CULTURAL INFLUENCES ON ARCHITECTURE

by

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CHAPTER I
INTRODUCTION

Architecture is a manifestation and expression of culture. As such it must acknowledge and respond to the cultural needs and values of the society with which it interacts. Consequently, a selected set of cultural aspects will be defined which have been found most likely to influence architectural form. These aspects of culture will then be utilized in a study of three works of architecture. I will examine past architectural works and evaluate their cultural conditions to propose how the architectural form was influenced by the culture.

A demonstration of how culture influences architectural form will then be conducted through the design of a new Roman Catholic Church for Irish Catholic Americans in Boston, Massachusetts. The works of sociologists as well as requirements put forth by the Roman Catholic Church will be used to describe the cultural values and needs of the Irish Catholic Americans in this region.
"Culture" originates from the term "cultivation," implying that one has "grown" through knowledge or experience. To be cultured can also mean one is knowledgeable in the arts, or that one is refined. This thesis will use The Encyclopedia of Philosophy definition which reads, "the whole way of life, material, intellectual, and spiritual, of a given society."¹ Similarly, Webster's New International Dictionary defines culture as "the complex of distinctive attainments, beliefs, traditions [which constitute] the background of [a] racial, religious, or social group."² Culture, therefore, should be understood as involving more than the values and needs of a group of people but the entire "way of life" of that society. That is to say culture is concerned with more than a collection of values, it is a system or complex of distinctive attainments and traditions. Culture should be understood as a system of interconnected beliefs and values. As a cultural system, isolated quantitative relationships between different aspects of culture become less important than the qualitative relationships within the overall system.

Cultures are "value-guided systems...Values define cultural man's need for rationality, meaningfulness in emotional experience, richness of


imagination, and depth of faith."3 This implies that cultures are a matrix of aspects which affect many levels of society, with values being one of the primary aspects which organize the system. As one of the primary organizing aspects of culture, values shape the overall cultural system. The cultural system can only maintain itself with a cohesion of these values. This means that the system is dependent upon a series of values rather than a single dominant value. "Culture occurs only with a combination of the values, not with the sole perfection of a single value."4 A systems view of culture states that the entire series of values are responsible for the overall cohesion of the society with no one aspect of the culture given undue importance within a society. This leads to an exhausting amount of cultural aspects to be considered in the definition of the society. If a thorough understanding of the culture is to be attained, it would be useful to at least be able to limit the number of cultural aspects for review.

A systems theory approach toward the definition of culture can be used to narrow the scope of aspects by which culture can be reviewed. Inherent in systems theory is the concept of a system of interrelated parts. No one aspect of the system can be analyzed out of context to the whole. "No single cause-and-effect relationship [can be] separate from the system as a whole."5 Only through analyzing the qualitative relationships between the


various aspects of the culture can one begin to formulate possible hypotheses about these relationships.\(^6\) Similarly, the dynamic or changing nature of cultural systems requires that the individual parts not be viewed out of context to the entire matrix of the society. "The complexity of man and his history cannot be encompassed in neat formulas."\(^7\) One must analyze the interrelationship among the various aspects of a society. Likewise, the causal relationships among different aspects of the system as they relate to architectural form cannot truly be confirmed due to their dependence upon the overall system.

As a result, one must be careful not to speak of forces determining form. We must speak of coincidences rather than causal 'relations,' since the complexity of forces precludes our being able to attribute form to given forces or variables...We need to become aware of the complexity of interactions and the overall character of the setting.\(^8\)

T.S. Eliot, a writer who has attempted to define the term culture, speaks of a way to describe cultures using this notion of wholeness in his book Notes Towards the Definition of Culture. He says that a culture can be analyzed in terms of the individual, the group or class, and the whole society.\(^9\) Each culture will grow differently depending upon the degree of development each aspect of the culture has undergone. Again, being a


\(^8\)Ibid., 17.

\(^9\)Eliot, 19.
system of interrelated parts, no one aspect of the system can be understood outside the context of the larger system.

The culture of the individual is dependent upon the culture of a group or class, and...the culture of the group or class is dependent upon the culture of the whole society to which that group or class belongs. Therefore it is the culture of the society that is fundamental, and it is the meaning of the term "culture" in relation to the whole society that should be examined first.10

With the numerous factors which are interconnected within a system, how is one supposed to make an informed decision as to which aspects of culture to research? The answer lies in a statement made by David Bohm, a physicist who has written several books on systems theory and quantum physics. He indicates that while all aspects of the system influence the movement of the whole, some aspects have very little effect on the system. When the relationship between these aspects and the overall system is insignificant, it may be considered as inconsequential for the particular area of study.

[All] effects of reciprocal connections are not in general of equal importance...[W]ithin suitable contexts many of the reciprocal connections produce no significant effects, so that they can be ignored.11

This means that all aspects of a culture need not be reviewed for their individual importance. Rather, a select set of these aspects should be reviewed which have been found to be the most influential in the study of the culture. In the study of architectural form, understanding the society in which the structure was built should include a review of those aspects of

10Eliot, 19.

culture which have been found to effect the architectural form. Not all aspects of the culture are influential in the built form. Certain aspects are more likely to be incorporated into the architecture. Only through a study of past architectural forms can these aspects be revealed.

Aspects of Culture

Since certain aspects of the cultural system may be insignificant to the development of the whole system according to Bohm's theory, it is possible to limit the scope of the cultural system for review in relation to architecture. Sociologists and anthropologists have described several aspects of culture which are significant for the understanding of cultures including conditions for growth, analysis of language, and universal values which bridge cultural boundaries.

Eliot described three conditions he felt were essential for the survival and growth of a culture. These conditions include organic structure, geographic analyzability and balance in religion. The first condition, "organic structure," refers to the "hereditary transmission of culture within a culture." 12 He suggested that for a culture to survive it was imperative that there exist some means of relaying previous traditions down to younger generations. This type of structure within a society requires some form of developed social organization.

The second condition states that a culture needs to be "analyzable, geographically, into local cultures." 13 Cultures respond to their regional

12 Eliot, 13.

13 Ibid., 13.
context in terms of use of available resources, natural surroundings and terrain. As such, these resources influence the regional cultures. Studying regional context can aid in deciphering and understanding the culture of that region at various points in time. It is also important to understand the neighboring cultures as they may have influenced the particular society under review. As dynamic systems subject to outside influences, these regional cultures affect and influence the neighboring cultures. As Eliot stated, "The absolute value [of regionalism] is that each area should have its characteristic culture, which should also harmonize with, and enrich, the cultures of the neighboring areas." Critical Regionalism takes the concept of regional context one step further by synthesizing the local culture and the world culture into the matrix of regional concerns.

Geographic analyzability coincides with Pliny Fisk's concept of architectural regionalism. Fisk is one of the leading proponents of the current sustainability movement. Sustainability encompasses the belief that architecture should incorporate the surrounding context including the natural landscape, local materials and building technology, and features of the site, among other aspects, into a given design.

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14 Eliot, 53.


The third condition Eliot describes is a "balance of unity and diversity in religion."\textsuperscript{17} Several theorists, such as Eliot and Amos Rapoport, have indicated that religion is one of the central factors in the development of cultures.\textsuperscript{18} While religion is important in the development of culture, Eliot argues that these religious factors should not be overly emphasized to the point of becoming a burden on a society. He contends that if religion were to be overemphasized the society would become too one-dimensional and cease to exist.

Language is an important aspect of culture which may provide invaluable insight into a society. Its importance comes from the fact that we are dependent upon our ability to communicate with each other. A study of a culture's language can uncover common sayings or phrases that may hold special meaning to the particular group of people under investigation. These sayings or phrases may disclose valued human traits or other characteristics. Some values may even go beyond the cultural boundaries and extend into the realm of humankind in the form of universal values.

Another important aspect of culture is universally held values. Anthropologists have proposed the possibility of the existence of universal values which may be shared by all cultures. Some of these values include the fundamental need for survival, child rearing, the worship of transcendental entities, and the avoidance of pain and suffering.\textsuperscript{19}

\textsuperscript{17}Eliot, 14.
\textsuperscript{18}See Eliot, 13; and Rapoport, 8.
\textsuperscript{19}Laszlo, 106.
Depending on how a cultural system developed, the actual manner in which the people see their world may be completely different. It is a matter of "focusing" the cultural attention of the people toward certain aspects of the overall system which influences the general direction the society develops.

Cultures vary largely by the focus on different areas of the cultural system. Variations between cultures are related to differences in this focus by the society. Focusing on different aspects could be explained by the tendency of different cultures to emphasize different sensory realms. Edward Hall, an anthropologist and author of The Hidden Dimension, has explored this phenomena as it relates to human perception of space. In the book he describes how different cultures experience different sensory worlds.

People from different cultures not only speak different languages but, what is possibly more important, inhabit different sensory worlds. Selective screening of sensory data admits some things while filtering out others, so that experience as it is perceived through one set of culturally patterned sensory screens is quite different from experience perceived through another. The architectural and urban environments that people create are expressions of this filtering-screening process.20

Relationship to Nature

Another important cultural aspect referred to by Rapoport is how a society views its relationship to nature. Rapoport has defined three major classifications of this relationship. The first is called "religious and

cosmological."\textsuperscript{21} In this classification nature is valued over humankind. In other words, the natural environment is viewed as the dominant force. The second classification is called "symbolic,"\textsuperscript{22} where humankind and the natural surroundings are "in a state of balance." Here neither man nor nature is dominant over the other. Humankind is considered to be the caretaker of the natural world. "[M]an regards himself as responsible to God for nature and the earth and as a steward and custodian of nature."\textsuperscript{23} The third classification which Rapoport describes is called "exploitative."\textsuperscript{24} In this division humankind is dominant over nature. Humans are associated with almost god-like power in that they are the "completer and modifier of nature, then creator, and finally destroyer of [the] environment."\textsuperscript{25} Where a society places itself in these categories is an important factor in understanding that culture's beliefs and values. Likewise, how a culture reacts toward nature can dramatically affect the architectural form.

Regionalism and Critical Regionalism are related to Rapoport's second classification, "symbolic." A culture's association to its surroundings forms an integral part of its cultural values. Regionalism involves a strong connection to the natural surroundings though nature is

\textsuperscript{21}Rapoport, 75.

\textsuperscript{22}Ibid., 75.

\textsuperscript{23}Ibid., 75.

\textsuperscript{24}Ibid., 75.

\textsuperscript{25}Ibid., 75.
not revered as the dominant force in the society. Instead, the natural world is an integrated aspect within the overall cultural system.

Numerous cultures throughout history have displayed strong connections to nature through their architecture. The ancient Greeks associated particular emotions to certain physical features of the natural environment. Views, natural terrain, and the vegetation influenced the Greeks' interpretation of a site.

All these properties are manifestations of a natural order, and induce a certain relationship between man and his environment. When interpreting these characteristics the Greeks personified them as gods, and any place with pronounced properties became a manifestation of a particular god.26

Not only the Greeks, but many other societies have held strong associations between their natural surroundings and their architecture. Rapoport discusses several primitive housing structures which also respond to both the natural features of the geography and the particular culture of the people.

The geographic distribution of these buildings depends on their corresponding cultures...The differences between the types of buildings in different areas are evidence of differences in culture, rituals, ways of life, and social organization, climates and landscapes, and materials and technology available.27

Relationship to nature can reveal a great deal about the particular culture under review. Information on their attitudes toward the natural world may depict religious or other significance within that society and that


27Rapoport, 15.
culture's attitudes about their placement within the natural world. Likewise, a culture's attachment to nature may reveal regional or universal values held at that period in time. For example, today's world culture is shifting toward an environmentally conscious society. This has led many western societies to use environmentally "friendly" materials (recyclable, biodegradable) in their buildings and manufactured goods.

**Changes in Culture**

As a dynamic or changing system influenced by exterior factors, a culture is constantly altering to accommodate changes. Society's values are in a constant state of alteration responding to outside cultural systems with which it interacts. "The actual values are not fixed to the norms: they fluctuate around them."28 Responding to the altering outside world, a culture requires this ability to accommodate change in order to maintain itself. In a sense, the cultural system fluctuates in order to "repair" itself to accommodate the altering external situations. During this fluctuation, the values of the culture are constantly refocusing in an effort to adjust to the changing world system with which it interacts.

More dominant cultures in a region are constantly being altered and influenced by the smaller subcultures in that area. Eliot refers to these as "satellite cultures" which are strong enough to influence the dominant culture in the area without becoming completely absorbed into the larger system. This borrowing of values is often referred to as the process of

28Laszlo, 109.
"diffusion." Development of an individual culture depends upon the outside influences on which they can draw new values.

The changes to the values and needs of a society relate to the diffusion of ideals within the cultural system from other societies. As open systems, societies are constantly striving to attain goals by way of their values. Not all the values are compatible with the other values within the same cultural system. Therefore, these nonconforming values need to be modified or eliminated to maintain a balanced overall system. 

"[As] new values appear...some of the earlier values vanish."29 Hence, not all the values in a society are achieved but some may be altered to accommodate new values and needs.

In terms of architectural form, styles from various periods of history are often borrowed through this process of diffusion and reinterpreted by the secondary cultural system. Over the course of history, various architectural forms and styles have been reinterpreted to accommodate various cultures. As a result, "[n]o architectural style or type is 'pure' in an absolute sense...Complex architectural styles are agreeable combinations of mainly borrowed elements."30 This is one reason why it is often difficult to trace the built form's origins in hopes of acquiring its original meaning. Rapoport, in his research on house form, talks about these forms becoming reinterpreted by a secondary culture as a model of archetypal form for that culture. 

