

**UNCHURCHED CHURCH ARCHITECTURE:
An examination of the relationship between exterior Protestant Church design and
the conceptualizations of the church and unchurched**

by

Matthew William Niermann

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Architecture)
in The University of Michigan
2016

Doctoral Committee:

Professor Linda N. Groat, Chair

Professor Gerald Moran

Associate Professor Daniel Ramirez, Claremont Graduate University

Professor Jean D. Wineman

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DEDICATION

I dedicate this dissertation to the men and women of the church who have diligently sought the faithful navigation of this ordained institution embedded in an ever changing world. May they always remember Proverbs 19:2.

ACKNOWLEDGMENTS

I would like to express my special gratitude to Dr. Linda Groat who has provided the opportunity, guidance, and inspiration to pursue a rigorous examination of a rarely considered topic.

Special appreciation is owed to each of the other committee members, Jean Wineman, Daniel Ramirez, and Gerald Moran for their willingness to provide specific and specialized guidance to this multi-disciplinary research. Without these varied perspectives, the success of the dissertation would have been limited.

I would like to acknowledge the essential contribution of the hundreds of individuals who offered critical hours of their time to be a part of the data collection.

Finally, and perhaps foremost, I would like to acknowledge my family for their decade of support during my graduate studies. My wife, Crystal, and children, Alana and Graham, were unwavering support throughout numerous relocations, graduate degrees, and periods of intense study. My parents, Tom and Patrice, provided both tangible help and emotional encouragement throughout the years of work. Without this support structure, the luxury of pursuing deep research into an important topic would have never begun.

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CHAPTER I

Introduction

Architectural Evangelism and the Unchurched

United Methodist Church of Auburn, Illinois, is a church that describes itself as “a growing, community involved, family focused church,” (“Auburn United Methodist Church,” 2010). In the mid-2000s, the congregants at UMC Auburn decided that in order to bring their church into better alignment with their vision of being a community-involved church where the modern family would feel comfortable, they needed a new church building—a building which purposefully was not perceived as a church (See Figure I- 1).



Figure I- 1: Auburn United Methodist Church, Auburn, IL
Previous Church, currently for sale (left); Newly Constructed Church, currently in use 2009 (right)

The newly constructed building edifice stands in stark contrast to the previous building’s design. It has forgone ecclesiological features such as pointed arches, stained

glass, bell towers, raised primary floor, and a vertical emphasis, nor does it utilize historic or neo-historic design styles. The effect of eschewing traditional churchly architectural elements, and drawing instead on non-churchly building typologies, results in a structure that could easily be mistaken for a school, medical office, corporate office, or small-town library.

Although the design approach for UMC Auburn's new facility is a radical departure from its previous approach, the design direction of UMC Auburn is not a radical example. UMC Auburn's move toward a non-churchly (henceforth "secular") exterior typology is indicative of a widespread trend among the 325,000 American Protestant and evangelical Protestant congregations (Grammich, 2012). This design trend, colloquially referred to as *architectural evangelism*, is a product of the combination of the evangelistic desire of churches to engage the unchurched such that they may become churched, and the application of a missionary theory of cultural analysis applied to architectural design.

In short, this missionary design theory proposes that churchly architecture is a barrier for the unchurched. Specifically the theory proposes that churchly architecture is not comfortable or welcoming for unchurched due to their unfamiliarity; churchly architecture places an emphasis on worship which has no draw for the unchurched; and churchly architecture is viewed as hypocritical by the unchurched due to the amount of money spent for construction instead of helping the community. Therefore, with the intent to remove all barriers for unchurched church attendance, the missionary design theory postulates that church buildings need to abandon traditional churchly elements and embrace secular building typologies. And by doing so, the church will increase the level

of familiarity for unchurched allowing for a more welcoming and comfortable architecture. Further, in addition to increasing comfort, the use of secular typologies will make the church more attractive to the unchurched by expressing an emphasis on community instead of worship via a more economical building typology.

