**Public Toilets**
- 1.5%

**Janitor Closets**
- 0.2%

**Unassigned Storage**
- 0.3%

**Wall Partitions/Structure**
- 7%

**Unassigned Space Square Footage**
- 16,790

**Total Gross Square Footage**
- 72,756
Each Relationship is ranked 1-5
5 Being more important
1 Being less important

<table>
<thead>
<tr>
<th>Sanctuary</th>
<th>Narthex/Fellowship</th>
<th>Chapel</th>
<th>Parlor</th>
<th>Prayer Rooms</th>
<th>Sound/Video Booth</th>
<th>Technical Equip Room</th>
<th>Choir Room</th>
<th>Rehearsal Room</th>
<th>Piano Room</th>
<th>Kitchen</th>
<th>Nursery</th>
<th>Children's Activity Rooms</th>
<th>Young Adult Activity Rooms</th>
<th>Adult Activity Rooms</th>
<th>Indoor Play Areas</th>
<th>Balloon/Foodcourt</th>
<th>Library</th>
<th>Shop/Repair</th>
<th>Garage</th>
<th>Counselling Area</th>
<th>Conference Rooms</th>
<th>Senior Offices</th>
<th>Associate Offices</th>
<th>Secretarial/Reception</th>
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</tbody>
</table>
program  spacial relationships

classrooms

fellowship/multi-purpose

storage/loading

main entry

offices

meeting
### Cost Estimates

<table>
<thead>
<tr>
<th>Item</th>
<th>Calculation</th>
<th>Subtotal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Cost</td>
<td>72,756 sq.ft. (gross) X $92.5/sq.ft X .91 (Location Factor)</td>
<td>6,124,236</td>
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</tr>
<tr>
<td>Fixed Equipment</td>
<td>8% Building Cost</td>
<td>489,938</td>
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<tr>
<td>Site Development</td>
<td>12% Building Cost</td>
<td>734,908</td>
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<tr>
<td><strong>Total Construction Cost</strong></td>
<td></td>
<td><strong>7,349,082</strong></td>
<td></td>
</tr>
<tr>
<td>Site Acquisition and/or Demolition</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movable Equipment</td>
<td>15% Building Cost</td>
<td>918,635</td>
<td></td>
</tr>
<tr>
<td>Professional Fees</td>
<td>10% Construction Cost</td>
<td>734,908</td>
<td></td>
</tr>
<tr>
<td>Contingencies</td>
<td>10% Construction Cost</td>
<td>734,908</td>
<td></td>
</tr>
<tr>
<td>Administrative Costs</td>
<td>2% Construction Cost</td>
<td>146,981</td>
<td></td>
</tr>
<tr>
<td><strong>Total Budget</strong></td>
<td></td>
<td><strong>9,884,514</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Preliminary estimates are based on 1997 means square foot estimates.

Building Type: Church
Construction Type: Stone/concrete block with wood arched frame
Basement: None
Base Perimeter: 916 lf. (+100 lf. for changes in shape)= 1,016 lf.
  Add: $1.60/sq.ft. for every 100 lf. over base perimeter
Base Height: 24 ft. (+ 6 ft.)=30 ft.
  Add: $.45/sq.ft. for every 1 ft. over base height
Base cost: $88.2/sq.ft.
  +$ 2.7/sq.ft.
  +$ 1.6/sq.ft.
Total cost: $92.5/sq.ft.

Cost range for similar projects: $46.7-$172.05/sq.ft.

Added costs (examples):
Altar: $1,600 each x 8 = $12,800
Baptistery: $3,500
Emergency lighting: $350 each x 15 = $5,250
Lecterns: $495 each x 10 = $4,950
Pews: $80/lf. x (1.75 lf./person x 2,000 people) = $280,000
Pulpit: $4,000
Total: $310,150

(Costs will be broken up into these more specific categories pending further meetings with the client.)
Case Studies

Many times projects are viewed as "pure entities" and unrelated to any predecessors. In response to this, I use the analogy given to me by a friend at a large U.S. auto manufacturer. His company redesigns a line of cars every 5-7 years. This brings in some new technology and innovation, but the car never gets to a point of real precision and long term reliability. Some of his foreign competitors, on the other hand, have stayed with the same basic designs for many more years, continuing to refine and improve upon them. As a result, the competitor now has a significant advantage, with cars that have lives of +200,000 miles, much more than cars from his company.

I have visited and studied several precedents in the design of this thesis. My goal is not to copy designs, but I also do not want to reinvent the wheel. I use these other facilities as a "point of departure" for my design.

"In today's architecture, the search for personal expression too often blinds the architect from seeing when normal solutions are needed. For they confuse who they are with what "it" is, and if "it" doesn't look like great design (often abnormal) then they are not creative, for creativity has been taught to them as changing everything normal into the abnormal."

(Burgess, 45)