"The model itself is the result of the collaboration of many people over many generations as well as the

29Eliot, 24.

collaboration between makers and users of buildings and other artifacts, which is what is meant by the term traditional."\textsuperscript{31}

The changing condition of cultures makes interpreting the architectural forms difficult. Outside influences from other cultures constantly change the particular society under investigation. Research into the cultural values of any society should include a study of the broader cultural context to determine if any meaning can be ascertained from the regional or world cultural systems.

\textbf{Choices: Difficulty of Prediction}

Several problems arise when one considers changes that occur in culture and how these changes may affect the built environment. The first problem has to do with the number of directions a society may take in development. With too many possible avenues of choice that a culture may make, predicting the exact avenue would be impossible. One can merely estimate the general direction or course of action a society may take. In the design of architectural form, architects need to respond to this general course of development. Obviously architects cannot predict the future of a culture. However, I suggest that architects should at least go beyond the current situation to acknowledge likely changes a society will make in the future.

Nonlinear dynamical systems, whether chaotic or stable, are so complex they are unpredictable in their detail,

\textsuperscript{31}Rapoport, 6.
indivisible in their parts-the smallest influence can cause explosive change.32

While future events cannot be predicted due to this dynamic aspect of cultural systems, architectural design can at least respond to the general direction a culture will take. Analysis of the system should reveal likely directions the culture will take in the future as a result of the study of the society. The specific direction the culture takes is less important to the design than the overall anticipated direction or course the society moves toward.

The second problem with changes inherent in the cultural system relates to the issue of diffusion. Borrowing of forms and ideas from other cultures makes for vast interpretation problems. Many times a form in architectural history has been absorbed into another culture completely out of context of its original meaning. Eugene-Emmanuel Viollet-le-Duc made an argument against this form of diffusion because he felt that architecture was becoming preoccupied with the styles of the past.

History should be studied, not imitated. Each age must fashion its own architecture, and our age is one of iron and steel and brick and factories. Each nation, too, has an architecture appropriate to its climate and its spirit.33

Design which responds to the climate and spirit of an area and time period helps establish a tie between the architecture and that region's culture. When this response is viewed in relation to the overall world

32Briggs, 87.

culture, the concept of Critical Regionalism becomes more meaningful in the expression of the architectural form.

The third major problem in the interpretation of cultures, especially in the present, is the concept of choice. Societies throughout history have had limits placed on them by their surroundings. In architectural design, limited resources, climatic conditions and a focused value system of a society contribute to a basic framework within which the architectural form is derived.

[Architecture] is a human fact, and even with the most severe physical constraints and limited technology man has built in ways so diverse that they can be attributed only to choice, which involves cultural values.34

In today's multi-cultural society there are so many possible solutions to problems that the sheer degree of choice is overwhelming. As a result, creating meaningful architectural form is difficult due to this lack of constraints.35 The future of architecture will surely involve even less constraints as technologies develop further. Meaningful architectural form will have to respond to these changes, while not necessarily predicting the future. Limiting the choices will have to involve, to a degree, analysis of cultural values and selecting those values most relevant to the individual society.

**Culture and Architecture**

Architecture is a manifestation of the cultural context in which it resides. The form and relationships of buildings and spaces act as a kind of

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34Rapoport, 48.

35Ibid., 135.
"cultural marker" that can be read, similar to the way one might read a newspaper or road map for information, to describe the way of life and social status of its inhabitants. "Buildings are, in fact, matrices for social structure." Several anthropologists believe that architecture can be read to describe the "whole way of life" of a society. Encompassing much more than just the basic needs of a particular society, the architectural form responds to a far more complex system. Joseph Esherick, Fellow of the American Institute of Architects, of Esherick, Homsey, Dodge and Davis in San Francisco states that,

"Real" architecture has an attachment to a larger reality that goes beyond architecture itself. Characteristics of the land, the attributes of the people, the economic basis of the building environment, range of uses, climate, culture—all are the real determinants of form.

In his seminal study on house form Amos Rapoport proposed five aspects of culture he describes as most likely to influence the architectural form. They are the ways basic needs are fulfilled, the family structure and hierarchy, the varied role of women within society, attitudes toward privacy, and social interaction. The basic needs of a society can be quite different depending upon the culture. For example, one culture may be far better off in terms of material comforts, in which case their basic needs may include attitudes about the comfort level of heating in a structure.

36 Greaves, 29.

37 Ibid., 30.


39 Rapoport, 61.
Even this seemingly insignificant aspect of a society can vary widely and leads to drastically different built forms. Numerous examples have been cited by Rapoport on the effects family hierarchy can play on the architectural form. Related to this issue is the position of women in the culture, which is the third aspect of culture Rapoport describes as influential to the architectural form. In traditional Japan, for example, the kitchen is one of the very few areas of the house that are considered to be the "woman's domain," and is specifically designed for her use in terms of scale of the space and arrangement of equipment. In a sense, the room becomes a cultural space because human concerns, in addition to functional requirements, are considered in its conception.\(^{40}\) Rapoport's fourth aspect of culture, attitudes about privacy, also influences the architectural form. Degrees of privacy within a society can determine a certain range of architectural responses. Views about personal worth, territoriality, and sex can all impact the form of the built environment.\(^{41}\) An example of this would be people's attitudes about being naked. Some cultures welcome this and hence their architecture tends to be more visually open to the public, whereas other cultures with more modesty-oriented attitudes tend to be more closed. Finally, a culture's means of interacting socially can influence the design of the architecture. The physical place for meetings to occur can influence such basic forms as building types required, such as public baths, cafes, or shopping malls.

\(^{40}\) Hall, 3.

\(^{41}\) Rapoport, 66.
While these aspects of culture were relevant for Rapoport's study, they are specific aspects related to the building type with which he was involved. They are useful in creating a valid starting point from which culture can be reviewed for possible influential information into the architectural form. The following chapter will demonstrate that, in addition to Rapoport's list of aspects, a broader range of cultural aspects is needed to decipher the meaning behind the architectural forms of other building types.

Conclusion

To conclude, cultures are highly complex systems with many qualitative relationships. With the individual aspects integral within the whole system, each aspect of the system can only be qualitatively evaluated as to its influence on the larger system. Societies should be understood as systems of interconnected values which form the entire "way of life" of a people. Cultures should not be broken down into a series of cause-effect relationships between various aspects of the society. Looking at these quantitative relationships could lead to a misconception of the individual values. In architectural design, this approach allows for a much more meaningful explanation of past building forms. Reviewing the way a culture's basic needs are fulfilled, the family hierarchy structure, attitudes about the role of women and privacy, and the way a society interacts socially can all aid in deciphering architectural forms. Present design can also benefit from this approach by create more informed and appropriate design responses to various problems.
CHAPTER III
CULTURAL INFLUENCES ON ARCHITECTURE

The previous chapter described a number of aspects which were identified by Rapoport and others to be important in the understanding of cultures. Using these aspects I will describe how culture has influenced the design of several important examples of architecture. In addition, I will examine cultural attitudes toward nature as described by Rapoport. Likewise, if applicable I will include any significant religious considerations which influenced the built form.

Case Study #1 - S. Andrea (1472)
Mantua, Italy (Leone Battista Alberti)

Understanding the cultural influences on Leone Battista Alberti’s S. Andrea church (Figure 3.1) requires some explanation of the time period in which it was designed and constructed. The human perception of the natural world, the function of the church in society, and the need to create a connection to the past were all integrated into the design of this church.

A primary theory in architectural design during the Renaissance period was based on the use of proportions as a means of organizing structures. During the Renaissance people believed in an ordered universe which could be replicated through the use of simple proportions. These proportions, it was believed, created a homogenous space which could be experienced simultaneously.\(^1\) Architecture was the "concretization of the

church at the request of Gonzaga in 1470. The original construction process was completed in 1494. Various additions to the building occurred over the next 300 years with the final decorations completed in 1782.

Figure 3.1 Plan and exterior view of S. Andrea in Mantua.

The primary function of the S. Andrea church was to house a vial of blood, believed to have come from Christ, in a structure large enough to allow a number of people to view the vessel. This gave the town a significance in that time period. Legend has it that the legionnaire who stuck his lance into Christ while He was being crucified saved the sponge soaked in vinegar and soil splashed with Christ's blood. The soldier then brought these items back to Mantua where these relics remained. Eventually these items were stored in S. Andrea.

7Borsi, 169.
cosmic order."² Simple purity of platonic forms were utilized in the architecture to create buildings which were so independent in form that "nothing might be added, taken away or altered, but for the worse."³ Hierarchy was achieved by assigning different values to the various forms, where circles were considered the most pure form.

Hierarchy was achieved by assigning different values to the various forms, where circles were considered the most pure form. "2Norberg-Schulz, 127.

³Ibid., 113.

⁴Ibid., 128.


⁶Ibid., 141.
Alberti's interest in things that endure and the study of Roman and Etruscan empires led to a representation of a false historical past for S. Andrea. Ambiguity between the historical past and the concrete world of the present was what made a town for Alberti "which was both an urban and a social structure."8 Despite being settled by the Romans, the town of Mantua had no significant examples of Roman architecture to remind the people of their heritage. Alberti intended the church to be such a building. Utilizing carefully reinterpreted classical culture and Roman brick construction techniques, the architecture of S. Andrea is meant to be a dichotomy between new and old, modern and ancient. It gives the town the history it so desperately wanted.

Though Alberti was probably inspired by the Arch of Titus or the Arch of Trajan in Ancona, one should not underestimate this close relationship between the exterior and interior of S. Andrea, which results in one seeing the interior as a development of the triumphal arch motif...[The ratios] constitute a kind of guarantee of the building's stability, which must have been secured in the Roman fashion, without tie-beams or chains of any kind.9

The interior of the church was designed using ideas based on Etruscum sacrum, a type of ancient temple. Again, this reference was an attempt to bridge the time barrier between the Mantuan culture and the ancients. An Etruscum sacrum usually contained small chapels built along the side of the nave rather than in the apse.10 Alberti reinterpreted these rooms into alternating open and closed side chapels to reinforce the

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8Borsi, 13.

9Ibid., 185.

10Ibid., 169.

23
rhythmical proportioning system of the structure. These chapels also helped brace the lateral forces from the barrel vaulting of the roof.

[Its] interior draws on the volumetric monumentality of Roman structures and its facade is based on Roman triumphal arches. These allusions were not chosen arbitrarily, nor were they as obvious as we might suppose. Mantua was certainly no unimportant power in the fifteenth century, but it was still very much a backwater, lacking not only a major ecclesiastic structure but especially Roman ruins...that could tie it to the new Humanist culture. Though the city had been founded by the Romans it had little tangible evidence to show for it.\(^{11}\)

As a result of this bridging of the past and present, Alberti created a building which draws on the images of the past to create an artificial historic reference in the present, a "visible manifestation of the triumph of man over time."\(^{12}\) The implied historical connection to the city gave the building a cosmic importance.

Alberti's facade at S. Andrea is a brilliant example of the Post-Modern aesthetic. The Roman triumphal entry is purposefully misapplied and pushed right up alongside an existing clock tower; it becomes not only an entry into a church, but also a covered street leading into a side courtyard. The facade was not to be read as a freestanding imitation of a Roman form, but as a monument integrally interlocked in the medieval urban fabric, much as Roman ruins were in other cities.\(^{13}\)

Placement of this building into the urban fabric was extremely important in the design of this church. Alberti intended the building to be a piece of the city rather than an independent object building. One might


\(^{12}\)Borsi, 14.

\(^{13}\)Jarzombek, 91.
assume the symmetry of the plan and facade is indicative of an independent object. The opposite is a more accurate description. An examination of the tower adjacent to the main facade reveals an interesting detail. The tower actually encroaches onto the facade of S. Andrea (Figure 3.1). Alberti felt that this arrangement was necessary both to allow more room on the interior of the building and to make an architectural statement as to the building's artificial historical attachment to the city.

The detailing of the building also draws upon iconography of the past integrated into a functional building for the present. By using the same care in detailing the interior of the church as the exterior, Alberti created consistency both in terms of proportion and symbolism.

S. Andrea marks a decisive turning away from the "vernacular" to the "Latin." This does not mean that Alberti merely imitated some classical models, but that he reinterpreted the classical past in the light of contemporary needs. This gave him greater freedom of action in the organization of space, which he employed in an attempt to construct a solid, consistent "Etruscan temple" (basilica or Roman hall) devoid of artifice.14

The interior of this church also alludes to a historical past. Utilizing the proportioning system of an Etruscan temple, the building is organized with a 6:5 length to width ratio. A simple square forms the basis for the proportions. Alternating open and closed side chapels are also based on this system. Process through the building terminates at the 1:1 proportion of the rounded apse. This ideal form is indicative of the important relic which is displayed there. The nave is roofed with a mortar and gravel unsupported barrel vault, reminiscent of the Roman brick construction.

14Borsi, 186.
The exterior of the church remains unfinished on one side. Intentional or not, this further adds to the perception of a historical past for the building. "[W]ith its superimposed and unexpressed motifs, has the look of a ruin on to which various parts have been added...and it sums up the whole history of the church."¹⁵

The lighting for this structure was also influenced by the cultural context. Natural light into the building was difficult due to the close proximity of adjoining buildings, and lighting from above would be difficult due to limits of the structural systems of the day. Using the Renaissance image of the world as a unified, homogeneous whole, the lighting system was integrated into the structure to form a total integration of structure, lighting, and detailing.¹⁶ The original lighting design allowed light into the structure from two sources; around the domes of the side closed chapels and through high vaulted windows in the corresponding open side chapels.

The intensity of the light varied in accordance with the small and large volumes as these were related to the nave. The result was a synthesis of structure, volume, and light reduced to their essentials. This shows that Alberti had grasped the fundamental values of architecture. He had succeeded in creating the *Etruscum sacrum* he aspired to.¹⁷

The church of S. Andrea in Mantua is an excellent example of total integration of the culture into building design. By drawing on images of the past Alberti successfully bridged time to create an artificial past for the town of Mantua. In addition, the proportioning system, indicative of the

¹⁵Borsi, 172.