The Influence of Architectural Evangelism

The influence and adoption of this missionary influenced architectural design theory is vast. It has moved from a missiological idea to the standard practice within thirty years – drastically altering the visible religious landscape of America. Its popularity has produced an entire architectural industry around its implementation: architecture firms promote their specialization in the style; publishers produce monthly church building designer magazines dedicated to highlighting the latest advancements in this approach (e.g. Worship Facilities Magazine and Church Designer Magazine); professional organizations host national and regional conferences (e.g. Worship Facilities Expo) which draw thousands of church representatives and building industry leaders to share best practices and hear keynote presentations from leading Christian missiologists (e.g. Ed Stetzer), and architectural design awards are granted (e.g. Solomon Awards).

In addition to the adoption and development within the religious leadership communities, the approach of architectural evangelism has also been recognized and awarded within the broader architectural design profession. Nationwide, the American Institute of Architecture (AIA) has promoted and awarded numerous churches influenced by architectural evangelism. For example, in 2013 the Dallas Center for Architecture, hosted by AIA Dallas, dedicated its *Architecture360* event to the latest built works of

architectural evangelism in Dallas. The *Architecture360* promotion literature for the event read:

“Architecture360 wouldn’t be complete without touring the most talked about church in town. Watermark Community Church has broken the mold of church design and has taken architectural evangelism to new heights. How do we create community? How do we instill comfort? How do you successfully converge worship and amenity space? Come learn all of the things that make Watermark a place where people want to be...and made it a 2012 AIA Dallas Design Award winner.”

Despite all the institutional structures enforcing architectural evangelism, its deepest impact is most significantly seen via casual observation of the built environment. Arguably, any quick drive through an average town in America will showcase examples of this approach. Nearly thirty years of constructing buildings adhering to the principles of architectural evangelism has changed the religious landscape in America.

Due to its widespread influence, social, architectural, and church commentators in popular media have regularly highlighted this design shift—often relating to a parallel rise of the mega-church.¹ Commentators reflect that this design phenomenon is, “a new paradigm...changing the way Christianity looks and is experienced,” (Miller, 1999, p. 1), heralding it as “the next church” (Trueheart, 1996), or “the church for the 21st century” (Anderson, 1992). Yet despite all the

¹ See: Miller, C. (1994). Church keeps message but changes medium. *Marketing News*, 28(8), 5.; Russell, J. (1997). God: Coming to a mall near you. *Good Houskeeping*, 225(6), 116-119.; Lewis, M. (1996, July) The Capitalist: God is in the Packaging. *The New York Times Magazine*.; Brown, P. (2002, May 9). Megachurches as Minitowns: Full-service havens from family stress compete with communities. *New York Times*, 5-6.; Vrana, D. (1997, November 8). Designing a Mall-Like Ambience for Worship. *Los Angeles Time* Los Angeles, California.; Goldberger, P. (1995, April 20). The Gospel of Church Architecture, Revised. *New York Times* New York, New York.; Niebuhr, G. (1995, April 18). The Minister as Marketer: Learning from Business. *New York Times* New York, New York.; Trueheart, C. (1996). Welcome to the Next Church. *The Atlantic Monthly*, 278(2), 37-58.; Niebuhr, G. (1995, April 16). Where Religion Gets a Big Dose of Shopping-Mall Culture: Megachurches... *New York Times* New York, New York.

media attention, there has been very limited empirical examination of architectural evangelism. Within the last twenty years, only two research groups have examined the claims of architectural evangelism (Barna Research Group, 2014; Lifeway Research Group, 2008). However, both studies only focused on unchurched preference between four images of churches—failing to systematically analyze the aptness of the underlying missiological theory nor the efficacy of the design prescriptions. In light of the influence, and the lack of previous systematic evaluation, this dissertation seeks to explore the fundamental presuppositions, claims, and proposed design prescriptions of architectural evangelism.