¹⁶Norberg-Schulz, 114.

¹⁷Borsi, 167.
Renaissance period, helps to unify the various aspects of the structure to form a harmonious sense of space, both on the interior and exterior.

Case Study #2 - Church of the Sacred Heart (1928-1932)  
Vinohrady (Joze Plecnik)

Joze Plecnik's Church of the Sacred Heart in the suburbs of Prague responds to the Czech culture as a symbolic lantern on the landscape and through the use of subtle images and orientation. Plecnik, himself a devout Catholic, also relied heavily on his own ideals of religious architecture in designing the structure (Figures 3.2 & 3.3).

Figure 3.2  Church of the Sacred Heart, Vinohrady.  
Photo by Kenneth Shook.

Sacred Heart was the second Catholic church built in Vinohrady. Plecnik was asked to submit a design for the church by the building committee, despite the fact that it was an open competition. This was
considered to be quite an honor for the architect and a way of thanking him for his help in other projects in the area.\textsuperscript{18}

The most important aspect of the Church of the Sacred Heart is the siting of the structure. Plecnik oriented the church tower so as to create a visual connection between the church and the castle. This connection could be linked to the political climate of the time. The government was in the process of changing from that of a monarchy to an independent democratic state. By orienting the church toward the castle, a prominent structure overlooking the valley of the town, Plecnik could have been drawing an architectural image of the separation of church and state. The castle itself was a symbol of national independence and democracy.

By the time he left Prague, [Plecnik's] new democratic approach to church design was already established, and he was clearly master of his distinctive vocabulary of reinterpreted historical form. Refusing restrictive categorization, Plecnik's work by 1911 was functional, rationally structured and yet the same time rich and expressive, paving the way for twentieth-century Modernism.\textsuperscript{19}

Another way in which Plecnik draws upon democratic imagery for his architecture is in his reference to Greek architecture. Like Alberti, Plecnik believed in drawing connections to the past, including Etruscan and Greek architecture. In fact, "just as the modern democratic state of Czechoslovakia is related to the democracy of ancient Greece, so the


modern age is spiritually close to the age of Classical Antiquity."\textsuperscript{20} The design for Sacred Heart was originally based on a Greek temple design. After several modifications, Plecník settled on a Greek pediment crowning the rusticated nave walls of the new church and the large bell tower which stretches across the entire width of the sanctuary.

![Figure 3.3 Plan and elevation of Church of the Sacred Heart, Vinohrady. Source: Peter Krecic. Plecník: The Complete Works. (New York: Whitney Library of Design, 1993), 69-70.](image)

The rustication on the church exterior and bell tower is meant to symbolize the solidity of the church in the city. This was particularly important considering the changing political scene in post-war Czechoslovakia. These massive walls are clad in dark ceramic tiles which bow outward near the top to visually support the clerestory windows of the nave. A series of projecting tiles add to the massiveness of the wall. The effect of the pattern and color of these tiles is a building which appears to be

\textsuperscript{20}Krecic, 59.
cloaked in ermine. "emphasizing its royal stature and its location on Kralersky Vinohrady."21

The geometric forms of the bell tower act as a kind of marker in the urban landscape. Functionally, it marks the sanctuary area in the church below. The form for the tower was to be an enlarged symbol of the tabernacle below.22 Pyramids on either side of the tower give the projection even more grandeur. The carved hole for the large clock which penetrates the tower could be a reference to the rose windows in the apse of earlier cathedrals.

The interior of the Church of the Sacred Heart draws upon Plecnik's own philosophy of "new ideals in church design."23 His goal for the nave was "the creation of a pure, unencumbered space which nevertheless has a recognizably religious aura."24 Articulated walls of the rectilinear space visually support the row of clerestory windows which wrap the building. The flat coffer ceiling also reinforce the idea of a whole space unencumbered with structural members. Plecnik hoped the unified space would convey a sense of warmth to encourage spiritual devotion. This communal attitude about the liturgical space corresponds to the Second Vatican Council directive several years later.

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21Krecic, 70.
22Burkhardt, 94.
23Krecic, 69.
24Ibid., 70.
...Plecnik's religious work anticipated Modernism's concern with new attitudes towards spirituality, influenced by Early Christian models, which saw architectural form as an important force in spiritual transformation.

Plecnik's design for this church was influenced primarily by the political climate of the time and his own ideals about church architecture. As with much of his work, Plecnik's architecture is deeply personal and should be understood in this light.

Case Study #3 - Metropolitan Cathedral of Managua (1992)
Nicaragua (Ricardo Legorreta)

The design for the Cathedral of Managua is more related to a national symbol than the previous two case studies. As a cathedral, this building is the symbol of Catholicism in Nicaragua. As such this church had to symbolize such ideals as strength and unity in a country ridden with political unrest, poverty and recovering from a major earthquake (Figures 3.4 & 3.5).

The political scene of the time was one of transition. The Sandinistan government was in the process of being removed from power after fighting with the United States-backed contra rebels. In the midst of the conflict the Sandinistan government was trying to win support from the citizens through public works projects. They hoped to persuade peace through the promise of improved living conditions. At the same time the Roman Catholic Church was condemning their role in the conflict as well as the Soviet Union's intervention. This was particularly important in a country in which 88 percent of the population was Catholic. By the end of the

25Krecic, 42.
conflict both sides, the Sandinistan government and the Roman Catholic Church, were taking steps to promote a peaceful transition in the government. The Church, for the first time in the unrest, began to publicly denounce both the Soviet Union and the United States for their role in the fighting, despite the millions of dollars coming from the US. As a kind of peace offering the Sandinistan government donated 29 acres of land in downtown Managua to the Church for the purposes of replacing the cathedral which was lost in the earthquake in 1972.

The main problem for the Church at that point was where to find financial support in a poor country when they have just criticized the United States for their role in the unrest. The answer was found in an American named Thomas Monaghan, founder of Domino's Pizza and a devout Catholic. Monaghan had a fondness for architecture and had created the Mission Chapels Foundation, an organization devoted to building chapels in poor countries. The thought of building a cathedral was too tempting an offer for Monaghan who stated that "one cathedral is equal to a lot of chapels, but symbolism is so important."26

The requirements for design of the cathedral were set forth by Miguel Cardinal Obando y Bravo, the Archbishop of Managua since 1970. He wanted "a structure of unadorned, simple beauty."27 This corresponds to the outlines for the liturgical space as a result of the Second Vatican Council which will be described in detail in Chapter IV. Monaghan and Bravo wanted the architect to internationally renowned and have the ability to


27Ibid., 75.
speak fluent Spanish. Their choice was Ricardo Legorreta, a Mexico City-based architect respected on the international level.

Legorreta's concept for the $4.5 million project was "to represent the spirit and ceremony of a contemporary and active church in which the cathedral is the center of the unity and prayer to the community." He further explains that the design was "to give dignity to the cathedral, while avoiding unnecessary luxury and reflecting the culture and weather conditions of Managua." This prompted the efficient use of lighting and ventilation along with simple building materials and construction techniques.

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**Figure 3.4** Plan of the Metropolitan Cathedral of Managua in Nicaragua. Source: Karen D. Stein, "Where the Streets Have No Name," *Architectural Record*, July 1994, 75.

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29 Ibid., 106.
Several specific design elements were influenced by the culture in Managua. First, climatic considerations were addressed in the way the building was situated. By orienting the nave on a North-South axis and lining the side aisles with pivoting doors, natural ventilation is provided by the prevailing East-West winds. They also allow for easy access and exiting from the nave during especially large gatherings. This is important in the tropical climate of Nicaragua. Light is also carefully controlled through roof domes and small openings in the walls. This aids in preventing heat buildup in the church. These design elements create a cool space conducive to prayer and gathering.

The turbulent political climate and harsh economic conditions also influenced the design of the cathedral. The civil war had just begun to subside and the earthquake in 1972 destroyed not only the original cathedral but many of the buildings in the city. There was a need to create a structure which portrayed the Roman Catholic Church as a stable institution, even in the earthquake zone. This was the main reason for utilizing concrete as the primary structural element. To further enhance the solidity of the structure Legorreta had the exterior of the concrete chiseled to add texture.

The Veneration Chapel, an isolated room which is sanctuary to the Blood of Christ Image, is another example of the culture influencing the built form. This cross holds religious value to the people of Nicaragua and is considered to be an extremely sacred relic. The Archdiocese of Managua built a glass cage in which to store and protect the cross. Light into the Veneration Chapel was particularly important for it had to support the image of the sacred cross. Legorreta's response was a cylindrical room.
with small punched openings in the walls. This allowed a varying illumination affect which reinforces the concept of the sacred space.

The cathedral also respond to the criteria set forth by the Second Vatican Council. The highest point in the nave is over the congregation. This is meant as a symbolic gesture to place the emphasis on the people rather than the sanctuary to heighten the sense of unity within this Catholic community. This is one of the reasons the plan does not follow a traditional form.

![Metropolitan Cathedral of Managua in Nicaragua. Source: Karen D. Stein, "Where the Streets Have No Name," Architectural Record, July 1994, 72.](image)

The Cathedral of Managua does respond to the cultural needs of the society in which it interacts. Meticulous consideration of the natural lighting of the nave and side chapels is the most striking element of the design. Generally, the architecture appears to be appropriate for the culture and climate. The only real criticism of this building is the physical location of the cathedral, in the heart of a run down neighborhood of
shacks. Contrast between the sacred and the profane is strikingly evident due to this relationship, which could be considered a positive attribute of the design.

Conclusions

Architecture expresses the cultural context in which it is built. Analysis of the culture can reveal those aspects which most influenced the architectural form. In fact, the built form is similar to a map of the past which can be read as a manifestation and expression of the culture.

Looking closely at what has been built in the past—aggregations of plan and structure, materials and details, and most important of scale and space in private and public realms—we see a virtual blueprint of the culture, revealing not only inherent values but workable design solutions that are often beyond improvement."30

These case studies demonstrate that reviewing how culture influences architecture involves more than simply categorizing aspects of culture. The points set forth by Rapoport, while useful in his particular examples of architecture, were not as revealing when reviewing these religious structures. Likewise, the cultures in which these buildings were constructed were not as concerned with the aspects Rapoport emphasized. I would conclude that one cannot break culture down into a neat package of aspects an architect should consider. Rather, these case studies demonstrate that each culture should be analyzed on its own merits on a case-by-case basis. I would also propose that building type influences the

range of aspects of culture which are important to the architectural form. For example, the degree of privacy was important in Rapoport's examples of primitive house forms since the structures were in fact private dwellings. Conversely, ecclesiastical structures tend to be more public in nature so the degree of privacy may not be a major factor influencing the architectural form. Again I would conclude that building type should be analyzed to determine which aspects of culture would be appropriate to incorporate into the architectural form.
CHAPTER IV

IRISH CATHOLIC AMERICANS

Culture of Irish Catholic Americans

The culture of Irish Catholic Americans should be considered first in context of their historical background. Some of the current culture can be attributed, at least in part, to the Celtic culture from which the Irish Americans have descended. This is because the culture of a particular subculture is affected by that people's past experiences. While they may share the same ancient heritage with another group of people, they do draw upon their own set of physical experiences. In the case of Irish Americans, they do share the same Celtic heritage as the Irish in Ireland. However, they have a different set of experiences in America which has altered their cultural condition from the Irish in Ireland.

The Celtic people in ancient Ireland had a surprising number of characteristics which are similar to those of today's Irish Americans. Drinking, politicking, a fatalistic and hopeful style are all characteristics that can be found in both cultures.\(^1\) Likewise, these people were considered to be quick-witted and frequently exaggerated the truth in order to extol themselves. They preferred story telling which included comical overtones. More recent Irish tradition has involved a satirical view of death, to the point of defying it. Many of these same characteristics can be found in today's Irish American communities.\(^2\)


\(^2\)Ibid., 20-39.
cultures include the drive to explore new lands. In addition, several figures from the Roman Catholic religion were believed to have been reincarnated from the earlier Celtic mythology (Dagda as God, Lug as Jesus, and Bride, patroness of spring, new life, and poetry, as the virgin Mary).³

Nature mystic, modified dualist, pilgrim, part puritan, part libertine, fatalist, hoper, ridiculer of death, scholar, loyalist, admirer of strong women - the ancient Celt is a little more complicated than Strabo's wild drinker and manic warrior... Yet somehow much remains.⁴

Another important aspect in understanding the Irish Catholic American culture is its history of persecution. The Irish people have been persecuted and exploited throughout much of their history, especially the Catholics. In Ireland, wave after wave of invaders have overtaken and occupied the country. The English alone have invaded Ireland five times,⁵ the most recent of which has left six counties in Ulster (Northern Ireland) still under British rule. This occupation, since 1921, has lead to the current conflict involving the Provisional Irish Republican Army (IRA). Following the Protestant Union of the two parliaments in 1800, penal laws were established specifically to eliminate the Catholic religion from the British Isles. These laws made celebrating a Catholic Mass a crime, strictly limited a Catholic's right to education and land ownership, and restricted priests' ability to travel abroad. These laws were established despite the fact that a majority of Ireland was Catholic in contrast to the majority of

³Greeley, The Irish Americans, 20.

⁴Ibid., 39.

⁵Ibid., 40.
English who were Protestant. This persecution reflects the incredible fear the Protestant British had toward the Roman Catholic papal hierarchy. These penal laws left most Irish Catholics uneducated, extremely poor, and with little hope of overcoming their precarious situation.

When the Great Famine engulfed Ireland in 1848-49 the situation for the Irish Catholics grew even worse. The Irish fled Ireland in hopes of finding a better life in the New World. Between the mass exodus via migration and the thousands who perished from hunger, Ireland's population dropped in half, from about 8 million people to 4 million. During this time, the occupying English government did little to rectify the situation. This action, along with the current occupation of Northern Ireland, is the primary basis for the Irish contempt of the British government.

The Irish Catholics who did manage to reach the New World found another wave of persecution from the native Protestant Americans. The Irish primarily settled in Boston, New York, and Philadelphia, though a number of immigrants did manage to migrate to the West. These new arrivals, with no skills outside of agriculture and having little money, were considered to be a social plague and burden on society.6 "The increase in the Irish-born Catholic population in New England...was to be a culture shock for the intently Protestant region."7 Boston was the main focus of the conflict because it had absorbed a large number of Irish into a less

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6Lawrence J. McCaffrey, Textures of Irish America (Syracuse, New York: Syracuse University Press, 1992), 2.

7Dennis Clark, Hibernia America: The Irish and Regional Cultures (New York: Greenwood Press, 1986), 38.
diversified economy and social structure than other cities. The immigrant men found jobs as common laborers, carpenters or in railroad construction. Immigrant women found jobs as maids, commonly known as "Bridgets," factory workers, saleswomen, and garment industry employees. The women, especially the maids, were often underpaid, overworked, and even cheated out of their wages. Through parochial schooling, a devout adherence to their religion, and an interest in politics, many of these Irish immigrants overcame these impossible conditions. In fact, the Irish Catholic Americans are now considered "the most affluent gentile ethnic group in America."9

While there are a number of differences between the Irish in Ireland and those in America, there are also distinguishing characteristics between the Irish in the various regions of the United States. While the Boston Irish may reside in what some have termed the intellectual capital of the nation, they are not considered typical of the American Irish.10 Greeley and McCaffrey have suggested that the Irish in the Midwest are "more affluent, better educated, more devout, and more liberal"11 than those in the East coast.

Today, there are many myths surrounding the Irish Catholic culture. Andrew Greeley, a sociologist who has spent a number of years researching the Irish American people, has attempted to expose these

8Clark, 40.

9Greeley, The Irish Americans, 4.

10Ibid., 6.

11See Greeley, The Irish Americans, 6; and McCaffrey, 67.
erroneous perceptions through the supportive evidence of his sociological studies. Greeley contends that the Irish are the most liberal non-Jewish ethnic group in America in terms of political and social issues.\textsuperscript{12} The belief that the Irish are more apt to develop alcohol problems is also untrue. The Irish are no more likely to acquire alcohol-related addictions than other ethnic American groups, and in some cases less so.\textsuperscript{13} Another misconception is that Irish Catholics, since the Second Vatican Council, are departing in significant numbers from the Catholic church. Greeley says that while there has been a drop in the number of Catholics attending weekly services, "there is no appreciable sign of their departing the Catholic religion."\textsuperscript{14} Some have also suggested that the Irish have become so integrated into American lifestyle that there is no difference between them and other American ethnic groups. Greeley says, "The Irish...[have]...maintained greater cultural diversity and greater cultural distinctiveness than groups that have come after them-in their family life, their attitudes toward achievement, their world view, their drinking behavior, and their political style."\textsuperscript{15} The belief that women in this ethnic group have little or no authority in family life is another misconception. The role of Irish women in family relationships is one of more power than most women in other ethnic groups. Ireland is, in fact, considered to be

\textsuperscript{12}Greeley, \textit{The Irish Americans}, 2.

\textsuperscript{13}Ibid., 2.

\textsuperscript{14}Ibid., 3.

\textsuperscript{15}Ibid., 3.
"the most feminist of all nations." Finally, while Irish politics have tended to be pragmatic, there is also a history of strong liberal views by this group.17

The first aspect Rapoport analyzed was the requirement of the building to address the basic needs of the people. The most important basic need for this group would be the pragmatic requirement for a protected space in which the liturgy can easily take place. There are a number of specific requirements for the liturgical space itself. Requirements for the church building and other structures on the site can be found in the "Building Programs" section in this chapter. Climatic conditions in this region require the building to be able to be enclosed and the air should be conditioned to provide both heating and cooling as needed. More information on the climatic conditions in this region can be found in the "Climate" section also in this chapter. Social conditions in this subculture, which will be described later, require that a space be provided on the premises to accommodate the gathering of the congregation for social functions outside of the worship space.

The second aspect Rapoport uses is the hierarchy within the culture. This can be viewed from several positions as it relates to Irish Catholic Americans. First, the hierarchy within the church itself should be analyzed. Catholics value "the importance of community, institution,

16Greeley, The Irish Americans, 3.

17Ibid., 3.
Hierarchy is at the core of the Roman Catholic Church organization. The Church does not run on a democracy; rather, a hierarchy of command guides the Church through the various decisions and obstacles it encounters. Despite this distinct hierarchical organization, the actual liturgical space is supposed to be organized to downplay this relationship, at least since the Second Vatican Council. The altar and the presiding priest are not supposed to appear dominant over the congregation. Rather, they should be organized to encourage the participation of the congregation during the liturgy. For Irish Americans, the priest has been the community leader and problem solver. As such, the need for the priest to appear as part of the community seems particularly important. During their years of persecution by the British, the Irish rallied support for their parish priest. Therefore, it is not surprising to find that the early Irish Americans, in a hostile environment, chose to have the parish church and the priest as the center for their new communities. For the Irish, the priest was at the heart of the parish.

Hierarchy within the family can also be instructive in designing for this ethnic group. Greeley has noticed the Catholics' attention to such values as loyalty, obedience, and patience. He further explains that these values work together to create an intense "family network" which is


19 McCaffrey, 74.

20 Greeley, The Catholic Myth, 147.

21 Ibid., 47.
indicative of Catholics. This is one of the reasons they were found to be more likely to stress traditional family values. For Irish Americans, family life is extremely important. While there does not appear to be a distinct hierarchy within the family unit, their value for family has led to "greater cultural diversity and greater distinctiveness" than most other ethnic groups.

Rapoport also noted that the position of women in a society can greatly affect the architecture of that people. During the Celtic period, Irish women had an extraordinary amount of power. During the early immigration years, women had more opportunity than men. Following the role models of nuns, the Irish women became teachers and nurses, making them the first laywomen professionals. Greeley, in various sociological studies, found that Irish American women "hold more power in family relationships than women of most other ethnic groups." This pro-feminist stance the Irish and Irish Americans hold can be linked to the Catholic religion. One of the central icons of the Catholic religion is Mary, the Mother of Jesus. She symbolizes the essence of Catholic relationship to God. She "represents the mother love of God, the great historic Catholic insight that God loves us as a mother loves a newborn babe." Studies also

22Greeley, The Catholic Myth, 102.
23Greeley, The Irish Americans, 3.
24Ibid., 38.
25McCaffrey, 170.
26Greeley, The Irish Americans, 3.
show that Catholics value "fairness" and "equality"28 which would explain their fundamental value of social relationships. It would be logical to relate these values to a favorable stand on feminism, civil liberties and racial justice.29

Attitudes about privacy for the Irish Catholic Americans were not readily apparent. They do seem to hold a distinct value for both privacy and social interaction. Greeley's testing for attitudes toward homosexuality found that "the Irish are the most tolerant of Gentile ethnic groups in America."30 He explains that this position can be attributed to their possession of "the Sacramental Imagination that enables them to see God revealing Himself in everyone and because they have a special Irish variety of that imagination."31 Studies have also shown the Irish to hold more liberal views than most ethnic American Catholics. This position along with a possible strong conviction toward privacy may account for their reaction to Pope Paul VI's encyclical Humanae Vitae. The directive made birth control illegal in the eyes of the Church. This act prompted violent objections by many Catholics who viewed the Church as trying to run their private lives, especially their most intimate moments. As a result, many ceased attending Sunday Mass and, more importantly, decreased contributing to the Sunday collections. This was the first time Catholics

29Ibid., 50.
30Ibid., 59.
31Ibid., 59.
openly rejected a papal directive. These values seem to indicate a general tendency toward favoring privacy by Irish Catholic Americans.

Social intercourse, the fifth aspect Rapoport viewed, is a critical point for the Irish Catholic community. As mentioned earlier, the Catholic parish was the focus of Irish communities in Ireland due to the discriminating laws set against them. When they immigrated to the United States they also found refuge in the Catholic parish. Catholicism was "the glue of the Irish community-bridging the rural Ireland and urban America." In a hostile world the Church offered a place of sanctuary. Parochial schools were constructed as a direct result of the bigotry faced by the Irish Catholics in America. For the Irish, the parish was the center of the neighborhood, offering education, spiritual guidance, social gathering, and even athletic competition. The Catholic parish was so important that some have even made the correlation between it and a rural Ireland village community. When the Irish began to assimilate in the New World, they moved out of the ghettos and into the suburbs. Of course, the parishes followed suit. These parish-centered Irish neighborhoods are distinct to the Irish community. In fact, the Irish have "assumed all neighborhoods were arranged around a parish." Designing a new parish for the Irish Catholic Americans will clearly need to address this issue of community.

32 McCaffrey, 59.
33 Ibid., 72.
34 See McCaffrey, 165; and Greeley, The Irish Americans, 146.
35 Greeley, The Irish Americans, 147.
Lawrence McCaffrey has argued that this form of arrangement is no longer a valid relationship. He believes that, beginning in the 1960s with suburbanization and the "great melting pot," the country clubs have replaced parishes as the community center. I would disagree with this assertion. While the Irish are believed to be very affluent currently, there is a great difference between paying to belong to a community versus choosing to belong to a community. Considering all the amenities a church offers in terms of spiritual guidance, education, and social gathering with people who hold the same or similar beliefs, the parish will likely remain a primary gathering point for this community. While it may not be as close knit as it was in the immigration era, the contemporary parish community is still used for numerous activities beyond that of a worship space. As such, the parish design should express this notion of communal gathering and belonging.

This culture's relation to nature has been an important factor for both Catholics and the Irish American community. Beginning in the Celtic period, the Irish heritage has been one in which the community was very sensitive to nature. This sensitivity must have led to devastating emotional blows for this community when the Great Famine struck Ireland in 1848. In Ireland, the rural communities set in the natural landscape were drawn together via the parish church. In America, the natural landscape was replaced by the ghettos in which they were forced to live due to poverty. While some did manage to travel West into the open

36 McCaffrey, 174.
37 Greeley, The Irish Americans, 22.
country, the extreme rural conditions did not offer the type of community the Irish were accustomed to in Ireland. In today's Catholic communities, God is considered to be present in all things, especially nature. Since God made nature, it is considered to be the most beautiful of decorations. This would imply that a strong relationship to the natural surroundings would be very important, both symbolically and spiritually, to this community and should be incorporated into the design.

In addition to the above aspects of culture, attitudes about life and death appear to be particularly important aspects of the Irish Catholic American community. "[R]efusal to accept death as the end is at the very core of the Irish religious commitment."^38 The Catholic faith teaches that life does not end at death. Rather, death becomes a kind of doorway into the afterlife. Catholics believe in an afterlife in heaven which was made possible by Jesus' crucifixion and subsequent rising from the dead. This hopeful belief in the afterlife is particularly important in the Irish culture. Beginning in the Celtic heritage, the Irish have always mocked and defied death. The Irish defiance of death can most clearly be demonstrated by the wake for their dead. The traditional Irish wake was infamous for the parties which accompanied this supposedly solemn occasion. The Catholic Church has since put an end to this situation,^39 but the contemporary Irish wake is still a far cry from one of complete mourning and sorrow. Defiance of death, therefore, is central to the understanding of the Irish Catholic American community.

^38Greeley, *The Irish Americans*, 144.

^39Ibid., 26.
Design Thesis

The vehicle for this thesis will be the design of a new Catholic church in Boston, Massachusetts. Adjoining buildings will include a reception hall and rectory. A future school will be located on the site, but a detailed design for this structure will not be included in the final project.

The Irish do have a history of being utterly pragmatic in their approach to buildings. Some people believe that the Irish lack any real aesthetic judgment. An example of the practical side of the Irish can be seen in the early formation of the Catholic church in the Midwest. The Catholic hierarchy "were so keen on Catholic education, occasionally the school came first and Mass and devotions were held in its basement until a proper church could be built."40 For the purposes of this thesis, how the Irish would actually design a building is not as crucial as ways the Irish culture can be translated into the built environment.

It should be noted that this design was conducted with the sole source of information for the design coming from the author. This is not the standard practice of the Roman Catholic Church. Normally, the architects, engineers, consultants and other designers would have to meet and cooperate with the pastor of the parish, representatives from the Archdiocese of Boston, the congregation itself, and perhaps even special committees from the parish. In short, the design is not the product of one person, as it is done here. Rather, it is the product of all of the people listed above to ensure an appropriate solution to the parish's needs as well as compliance with the new standards for the liturgical space.

40McCaffrey, 69.
The Roman Catholic Church does acknowledge the need to reflect the culture of the local community in which the church is constructed. However, "identifying symbols of particular cultures, groups, or nations are not appropriate as permanent parts of the liturgical environment."\textsuperscript{41} Temporary decorative elements which might be used for particular occasions may be used but should not be a part of the everyday liturgical environment. Since this thesis deals with the cultural influences on architecture, Irish symbols or icons will not be incorporated into the design of the liturgical space. However, these icons and symbols will be integrated into the other buildings and outdoor areas around the liturgical space. Some of these icons and symbols include the following:

- Three- or four-leaf clover. A clover leaf is also referred to as a shamrock. The four-leaf clover is considered symbolic of the "luck of the Irish."
- The color green. Most likely originated from the landscape of Ireland. Vast amounts of rain in a land where there are few natural trees has left the landscape in a sea of deep green grass. Where the land meets the sea, there are several natural cliffs worn away by the currents and tides of the ocean.
- A leprechaun, a mythical creature who hides gold at the end of a rainbow.
- Traditional Irish proverbs and toasts. As with many cultures, the Irish have developed numerous sayings to pass valued traits and thoughts on to future generations.
- St. Patrick. The legend of St. Patrick states that he is responsible for driving the snakes out of Ireland. The reality behind this myth is that snakes probably could not survive in Ireland due to the climate. By the time the climate was conducive to their living following the Ice Age water levels between Ireland and England had risen, cutting off their arrival.