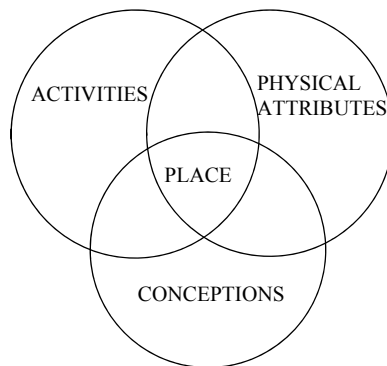
Research Objectives

The principles of architectural evangelism are rooted both sociological observations and missionary logic. Generally speaking, it begins with the observation that unchurched do not attend church due to personally held conceptualization of church that prevents them from attending. Therefore, it reasons, unchurched conceptualizations must shift in order for them to be willing to attend church. Consequently, churches should do all they can to shift unchurched conceptualizations (formally known as evangelism or outreach). Yet there are limitations to these efforts due to fact that there is little interaction between unchurched and the church. However, the logic further observes, the church has a public face which the unchurched engage with on a regular basis—namely the church building. Thus, if the church needs to shift unchurched conceptualizations, one way to do so would be to shift the design of its buildings—i.e.

architecture + evangelism—in order to both change judgements and attract the unchurched.

This missionary logic at its core first presumes a distinction between how churched and unchurched individuals think about church architecture. Secondly, this line of logic presumes that there is an inherent correlation and interconnectedness between physical form, conceptualizations, and actions. These two presuppositions, are similar postulates put forward by place construct theory and personal construct systems (Kelly, 1955), best illustrated by David Canter's place construct model (Canter, 1977, 2007).

Personal construct theory states that individuals conceptualize the world in his / her own constructs. Therefore, to examine how people understand their world, research must seek to explore individual's construct systems. And when dealing with architecture, as Canter proposes, the basic structure of an individual's construct consists of the relationships between physical design, conceptualizations, and actions.



*Figure I- 2: A visual metaphor for the nature of places
(Canter, 1977)*

Therefore, as this research seeks to explore the efficacy and accuracy of architectural evangelism theory, it will first explore the theory's foundational presuppositions that churched and unchurched individuals understand church architecture differently. Working within Canter's place conception model, and utilizing research

methodology tactics developed from the foundation of construct theory—i.e. free sorting tasks and multiple dimensional scalogram analysis (MDS)—this research asks:

- 1) What is the relationship between the design of Protestant church exteriors and the use of place construct systems held by church and unchurched individuals?

Reasoning from these presuppositions, architectural evangelism theory prescribes design attributes for church architecture that will, according to the theory, positively shift unchurched judgements and ultimate preference. Therefore, to test these specific prescriptions, this research will also explore individuals judgments as they relate to specific design characteristics found within a range of exterior church design profiles. To do so, this research asks:

- 2) What is the relationship between the design characteristics of Protestant church exteriors and judgements / preference of churched and unchurched individuals?

In doing so, the research will draw from the extensive field of environmental aesthetics, and particularly the research on the effect of environmental roles on preference, the effect of prototypicality on preference, and the relationship between aesthetic judgments and preference.

Finally, to explore both research questions, the research will utilize an image-based sorting task interview approach, applied in a case study format—effectively testing both the presumed universality of the missiological logic’s design prescriptions, and the influence of its implementation in churches situated in differing local contexts.

Overview of the Chapters

This dissertation is composed of nine chapters. Chapter I outlines the general overview of the topic and introduces the specific research objectives.

Chapter II presents the historical developments within missiology that lead to a shift in approaches of evangelism, ultimately allowing for the consideration of architecture as a tool of evangelism. This chapter will also present the historical developments that lead to the use of the missiological theory within church design thinking. Finally, the chapter will conclude with the detailed formulation of architectural evangelism's missiological logic.

Chapter III sets the theoretical foundation for the dissertation via a literature review of relevant research. First, this chapter reviews two recent research studies on unchurched preferences of church architecture mentioned above. Following, the chapter outlines theoretical foundations for the research questions via a literature review of place theory and environmental aesthetics research.

Chapter IV outlines methodological foundations and the research design utilized in this dissertation. In addition to outlining the research design and procedures, this chapter will also provide the rationale for the design of the specific research tactics such as the image based sorting task interviews, and will provide the specifics for the case-study design and case selection. Finally, chapter IV will provide a discussion of data analysis approaches utilized in ensuing chapters.