The overall concept for this project was generated from the description of Catholicism as the "glue" of the Irish community. It refers directly to the early immigration period of the Irish Americans.

In urban ghettos, cut off from their traditional rural culture, the Irish in the United States felt lonely and isolated...Catholicism became the glue of the Irish community, the one familiar institution bridging rural Ireland and urban America.42

This concept is related to another description of parish communities by several sociologists as operating like rural Ireland village communities. Since the Irish parishes were structured much like these communities, it seemed logical to organize the overall plan of this parish like one of these villages. A typical Irish village or town (Figure 4.1) would contain a main street along which most of the commercial and industrial buildings were organized. Likewise, the wealthy residents of the community would have their homes along these roads. The focal points of the main streets varied, depending upon the circumstances of the construction of the town (Figures 4.2 & 4.3). Churches were often found at the center of town or at least on a major gathering area within the town. One of the most distinguished of these estate villages, Tyrells Pass, arranged the church on the village green (Figure 4.4). This public space was graded and leveled in an effort to emphasize the importance of the church. Other major focal elements might include the factories in which the town's citizens worked, the home of the owner or developer of the town, or the market square. Since the trade industry was the major source of income in towns and villages, a market square was often organized as the central feature of the community.

42McCaffrey, 59.
The site plan for this project utilized these organization elements of the rural Irish village. The major buildings of the program are arranged along the "main street" through the site. Sense of enclosure in the parish community was accomplished through the use of one- and two-story buildings placed close to the street. A "village green" or "market square" was incorporated to function as the exterior porch for the church. Since this is the major exterior gathering area for the parish, I felt this area should link the two main public buildings of the program, the church and the reception hall. I also organized the entire site so the existing adjacent buildings are visually linked to the new design. This arrangement provides a continuous datum line from which the church structure protrudes to architecturally express its significance. The forms of the church are designed to contrast formally against the other buildings on the site to express the importance of the building. The position of the clock tower was also important as it is the symbol of the parish community and should be visible throughout the community, similar to the approach Plecnik utilized in the Sacred Heart Church.

The sense of community was incorporated into the church interior. The design of the overall liturgical space "should communicate an integrity (a sense of oneness, of wholeness) and a sense of being the gathering place of the initiated community...[T]he wholeness of the total space should be strikingly evident."43 While the form of the church contrasts with those of the other buildings, the overall form of the nave is clearly expressed.

43Bishops' Committee on the Liturgy, 229.
Figure 4.1  Typical Irish town.

Figure 4.2  Enniskillen, Co. Fermanagh.
Figure 4.3 Plan of Mitchelstown, Co. Cork.

Figure 4.4 Tyrells Pass, Co. Westmeath.
The Church is a church of sinners, and the fact that God forgives, accepts and loves sinners places the liturgical assembly under a fundamental obligation to be honest and unpretentious...Nothing which pretends to be other than it is has a place in celebration, whether it is a person, cup, table or sculpture.44

Detailing of the interiors and exterior elevations, especially the liturgical space, had three major themes. First, simplicity and honesty of materials was very important since the Catholic Church describes the need for the liturgical space to be clear in its expression. The structure is not required to have any particular look or style. However, "[i]ts integrity, simplicity and beauty, its physical location and landscaping should take into account the neighborhood, city and area in which it is built."45 This design uses exposed concrete, natural stone, and natural wood with a natural finish. Few additional materials were incorporated into the design in an effort to maintain a simple purity to the detailing. The exterior facades combine the use of materials particularly indigenous to this region including Vermont slate roofing tiles and stone from regional quarries.

The second major factor was related to the overall design concept. Catholicism as the glue of the Irish community was interpreted in the design to the church to link, both physically and visually, various aspects of the design to the church. From the outside one or more of these connections may appear to the patron. However, the total expression of the mystery of the space is not revealed until the patron stands at the altar and

44Bishops' Committee on the Liturgy, 225.

perceives these visual connections to the natural landscaping and bell tower.

The third major factor in the design of the interior and exterior was the need to express the Irish propensity to mock death. As previously mentioned, the afterlife is a central belief in the Catholic religion. Because both Catholics and the Irish have this common belief, I felt this aspect of the Irish American culture should be utilized in the architecture. Entry into the parish was seen as a passage of time, through life, death, and then into the afterlife. "Death" is expressed in the cold, crypt-like atmosphere of the narthex. This space is followed by the baptistery where, in the Catholic belief, one is initiated into the faith through this sacrament. The baptistery is both a visual and physical connection between the narthex and the nave to emphasize its important role in the life of a Catholic. The entry into the nave and the space itself was designed in an effort to express the mystery of the Catholic faith or "afterlife" in heaven. As such, this space is the termination of the journey through the parish, symbolic of heaven being the final resting place in the Catholic faith.

The use of the baptistery as the symbolic link between death and the afterlife was done for its important symbolic role in the life of a Catholic. The sacrament of baptism is administered to new members of the Catholic community as a kind of initiation into the faith. When one is anointed with the holy water that person is saying he or she renounces Satan and accepts Jesus as the Son of God who died for our sins so that we will not face death but life in heaven with God.

To conclude, the design for this parish incorporates many aspects of the Irish Catholic American culture. This project further demonstrates
the need for architecture to acknowledge and respond to the cultural needs and values of the society in which it interacts.

Building Program

Requirements for the Church

Most of these requirements for the church are taken from Bill Brown's Building and Renovation Kit for Places of Catholic Worship and the Bishops' Committee on the Liturgy Environment and Art in Catholic Worship. The main function of this structure is the celebration of the liturgy which should be done in "a manner and environment which invite[s] contemplation...A simple and attractive beauty in everything that is used or done in liturgy is the most effective invitation to this kind of experience."46 The liturgical "space should communicate an integrity (a sense of oneness, of wholeness) and a sense of being the gathering place of the initiated community...[T]he wholeness of the total space should be strikingly evident."47

The two most important aspects of the church building, as well as music and other arts involved in the liturgy, are that they must be of quality work and appropriate for the liturgy. The Roman Catholic Church defines "quality" in the arts as "love and care in the making of something, honesty and genuineness with any materials used, and the artist's special gift in producing a harmonious whole, well-crafted work."48 Appropriateness for

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46 Bishops' Committee on the Liturgy, 218.

47 Ibid., 229.

48 Ibid., 220.
the arts refers to work which fulfills two important aspects of the liturgy. First, "it must be capable of bearing the weight of mystery, awe, reverence, and wonder which the liturgical action expresses. [Second,] it must clearly serve (and not interrupt) ritual action which has its own structure, rhythm and movement."\textsuperscript{49} In general, beauty in the arts is "related to the sense of the numinous, the holy."\textsuperscript{50}

The traditional orientation of the church has been to have the apse, and hence the altar, at the East end of the building. While this is no longer a requirement, it is useful to understand the significance of this arrangement. This orientation was probably derived from an ancient cult of sun worshipers. This referenced the coming of Jesus Christ symbolized in the sunrise breaking through the darkness of night.\textsuperscript{51}

As a parish church, the building for this project must acknowledge the local community in which it interacts. The community church is no longer a structure used solely for the celebration of the liturgy. Special meetings and gatherings may be held at the site due to a lack of structures in the area which could be used for these purposes. "[This new type of church] is envisaged [to] not only be the architectural expression of a center of worship but also provide for the social needs [of the community]."\textsuperscript{52} The

\textsuperscript{49}Bishops' Committee on the Liturgy, 220.

\textsuperscript{50}Ibid., 224.


\textsuperscript{52}Ibid., 27.
structure should reflect the current traditions in which it is built, as in the cultural values of that time.

The Roman Catholic faith believes in a total experience of the liturgy. This should be followed through in every aspect of the design of the structure. The church should be a reflection of the image of God, since it is His house. "God is mystery. God cannot be contained in or confined by any of our words or images or categories."53 This being the case, the architectural form can only be an icon of one possible image or aspect of God and not an exact picture or idea. The liturgical celebration should be inspired by the built environment in a way which encourages an entire human experience of the word of God, drawing on all facets of the human being. These facets would include the body, mind, senses, imagination, emotions and memory.54 The idea of expressing the mystery of God in the arts implies a certain degree of layering or transparencies in which various aspects of the liturgy are seen while experiencing something beyond.55 This space should encourage contemplation in a communal setting so one can "appreciate the liturgy as a personal-communal experience."56 The notion that anything that is both communal and social cannot be personal is a misconception in the eyes of the Roman Catholic Church. This type of experience is considered ideal for a good liturgical celebration.

53Bishops' Committee on the Liturgy, 216.

54Ibid., 216.

55Ibid., 221.

56Ibid., 219.
Porch 8,300 square feet

This is an exterior area which, if weather permits, can be used for religious celebrations at various times of the year. It could be used for such celebrations as the Easter Mass. The porch should have some connection to the narthex and the nave, and this area should have an exterior lectern for readings. This area should accommodate the 830 people from the church (800 members of the congregation and 30 members of the choir). Bill Brown recommends allowing 10 square feet per person for this outdoor area,\(^\text{57}\) meaning this area should be about 8,300 square feet. This area, the first major space entered by the congregation prior to entering the church, should allow access from the parking areas and major pedestrian areas. It will be assumed that all public areas will need to be handicap accessible in accordance with ADA requirements.

Narthex (Entry) 600 square feet

A narthex is the protected area of "crush" space just outside of the nave where the priest can meet and greet the congregation in a personal manner before and after the liturgy. The connection into the nave should encourage a viable procession. This area could even be used for serving refreshments following the liturgy. Draughts into the nave from the exterior should also be prevented through the design of this space. Clearances for the passage of coffins through this area should be accounted for in the design as well. This area is not intended to hold the entire congregation at one time. Therefore, I

will make allowances for 100 people to occupy the narthex at any one time. Six square feet per person will be allowed.\textsuperscript{58}

Baptistery  

510 square feet

Following the Second Vatican Council, emphasis in the liturgical celebration has shifted toward a more personal-communal experience. Simplicity and honesty in the symbolism of the Mass has become especially important. The sacrament of baptism is a key event in the life of a Catholic and this act should not be underemphasized. Therefore, the act of baptism needs to be as close to the original act as possible, which would have involved full submersion in a river. While a small portable font can still be used, a full baptismal font is closer to the original process of baptism.

To speak of symbols and of sacramental signification is to indicate that immersion is the fuller and more appropriate symbolic action in baptism. New baptismal fonts, therefore, should be constructed to allow for the immersion of infants, at least, and to allow for the pouring of water over the entire body of a child or adult.\textsuperscript{59}

There are several specific requirements for the font itself. The font can be located near the entry but should allow for congregation participation in the process. This is especially important during the Easter Vigil celebration. Changing rooms should be located in close proximity to the font. Access into the font can be through the use of steps, but a chair lift will be required to allow those confined to wheel chairs to use the font. The dimensions for the font should have the approximate clear volume of 7'0"

\textsuperscript{58}William Brown, 106.

\textsuperscript{59}Bishops' Committee on the Liturgy, 235-6.
(length) x 3'9" (width) x 3'6" (depth). Drainage for the font needs to be into consecrated ground due to the contents of holy water. According to the pastor for the church existing on this site, there are usually between 50 to 60 people in attendance at any one baptism. This parish also offers two baptisms per month. Using 8.5 square feet per person, this area will need 510 square feet for standing or sitting during the baptisms.

Changing Rooms/Restrooms 2 @ 500 square feet

The changing rooms, one for males and one for females, should be positioned in close proximity to the baptismal font. At least one water closet, lavatory and shower should be in each of these rooms. Other fixtures should be provided for males and females as described in the 1993 BOCA Plumbing Code. Provisions should also be made for storing clothes during the baptismal ceremony. For approximation purposes, 1.2 square feet per person will create two 500-square foot restrooms.

Reconciliation Chapels 2 @ 100 square feet

These chapels, also known as confessionals, are used for the sacrament of reconciliation and not as an office or storage room. They are rooms used for one-on-one meetings between the parishioner and the priest so the parishioner can confess his/her sins. The traditional form of these rooms was three small rooms. A priest was in the center room and could access, via a screened opening, either of the other two rooms. Today, these

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60 William Brown, 106.

61 Ibid., 106.
chapels need to accommodate a small table with two chairs for face-to-face meetings as well as a screen wall and kneeler for anonymous encounters with the priest. These rooms should have soundproof walls and ceilings to ensure the privacy of the conversations.

Main Chapel-Nave

8,000 square feet

This is the main space in the structure whose primary function will be for the celebration of the Mass. The seating for the nave, as recommended following the Second Vatican Council, should be arranged in a manner which encourages both a personal and communal experience. Acoustics and lighting should be sufficient so the liturgy can be intelligible to all the congregation. As is historically the case, the sanctuary is the focal area during the liturgy. This area must not be designed in a fashion which separates the sanctuary from the congregation for this might indicate a domination of the Church over the people.

[L]iturgy flourishes in a climate of hospitality: a situation in which people are comfortable with one another...a space in which people are seated together, with mobility, in view of one another as well as the focal points of the rite, involved as participants and not as spectators.62

The church should encourage interaction among people, especially visually. The liturgical experience should be one of seeing, being seen, and contemplation of those things which are not seen. "One of the primary requirements of the space is visibility of all in the assembly: others in the congregation as well as the principal focal point of the ritual action."63

\[62\text{Bishops' Committee on the Liturgy, 218.}\]

\[63\text{Ibid., 228.}\]
contact with the person conducting the liturgy is important for maintaining the personal experience of the Mass. This indicates that the seating, or pews, ought to be designed to be relatively close to the altar.

Specific dimensions for the seating arrangements are as follows. The existing church has seating for 800 people in the congregation and an additional 30 seats for the members of the choir. Brown recommends allowing 10 square feet per person for the nave.\(^6^4\) Main passageways should have a minimum clearance of 5'0" with side passageways having a minimum clearance of 3'6".\(^6^5\) Special attention should be given for the moving of coffins through the space as well as through the narthex. Pews should be designed to allow 1'8" (linear feet) per person, as well as be constructed of quality material. Moveable kneelers should be installed in all pews. Pews should not hold more than 12 people if they have two exits, and they should not hold more than six people if they have only one exit.

There are several general requirements for the nave. Holy water stoops, small receptacles of holy water, should be installed at each entrance and mounted at 3'0" above the floor. Another important aspect of the design and layout of the nave is the allowance for some form of procession through the space.

Processions and interpretations through bodily movement (dance) can become meaningful parts of the liturgical celebration...A procession should move from one place to another with some purpose (not simply around the same

\(^{6^4}\)William Brown, 106.

\(^{6^5}\)Edwards D. Mills, 59.
space), and should normally include the congregation...
[Space]eating should allow for this sort of movement.\textsuperscript{66}

In addition, allowances should be made for 14 stations of the cross which depict the passion of Christ. These should not be in the main aisles of the nave but along the side aisles. These stations can be blessed wooden crosses with inscriptions describing each.

Acoustics should be carefully considered in the design for the nave. Because the space is used for both speech and musical performance, the reverberation time within the space must be able to accommodate each condition. Excessive sound absorption will decrease reverberation but could deaden choral and organ music. Therefore, a balance between the two is required. Generally, a reverberation time between 2 to 2.5 seconds is ideal for speech in a moderate-sized church.\textsuperscript{67} Curved ceiling conditions are also a concern for the acoustic quality of the space. When these curves are formed with a radius struck near the floor level, echoes are introduced into the space. In addition, very tall spaces, vaults and domes encourage excessive reverberation and should be avoided.\textsuperscript{68} The ideal condition for a new church design would be one where broadcasting equipment would not be required.

\textsuperscript{66}Bishops' Committee on the Liturgy, 231.

\textsuperscript{67}Edwards D. Mills, 60.

\textsuperscript{68}Ibid., 60.
Eucharist Chapel 160 square feet

A eucharistic chapel is specifically for the reservation of the Eucharist bread (the "body" of Jesus Christ). This area should encourage private devotion and reflection. A tabernacle is the receptacle for the reservation of the Eucharist and resides in this area. The tabernacle should not be placed on the altar or a side altar since the altar is a place for action. By contrast, this area is specifically a place for reservation and contemplation. There should be a candle constantly burning near it, symbolic of the "eternal flame" of God's love of mankind. Vigil lights, a group of candles used for private prayer, can also be placed near this area for personal reflection. The chapel should be easily accessed by the public as well as from the main space of the church. This area should also have access to the exterior porch. This area is not used for services and should hold approximately ten people; 16 square feet per person is recommended by Brown.69

Sanctuary 1,250 square feet

The sanctuary is the focus of the liturgical celebration and should be clearly designed in this fashion. Care should be taken, however, to design the area in such a way as to not indicate domination of the Church over the congregation. There should be no barriers between the sanctuary and the nave to maintain and encourage personal interaction during the liturgy.

69William Brown, 106.
The sanctuary is traditionally placed at the East end of the nave. However, this is no longer a requirement by the Roman Catholic Church.\footnote{William Belasko and Dennis Sheehan, interview by author, 22 June 1994, Boston, Archdiocese of Boston, Boston.}

The altar, or holy table, is a place for action where the bread and wine are prepared for the congregation. As such, the altar should not be used to reserve objects including the Eucharist. The altar should be constructed of solid materials and should allow easy access on all sides. The traditional location for the altar was on the central axis, but recent thought on the subject suggests that locations slightly off center may be more appropriate. The table should be about 3'3" above the floor and 4'0" deep. The length will be determined according to individual needs of the parish. Coverings for the front of the altar, called frontals, should be allowed for in the design of the altar. Reredos, sculptured screening behind the altar, should not detract from the simple, dignified character of the altar.

There are several pieces of furniture which should be included in the design of the sanctuary. Seating should be provided for the priest, altar servers, and lecturers. On the altar itself, there should be a prominent seat for the one who presides over the liturgy. This seat should not be designed to make this person seem to dominate over the congregation, and it should not be poorly constructed. Additional seating on the altar will be needed for two servers and an assistant to the priest. Seating adjacent to the altar will be needed for two servers on each side of the altar as well as seating for two lecturers on the same side as the ambo. The ambo, or pulpit, should be a quality crafted lectern from which only the readings, word of God, are
spoken. As such, an additional and smaller lectern will be required for announcements and for the song leader. Candles and a mobile crucifix should be included in the design for the sanctuary. Since a communion rail would separate the sanctuary from the nave, this should not be included in the design. Finally, a credence table will be needed in the sanctuary to hold various sacramental elements used in the liturgy. This table is usually about 1'3" deep and 2'0" long and may be either a niche or portable table. While specific size requirements for the sanctuary vary, I will use 1.5 square feet per person. Interviews with various representatives of the Roman Catholic Church have indicated that it is most important that this space "feel" like it is the right size and proportional to the nave.\footnote{Belasko.}

Spaces that should adjoin the sanctuary include nave, choir vestry, Eucharist chapel, server vestry, and the sacristy. The priest's vestry may also be located near the sanctuary or near the entry.

**Choir Seating Area**

This area should be arranged near the altar area so that the congregation can see the choir and musical leader. However, it should not be in such a position as to lessen the importance of the altar or ambo. Seating for the choir should allow two linear feet per person. The area should have a simple lectern from which the song leader can conduct the musical aspects of the liturgy. This area should have access to the server vestry. While the existing church has allowed for 30 seats for the choir the parish priest has indicated that the choir varies in size from 18 to 50
members, depending upon the Mass. I have allowed 10 square feet per person (50 members in choir, total of 830 seats in church) in this area.\(^{72}\)

An organ should be included either within the choir vestry or within eyesight of the vestry so the organist can take cues from the music leader. "Organs...should not be grandiose or visually dominating. But they should be superior musically."\(^ {73}\) An organ utilizing pipes can be installed where the pipes are on one wall in a gallery with the console in the opposite end of the nave. Provisions would need to be made for 1.5" diameter multi-core cables. An organ with pipes will require 100 square feet of floor area and 12 to 15 feet clear in height. An electrical console organ will require about 40 square feet of floor area and five feet in height. The organ will require good ventilation around the instrument, with pipe organs needing an intake duct. This air intake pipe is usually from outside air and measures six to twelve inches in diameter.

### Choir Vestry

300 square feet

This area is needed to store musical instruments, music stands, musical scores, and other materials used by the choir. While vestments are not typically worn by the Sunday choir, a closet for such vestments may be desired for future choir needs. A closet should also be available for coats and other articles of clothing for members of the choir.

\(^{72}\)William Brown, 106.

\(^{73}\)Bishops' Committee on the Liturgy, 238.
Priest’s Vestry 150 square feet

This room should have a large closet for storing the various vestments used by the ministers. This room may be connected to or part of the sacristy if it is located near the sanctuary. However, the priest’s vestry could be located near the narthex to "favor the procession...[of the] ministers through the midst of the congregation to the altar area."74

Server Vestry 240 square feet

This room is primarily used by the servers so they might change into their vestments prior to the liturgy. As many as six servers may be used for special liturgical celebrations, though most services require only two or three servers. The server vestry should include a private restroom for use by the priests, servers and choir during the Mass. This room should contain a single silent flushing water closet and a single lavatory. A large closet in this room will be used to store the various server vestments throughout the year. This room should have access to the sanctuary, choir vestry, and sacristy.

Sacristy 150 square feet

The sacristy is used to store the various sacramental articles used in the liturgy such as vessels, chalices, cups, frontals, wine, and non-consecrated hosts. This room should be within easy access to the sanctuary so the servers can prepare the altar for the liturgy without difficulty. A lavatory will be required in this room with a piscina, a drain used for the

74Bishops' Committee on the Liturgy, 237.
disposal of absolutions. It is connected to a drywell set in consecrated
ground. This room may be connected to the server vestry or the priest's
vestry if these rooms are located near the sanctuary.

Projection Room

60 square feet

Modern church design should include provisions for audiovisual
devices for the celebration of the liturgy. There are "at least two ways in
which [audiovisuals] may be used to enhance celebration and
participation...[V]isual media may be used to create an environment for the
liturgical action...[V]isual and audio media may be used to assist in the
communication of appropriate content."\textsuperscript{75} A one-projector room should
measure at least 6'6" x 5'0" and have a minimum ceiling height of 7'0".\textsuperscript{76} A
screen or wall should be arranged so the videos, slides, and filmstrips are
visible to the entire congregation. In addition to the projection room, deaf
aid equipment should be included in the design of the church. This would
include an electronic hook-up to the microphone system. Surveys of local
pastors indicated that this room would rarely be used. However, the future
of the liturgical celebration may require this type of facility and should be
incorporated into the design.

Ushers' Closet

200 square feet

This room will be used for storing various non-religious materials
used for the liturgy. Articles may include collection baskets, extra

\textsuperscript{75}Bishops' Committee on the Liturgy, 243.

\textsuperscript{76}Edwards D. Mills, 243.
hymnals, replacement equipment, and various church decorations used throughout the year. The ushers' closet should be located adjacent to the narthex and nave.

Coatroom 70 square feet

While personal experience in Catholic services has indicated a reluctance to use these rooms, provisions should be made for the storing of articles of clothing during the liturgy. This room should be located in or near the narthex.

Mechanical Room (allowance) 1,000 square feet

This room will need to be isolated from the nave to limit sound transmission during the liturgy. Allowance should be made for 1.2 square feet per person77 for estimating the size of this room.

Circulation (allowance) 2,900 square feet

Brown recommends allowing an additional 20% for circulation and wall thickness to determine total size for the building.78

Parking Lot 208 spaces

The Town of Milton zoning requirements dictate one parking space for every four people occupying religious structures. Since there is more than one structure on the property, and only one activity will occur at a

77William Brown, 106.
78Ibid., 106.
time, the building requiring a higher number of spaces is to be used. The
town also requires that no one parking area cover more than 25,000 square
feet.\textsuperscript{79} This is only enforced if the site can feasibly accommodate the
buildings, open space requirements, and parking while providing a 20-foot
wide path planted with trees.

Total Size of the Church

17,290 square feet

\textbf{Requirements for the Office Building}

Receptionist Office

250 square feet

One receptionist office will be needed and should be located in close
proximity to the main entry to the reception hall. Several chairs, couches,
and end tables will be needed in this room. The receptionist should also
have access to the private offices of the priests and secretaries.

Secretary Offices

3 @ 120 square feet

Provisions should be made for at least two secretaries. These offices
should be centrally located near the priest offices for ease of access.
Likewise, the secretaries' offices should be easily accessed by the
receptionist.

\textsuperscript{79}\textit{Zoning Bylaws} (Milton, Massachusetts: Town of Milton, March 14, 1992), 22.
Priests' Offices  5 x 120 square feet

Each priest in residence, five for this parish, should have his own office arranged in close proximity to a secretaries' offices and the receptionist. These offices should have at least three chairs, desk, and file cabinet.

Other Offices  2 x 120 square feet

One office should be provided for the music director and the director of religious education. These offices should be located near the priests' offices in order that they might interact on occasion with the priests.

Mechanical Room (allowance)  40 square feet
Circulation (allowance)  140 square feet
Total Size of the Office Building  1,510 square feet

Requirements for the Reception Hall

The primary function of the reception hall will be to provide a space for gathering for the congregation that otherwise would not be available. The main space is for meetings and gatherings that might not be appropriate to be held in the church itself. Receptions for weddings, funerals, and other functions can be held in this hall. When this building is not in use by the congregation, it may be rented to the general public for various activities as a source of revenue to the parish. The reception hall will also have provisions made in the design to allow plays and other theatrical performances to occur in the structure. In addition, this
building will also house classrooms for religious education classes and meetings.

The orientation of this building as it relates to the church is not particularly important, though it is a factor in creating a sense of place. This space could even be arranged below the church nave. However, since noise from the large hall and classrooms could be distracting to those attending the liturgy, this area may be best arranged as a separate structure.

Crying Room  300 square feet

Some room used for the supervision of young children during the liturgy is required. The room should be isolated, at least in terms of noise transmission, from the nave. The room should be located to promote ease of access on the way to the church and from the church to the parking lot. This room should be able to accommodate up to 15 children at one time and have storage capabilities for toys, art supplies, and reading materials.

Reception Hall  2,500 square feet

This room will be used for various social and formal gatherings. None of the reception halls in the area are rented out to the general public. Rather, these halls are used by the congregation for such functions as bingo games, educational meetings, school activities, wedding receptions, parties, balls, large meetings, and dances. A raised platform (measuring about 20' wide and 14' deep) should also be incorporated into the space for viewing the speaker during large meetings. The ideal length of the room should be less than twice the width. Representatives from the Roman
Catholic Church recommend designing an area for a sit-down dinner reception for 1/4 the number of people from the church congregation.\textsuperscript{80} At 10 square feet per person sitting at a table, there should be at least 2,080 square feet for tables and chairs. A 400-square foot dance floor should also be incorporated into the design. This room should have direct access to the kitchen, entry foyer, coatroom, and storage room.

Classrooms

Classrooms will be needed either as part of the reception hall or as part of the church building. Provisions should be made for at least 10 classrooms for up to 15 students in each room. Two of these classrooms should have movable partitions in them which can be removed to create one large classroom. A chalkboard and tack surfaces should be included in each classroom. These rooms should allow 15 square feet per person\textsuperscript{81} for a total of 225 square feet per classroom. Access should be made to restrooms and to the exterior.

Restrooms

Restrooms should be provided for males and females as described in the 1993 BOCA code. The total occupancy in this structure is 358 people (208 in the reception hall and 150 people in the classrooms).

\textsuperscript{80}Belasko.

\textsuperscript{81}Edwards D. Mills, 179.
Kitchen 300 square feet

This should be large enough to have commercial kitchen equipment. During receptions, young adults and adults from the parish will be the employees catering to the party. This hall will be used primarily for wedding receptions but should also be able to cater to funerals (viewing) and other functions. Equipment in the kitchen will include two sinks, large butcher's block table, commercial range and oven, full size freezer and refrigerator, dishwasher, mop sink, buffet display, and multiple cabinets. There should also be a lockable roll-up door between the kitchen and the reception hall.

Projection Room 60 square feet

Similar to the projection room in the church, this room will be necessary for the showing of various types of films to large audiences. The room will need good ventilation, and it should be planned on the axis of the hall.

Storage 400 square feet

This room should be arranged adjacent to the main reception hall in order to accommodate the storage of chairs and tables (ten people) for the entire room. Storage will also be needed for miscellaneous equipment, books, and supplies for the hall and classrooms.

Mechanical Room (allowance) 430 square feet

This room will need to be isolated from the classrooms and reception hall to limit sound transmission. Allowance should be made for 1.2 square
feet per person\textsuperscript{82} for estimating the size of this room (358 maximum occupancy).

Circulation (allowance) \hspace{1cm} 1,555 square feet

Brown recommends allowing an additional 20\% for circulation and wall thickness to determine total size for the building.\textsuperscript{83}

Total Size of the Reception Hall \hspace{1cm} 7,925 square feet

Requirements for the Rectory

Sometimes referred to as the vicarage, the rectory is the home for the priests in residence at this parish. For this project, five priests will be in residence at this parish. Each priest will need a study and a private bedroom. Personal interviews with representatives of the Roman Catholic Church have determined that the Church is interested in maintaining the rectory as primarily a residential structure or "home" for the priests.\textsuperscript{84} The priests' offices should ideally be in a separate building from the rectory. However, there will still be a need for private meetings between the priests and guests.

\textsuperscript{82}William Brown, 106.

\textsuperscript{83}Ibid., 106.

\textsuperscript{84}Belasko.
Meeting Rooms

2 @ 120 square feet

These rooms can be used by the priests to meet with guests privately without having to go to the offices.

Sleeping Quarters

5 @ 270 square feet

Ideally, each priest should have a private bedroom, study area and private bath. These quarters should be isolated from the public area of the rectory for privacy.

Kitchen

200 square feet

A large kitchen will be required in the rectory. Storage will be very important as the rectory is often used to store food temporarily until it can be taken to needy families. A full size freezer and refrigerator should also be included.

Dining Room

250 square feet

A dining room should be arranged adjacent to the kitchen area. Since eating is an important aspect of the celebration of the Mass, this room could be a central room in the design, though it is not a programmatic requirement to do so.

Chapel

120 square feet

A small chapel should be incorporated into the design of the rectory. This room should have a small altar with seating and kneeling areas in front of the altar. Storage areas immediately adjacent to the chapel should
be able to store chairs and small tables for use in the chapel. This chapel will only be used by the priests in residence so a modest chapel is ideal.

Living Room

This room will function as the main gathering area for the rectory. It should be able to accommodate the priests in residence and up to 10 guests for various private functions. This room may be best arranged if it is adjacent to the dining room for ease of access.

Restroom

One restroom should be provided on the main floor for use by rectory guests. This room should include a lavatory, water closet, and tub.

Laundry Room

Mechanical Room

Circulation (allowance)

Priest Parking

Parking should be provided near to the rectory for the use of the priests as well as any visitors to the rectory. A space should be provided for each priest as well as five visitor spaces.

Total Size of the Rectory

81
Area Analysis

The city of Boston boasts an important significance in the history of the United States. Just one hour from historic Plymouth, Boston itself contains several important sites from the colonial period in American history (Figure A.1). The site of the Boston Tea Party and Bunker Hill are just two of the important points of interest in Boston. Dedham, a suburb of Boston, is home to the Fairbanks House. This building is the oldest standing wood-frame structure in America. In addition to the historic significance of Boston, this area is also home to several of the country's top universities and colleges. Some of these institutions include Harvard University, Massachusetts Institute of Technology (MIT), and Boston College. The city is also host to a number of notable medical facilities. One of the most recognizable areas is the West side of Roxbury known as "Hospital Hill." Access to the city is provided through Logan International Airport, Amtrak Railroad, and a number of ferries into the harbor area. Automobile access to the city is difficult due to narrow streets and limited parking. The major roads used to access downtown include the Sumner Tunnel, the Southeast Expressway (Route 128 or I-93), Washington Street, Massachusetts Turnpike (I-90), Msgr. O'Brien Highway, and Beacon Street (Figures A.2 & A.3).

One of the area's historic landmarks is St. Stephen's Church located in the North End of Boston. This building is on the National Register of Historic Places. Built in 1804, this church is most noted for its reflection of the changing ethnic and religious character in the area. Designed by Charles Bullfinch, the original structure was called the New North Church due to its close proximity to the Old North Church. The building has

82
changed denominations several times. It was originally a Congregational parish, then became a Unitarian church. Finally it was sold to a Catholic parish. In the 1860s this church was home to many of Boston's wealthy Irish, including the Fitzgerallds and John F. Kennedy's maternal side.

**Site Analysis**

The site is located in an area with a high concentration of Irish Catholic Americans (Figures 4.5 & 4.6). Another factor in the site selection was the availability of land. The program requires three or more buildings as well as parking to be on the site. A suitable site would have to have ample acreage to allow ample green space around the buildings as well as room for the actual structures. The site should also have an opportunity to respond to the natural surroundings since a major characteristic of both the Irish and Catholics is a strong relationship to nature. This requirement would be more indicative of a suburban location rather than an urban site.

The area should also have a large population of Catholics. According to the *Statistical Abstract of the United States 1992* 57% of Massachusetts' population is Catholic, or 3,319,000.85 Data from the 1990 Census of Population and Housing were also analyzed to find areas with high concentrations of Irish Americans in the Boston area (Figure 4.7). The darker regions represent the areas with higher percentages of Irish ancestry. For the purposes of this study, 50% or higher was considered to

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**Top 10 Ancestry Groups in the U.S.**

![Bar graph showing the top 10 ancestry groups in the U.S.]

**Figure 4.5** Top ten ancestry groups in the United States. 

**Top 15 Christian and Non-Christian Religions**

<table>
<thead>
<tr>
<th>Religion</th>
<th>Percentage of U.S. Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muslim/Islamic* (0.5)</td>
<td></td>
</tr>
<tr>
<td>Buddhist* (0.4)</td>
<td></td>
</tr>
<tr>
<td>Hindu* (0.2)</td>
<td></td>
</tr>
<tr>
<td>Bahai* (0.01)</td>
<td></td>
</tr>
<tr>
<td>Presbyterian (2.8)</td>
<td></td>
</tr>
<tr>
<td>Baptist (19.4)</td>
<td></td>
</tr>
<tr>
<td>Luther (5.2)</td>
<td></td>
</tr>
<tr>
<td>Methodist (8.0)</td>
<td></td>
</tr>
<tr>
<td>Roman Catholic (26.2)</td>
<td></td>
</tr>
<tr>
<td>Others (15.99)</td>
<td></td>
</tr>
<tr>
<td>Mormon/LDS (1.4)</td>
<td></td>
</tr>
<tr>
<td>Episcopal/Anglican (1.7)</td>
<td></td>
</tr>
<tr>
<td>Jewish (1.8)</td>
<td></td>
</tr>
<tr>
<td>Pentecostal (1.8)</td>
<td></td>
</tr>
<tr>
<td>Presbyterian (2.8)</td>
<td></td>
</tr>
<tr>
<td>Christian** (4.8)</td>
<td></td>
</tr>
<tr>
<td>Protestant** (9.8)</td>
<td></td>
</tr>
</tbody>
</table>

*Adjustment made for undercounts due to language problems.  
**No denomination supplied.

**Figure 4.6** Top 15 Christian and non-Christian religions. 
be an area with a high concentration of Irish. There were three distinct regions around the city of Boston which were found to have a high concentration of Irish Americans. It is interesting to note that all three of these areas border some form of waterway. The first region, Charlestown, is the area North of downtown Boston. This is a highly affluent neighborhood with dense, urban development. While this area was favorable for most aspects of the thesis, there was a distinct lack of natural surroundings to which this thesis needs to respond. Likewise, the area known as South Boston was also rejected for this reason. Because there were more opportunities for exploring the natural setting, the third region proved to be the best alternative. The region straddling the Neponset River, including parts of Dorchester and Milton, was found to be the most ideal location for this thesis. Dorchester would be considered more urban, while Milton would be considered suburban in its development. One region in Dorchester has over 70% of its residents claiming Irish ancestry. Over 60% of residents in the region of Milton also have Irish ancestry. I decided to utilize the region of Milton based on the available land, the quality of the natural setting, affluence of the neighborhood, and the uniqueness of Milton as compared to the surrounding areas.

Another factor in the selection of a site was the income level of the residents. Greeley's research indicates that the Irish Catholics are "the most affluent gentile group in America." Because this has been identified as a distinct characteristic of this group, the site needed to be located in an area where the income level of the residents is relatively high.

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86Greeley, *The Irish Americans*, 4.
Figure 4.7 Percentage of population of Irish descent. Boston, Mass.
Income levels for various parishes were not directly available. The Archdiocese of Boston has acquired this information by zip code only. This was more particular than the census tract information. Table 4.1 shows the average household income levels for the various regions around Milton. This table indicates that the area of Milton has, by a large margin, the highest average income level at $61,200. The next highest level is the region of northern Quincy at $46,500. The area previously identified as Dorchester has an average income level of $35,800. Based on this information, it was finally decided to utilize the East side of Milton for the site for this thesis.

Table 4.1 Average household income levels for Milton, Dorchester and Quincy.
Source: Archdiocese of Boston.

<table>
<thead>
<tr>
<th>City/Town - Zip Code</th>
<th>Household Income Level</th>
<th>Pop. of Catholics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milton - 02186</td>
<td>$53,400 $61,200</td>
<td>21,220</td>
</tr>
<tr>
<td>North Quincy - 02171</td>
<td>$39,100 $46,500</td>
<td>14,300</td>
</tr>
<tr>
<td>Quincy - 02169</td>
<td>$33,500 $38,800</td>
<td>29,470</td>
</tr>
<tr>
<td>Dorchester - 02122</td>
<td>$30,400 $35,800</td>
<td>9,200</td>
</tr>
<tr>
<td>Dorchester - 02124</td>
<td>$29,500 $35,700</td>
<td>25,100</td>
</tr>
<tr>
<td>Dorchester - 02125</td>
<td>$28,000 $33,300</td>
<td>11,500</td>
</tr>
</tbody>
</table>

The site is located in the Town of Milton, within Norfolk County (Figure A.5). The North and Northwest borders of Milton are created by the Neponset River, which is the dividing line between Norfolk County and Suffolk County (City of Boston). The North side of the river is the Dorchester district, while the Northwest side of the river is the Hyde Park district. Milton also borders the City of Quincy to the East and the Towns of Canton and Randolph to the South and Southwest. Milton covers over 13 square miles, with over one-fifth of the town, or 1,838 acres, covered by the Blue
Hills Reservation. This reservation has historical significance to the state. The Native Americans who once lived in the area named the region "Massachusetts" meaning "people who live by the Great Blue Hills." The highest point in Milton, 640 feet above sea level, is also the site of a ski slope and observatory.

The town was settled by colonists in 1640 and used to be part of Dorchester. Milton incorporated in 1662, breaking from Dorchester. The form of government known as the "town meeting" was originated in Dorchester in the early 1600s and is used today in Milton's local government. The Suffolk Resolves House, located on Canton Avenue, has been relocated from its original location in Milton. It is historically significant because in 1770 the Suffolk Resolves were drafted in this building.

Milton is primarily a residential suburb, with nearly 26,000 residents. Typically the housing units are stick framing with either lap wood or shingle-style wood siding. Characteristic to the town are the large trees which engulf much of the neighborhoods and roads. The two retail business districts in the town are located in Milton Village and in East Milton (Figure 4.8). The East Milton business district is less than a quarter of a mile from the site along Adams Street (Figures 4.9 & 4.10).

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87 A Description of Milton, Massachusetts (Milton, Massachusetts: Town of Milton), 1.

88 Ibid., 2.

89 Ibid., 1.
Figure 4.8  East Milton commercial center. Photos by Stephen Kenney unless otherwise specified.

Figure 4.9  Adams Street looking North.
Access in and around Milton is relatively easy due to the close proximity of major roads and rail systems. The East side of Milton is penetrated by the Southeast Expressway (Route 128) which nearly borders the site on the Northeast side (Figure 4.11). Routes 28 and 138 provide North-South access to the City of Boston and Interstate 93. There are several rail stations located near Milton in neighboring Hyde Park, Dorchester and Quincy. In addition, there are three rail stations along the North side of Milton, including Valley Road, Central Avenue, and Milton stations.

Milton features numerous recreational activities within the town limits. In addition to the ski area, there are nature trails for hiking, biking, horseback riding, and bird watching. The Blue Hills Reservation is just one of many parks in Milton. Another major park in the area is
the Neponset River Reservation to the North of the site also features a public golf course which straddles Quincy and Milton.

The Town of Milton features several religious, medical, and educational institutions. Public schools include Milton High School, Pierce Middle School, and four elementary schools. There are two colleges in Milton; Curry College and Aquinas Junior College. The private schools in Milton are Fontbonne Academy, Milton Academy, Saint Mary of the Hill School, and Saint Agatha School. Milton is also home to several temples, synagogues, and churches in the town, including four Roman Catholic churches.

The site for this thesis was further selected based on the available land and presence of Catholics in the area. A survey of the area amenities including existing Roman Catholic churches was conducted (Figure A.6) to
determine a possible location for the site. It was discovered that there appears to be an abundance of Catholic churches in the area to accommodate the parishioners in this region. Since a new church seems unnecessary, I decided to reuse the site of an existing Roman Catholic church. I used the site of the only church, Saint Agatha, which resides within the area previously identified by the 1990 Census of Population and Housing.

There were several reasons the existing church and related buildings were not incorporated into the design of this thesis. First, while changes have been made recently to the sanctuary of the church, the liturgical space still lacks many of the features the Roman Catholic Church requests. The most notable of these features is the ability to see the other members of the congregation. Another reason the existing buildings were not used was the lack of connection between the various buildings. The landscaping around the church was tastefully completed, but most of the remaining site is covered with bituminous concrete paving. Likewise, the school, rectory, and church building are separated to such a degree that one might not realize the three are part of the same parish.

The 5.96-acre site located at the intersection of Brook Road and Adams Street has several advantages (Figures 4.12-4.17). First, the site is large enough to accommodate the number of buildings in this thesis program as well as allow the use of the natural environment as a design element. The site is also in close proximity to several park areas such as the Neponset River, Milton Cemetery, and Cunningham Park. Second, the site is located on a major road for ease of access by the community. The
Figure 4.12 Site looking East to Ellsworth Road.

Figure 4.13 Site looking North.
Figure 4.14 St. Agatha Road looking Southeast.

Figure 4.15 Brook Road looking Northwest.
Figure 4.16  Adams Street looking West.

Figure 4.17  Brook Road and Adams Street intersection looking East.
roadway also allows the opportunity to explore design options with regard to the church's status and role within the community. Finally, this site has a relationship to the East Milton retail area, one of only two business districts in Milton. This context allows the opportunity to create more of an identifiable zone of activity, or "street," that might not exist if it were in a purely residential neighborhood.

Climate

The climate in the region has relatively cool temperatures as compared to the other regions of the United States. The highest average temperature is 80°F and the lowest average temperature is 20°F (Table 4.2 & Figure 4.18). Relative humidity ranges from an average of 72.5% in the morning to 61.1% at noon. The annual rainfall averages 40.9 inches with the highest monthly average occurring in March at 3.8 inches.

These data as well as conversations with various pastors in the Boston area suggest that artificially cooling the air is not a major factor in the mechanical design of these buildings. Several pastors have even suggested that they would only need air conditioning in the church on four to five weekends per year. If forced-air systems were to be used in these buildings for the sole purpose of providing cooling, then the cost for such an item would likely outweigh the benefits. Heating for these buildings, with the average temperatures in the twenties for the coldest months, makes a forced-air system using a heat pump highly inefficient. A more efficient system might be radiant heating or fan coil system where heat can be adjusted for the various zones within the buildings. The final design has incorporated a hydronic (forced hot water) heating system into the design.
Radiant heat is distributed through a series of in-slab radiant heating coils and perimeter convector units.

The amount of annual rainfall is also significant for several reasons. The roofs of the various structures will need to address the water runoff. In addition, this area does receive a significant amount of snowfall each year. Care will need to be taken to ensure that falling snow and ice from the roofs are considered, especially around entrances.

Table 4.2  Boston weather conditions.

<table>
<thead>
<tr>
<th>Boston (Massachusetts)</th>
<th>124 ft (38 m)</th>
<th>42°22' N</th>
<th>71°04' W</th>
<th>59 years</th>
<th>USA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Temperature °F</th>
<th>Temperature °C</th>
<th>Relative humidity</th>
<th>Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest recorded</td>
<td>Average daily</td>
<td>Lowest recorded</td>
<td>Percentage</td>
</tr>
<tr>
<td>Highest recorded</td>
<td>Average daily</td>
<td>Lowest recorded</td>
<td>Percentage</td>
</tr>
<tr>
<td>J 70</td>
<td>36</td>
<td>20</td>
<td>-13</td>
</tr>
<tr>
<td>F 68</td>
<td>37</td>
<td>21</td>
<td>-18</td>
</tr>
<tr>
<td>M 86</td>
<td>43</td>
<td>28</td>
<td>-8</td>
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<td>A 89</td>
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</tr>
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<td>M 97</td>
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<td>78</td>
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<td>S 102</td>
<td>71</td>
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<tr>
<td>O 90</td>
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</tr>
<tr>
<td>N 78</td>
<td>49</td>
<td>35</td>
<td>-2</td>
</tr>
<tr>
<td>D 69</td>
<td>40</td>
<td>25</td>
<td>-17</td>
</tr>
</tbody>
</table>
Case Studies of Roman Catholic Churches

Church of the Nativity  
Rancho Sante Fe, Calif.

Designed by the architectural firm of Moore, Ruble, Yudell, this church in Southern California responds both to the functional needs of the community and the local culture of this region (Figure 4.19). Using several design elements which have a Mexican influence, this complex captures the feeling of being within an "early California mission." The main entry into this complex is through an enclosed courtyard which opens onto the garden. This area was intended to be used for private prayer and reflection. The belfry-like tower at the entry and the use of clay tile roofing further portray the Mexican influence on the complex.

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The use of natural lighting in the church is one of the most interesting features of this structure. Wooden lattice suspended from the ceiling in the nave helps filter the natural light from the various skylights and windows. A perimeter colonnade also diffuses sunlight into the space by pulling the defined edge of the nave in from the exterior walls. The diffused light stands in stark contrast to the wash of light pouring across the wall behind the sanctuary. Hiding the source of light on this wall portrays the sense of mystery the Catholic Church desires in the liturgical environment.

Functional requirements for this complex generally seem to be an appropriate response to the circumstances. The seating in the nave is arranged in a near semicircle which complies with the intentions of the Second Vatican Council and the needs of the parish pastor. The priest was concerned about the distraction imposed when people are forced to face each other during the liturgy. This arrangement also allowed for a procession through the nave. The gentle slope of the nave floor allows more visibility of the sanctuary. Visibility of the choir area is also in compliance with Vatican II by having this area off the center axis but still visible to the congregation. The functional layout of this church complex is also relatively successful. By arranging all the different spaces of the church in a connected complex this church has "increased the congregation's sense of community."\textsuperscript{91}

There are a few apparent problems in this design. The entry space does create a solid connection between the two entries, the church and the

\textsuperscript{91}Canty, 82.
hall. However, the entry into the nave only allows access to half of the nave. Movement to the far side of the nave seems awkward. Second, the semi-circle arrangement of the seating was well-intentioned, but some of these pews seem forced. In particular, the seating around the vestry and sacristy create blind spots from some of the pews to other areas of the nave. Access to the sacristy requires the servers to traverse the nave to reach the sanctuary and is not an ideal arrangement. Finally, the access to the restrooms seems difficult. It appears to require the patrons to go outside before reaching these rooms. While this may work in the Southern California climate, this is not an ideal arrangement.

**Notre Dame Catholic Church**

Kerrville, Texas

This 13,200-square foot structure was designed by Tapley/Lunow Architects of Houston (Figure 4.20). The building utilizes several materials which have regional significance. The use of natural materials in the
construction such as wood Pratt trusses, Texas pecan-wood furniture, and various types of limestone masonry create a pleasant atmosphere due to the variety of textures and natural colors. From the exterior, the simple gable entry, covered with limestone native to the area, creates a traditional front facade for this building. The use of natural lighting seems to be incorporated well into the design. Orange and red glass panels fill the voids between the separated masonry walls. Blue glazing in the six nave dormers filter light through the open truss work which spans the length of the nave. Natural lighting across the sanctuary wall was also well thought out. Three apses are used, with the central apse forming the backdrop for the altar and one side apse each for the baptistery and the Eucharist chapel. Lighting in these apses is through the skylights in these spaces, which washes over the rustic surface of the masonry walls.

The functional requirements of this building generally follow those set by the Second Vatican Council. The seating for the 750 members of the congregation is arranged in a semicircle to allow viewing of both the congregation and the altar during the service by the members. The sanctuary does not have any barriers separating it from the nave, though this space does not appear to be completely joined with the nave. Seating for the priest is in a very prominent position within the apse, which is probably not the ideal location for this furniture. It should be off center, though in or near the sanctuary. Entry into the nave through the narthex seems appropriate in scale, though there is no central entry. A shrine to the Madonna is on the central axis with entries into the nave on either side of this memorial. A formal processional area is difficult due to this arrangement. Complicating this function is the placement of the choir.
seating. This area is at the rear of the nave and just off center of the central axis. Processions would have to navigate around this area before proceeding to the front of the church. This is also an inappropriate location for the choir due to the need for the congregation to view both the musical leader and the choir during the liturgy.

The smaller rooms needed in the church building also do not appear to be in ideal locations. The restrooms and some closets in the narthex do seem to be in appropriate locations, but their arrangement creates a long narrow gathering area. This room resembles more of a glorified hallway than a formal gathering area. The vestries, reconciliation chapels, sacristy, and storage rooms for the church where arranged to create a somewhat regular nave. The specific locations of some of these rooms, however, do not appear to be in the most useful locations. The sacristy is on
the side of the nave, rather than behind the sanctuary. This makes preparation for the liturgy more difficult with the servers having to traverse the nave going to and from the sacristy. The reconciliation chapels also appear somewhat awkward. The doors to these rooms do not appear to be significantly different from the entrance to the vestries or sacristy, despite the fact that these rooms are considered chapels. The arrangement of these secondary rooms has also created large voids within the nave where the seating turns the corners. These spaces could have been used as the baptistery, for more room, or to accommodate some of these secondary rooms. Finally, the form of the structure is a little deceptive. It was designed to blend with the local architecture by taking the form of a Texas barn. In doing so the nave from the exterior appears to be much smaller than it actually is despite the Church's request that "the wholeness of the total space should be strikingly evident." 

St. Raphael Church
Medford, Massachusetts

Designed by Keefe Associates, Inc. in Boston, this new parish church was also completed under the guidelines set forth by the Second Vatican Council (Figures 4.21 & 4.22). This church was designed to take the place of the original structure which had burned down several years earlier. Completed in 1993, this church is an excellent example of how today's Catholic church should be organized. The seating in this structure is arranged in a semicircle with the altar being the focus of attention. Despite the arrangement, the church still allows for a reasonable procession

92Bishops' Committee on the Liturgy, 229.
through the nave. No obstructions separate the sanctuary from the nave, thus reinforcing the sense of togetherness needed. Raised slightly for better visibility, this aspect of the design is not as ideal as the rest of the design because it tends to separate the altar slightly from the congregation. The choir and organ are arranged near the front of the church in plain view but are located off to the side. This allows them to be seen and heard clearly by the congregation but not the focus of attention. The sacristy is behind the altar where the servers can easily access it when preparing for the liturgy. The priest's vestry is located near the entry so as to allow the priest to dress prior to the start of the liturgy without having to walk to the front of the church. A baptismal font is provided near the entry with plenty of gathering area for the large baptisms that can be expected.

There are several amenities on the exterior of this church as well. The three courtyards just outside of the church provide areas for the

Figure 4.21 St. Raphael Catholic Church.
congregation to gather following Masses as well as an exterior space for possible organized gathering functions. These areas are also arranged adjacent to the reception hall and can easily access this building from these spaces. The use of natural materials throughout this design is another commendable feature. Since God created nature, it is inherently beautiful. Therefore, using natural materials such as stone and wood are appropriate details. The placement of this building along the main street seems to be done rather well also. The street features a number of small stores and shops one or two stories in height. They are also placed very close to the street, creating a very small but comfortable scale to the streetscape. The church's placement reinforces this streetscape through the use of a low stone wall, and the church itself is located adjacent to the sidewalk.

Figure 4.22 Plan of St. Raphael Catholic Church.

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There were few faults I could find in the design for this structure. The most obvious is the site itself. With a school, reception hall, church, rectory and convent located on the same site, there is relatively no on-site parking for the congregation. This may be appropriate for this downtown area and even for the local zoning laws, but for most suburban parishes a much larger site would be required. While the restrooms area is technically not in the nave area of this church, the placement is probably not the most ideal location. The restrooms should access an area which then enters the church. Some of the rooms seem to be either too small or not included in the design. The ushers' closet seems a little too small. Likewise, with only one vesting area, the priest and servers have to share the dressing room. Generally, this church was well designed under the Second Vatican Council's guidelines and is a good example of church design and organization for today's parish church.


**A Description of Milton, Massachusetts.** Milton, Massachusetts: Town of Milton.


Figure A.1 Area amenities. Boston, Mass.
Figure A.2 Major roads and highways. Boston, Mass.
Figure A.3 Rapid transit and commuter rail service. Boston, Mass.
Figure A.4 Area counties and cities. Boston, Mass.
Figure A.5  Site amenities. Town of Milton.
Figure A.6  Design thesis. Site plan.
Figure A.7  Design thesis. Floor plan.
Figure A.8 Design thesis. Site perspective.
Figure A.9  Design thesis. Site sections A-A, B-B and C-C.
Figure A.11  Design thesis. Concept diagram and perspectives.
Figure A.12  Design thesis. Heating system and construction diagrams.