Chapter V explores the examination of whether churched and unchurched hold different place constructs. This chapter includes the presentation of the free-sorting tasks results as well as subsequent content analysis, MDS analysis, and resulting conclusions.

Chapter VI--VIII presents the data and findings on the relationship between exterior church design profiles and judgements held by churched and unchurched.

Chapter IX analyzes the relationship between exterior design, previously discussed judgments and preference.

Finally, Chapter X provides conclusions of the study, including limitations of the study and areas for future research.

CHAPTER II

Historical Development of Architectural Evangelism

American Protestant Architecture and Missionary Efforts

American Protestantism fundamentally allows for freedom in architectural expression due to a number of factors including being the religious position held by the majority of the population (Johnson, 2009), its relationship with governmental and institutional structures (Berger, 2008), the denial of sacredness of space stemming from its theological foundation of the priesthood of all believers (Erickson, 1998; Grudem, 1994), and the affirmation of the church defined as its congregants and not its building (McGrath, 2008; Renn, 2014; White, 1964). However, despite these spatial freedoms, the historic development of Protestant church design has produced prototypical forms across Protestantism and within denominations (Fiddes, 1961). These prototypical formulations, arguably, were primarily developed through the reflection on the relationships between liturgy, worship praxis, and space (Kieckhefer, 2004; Seasoltz, 2005; Williams, 2005).

Although the creation of American Protestant architectural form is deeply indebted to considerations of worship, another factor has also historically influenced the use of space—namely the missionary / evangelistic call to reach non-Christians with the gospel message. Evangelism and outreach within Protestantism—and especially Evangelical Protestantism—is a mandate. Architectural form within Protestantism is not

a mandate. Therefore, as churches sought to reach out to the unchurched, architectural form was placed in service to the evangelistic mandate. Consequently, churches adapted and appropriated a variety of architectural forms beyond the normative church design. (Kilde, 2002; Loveland, 2003; Niermann, 2015).

These missiologically driven experiments sought to bring the gospel to unchurched individuals via two major approaches. The first approach physically relocated the church's presence in a semi-permanent manner among unchurched populations. This practice is seen in throughout American Protestantism, ranging from urban congregations in the early 19th century to contemporary church planting efforts. As was the case in early 19th century New York, these missionally minded urban congregations relocated amidst the poor or unchurched population through the rental of private homes, schools, vacant buildings, unused rooms in shops, or other commercial structures (Kilde, 2002). The second approach, the church moved beyond the walls of the church building and attempted to draw a crowd to hear the gospel, often through the use of a temporary spectacle. Exemplified by the 19th and 20th century rural and urban revivals, these traveling preaching spectacles utilized temporary structures (e.g. circus tents) or they constructed large temporary spaces known as tabernacles.

Although these basic tactics were utilized for a century and a half, these missiological appropriations had little lasting effect on widespread design approach of churches. Due to the utilization of spectacle, temporary construction, or the reliance on rental of spaces, there was no lasting visual impact of these evangelistic driven appropriations of space. It wasn't until the development of a missiological theory in 1950s, and its application to the American setting in 1970s, that the local church structure

itself came into service of evangelistic efforts. This missiological theory is known as *Church Growth theory*.

Historic Development of Church Growth Theory

Church Growth at its core is missiological theory and praxis. Therefore, it seeks to answer what the fundamental responsibilities and roles of a missionary are; what the primary purpose of a Christian mission is; and what the measures of effectiveness for Christian mission are (Rainer, 1993).

During the early parts of the 20th century, a division in the definition of Christian missions had emerged between the modernist leaning mainline denominations and the evangelical church. The mainline denominations placed a heavy emphasis on social activity and good deeds within the mission field. Consequently, mainline Christian missions most often sought to provide social services such as the creation of hospitals, aid to farmers, and the establishment of schools and education systems. Evangelical missions took the contrary position promoting the understanding that the central aim of missions was to create converts to Christianity, and subsequently integrate converts into active fellowship with a local church. Thus, missions for Evangelicals most often took the form of proclamation evangelization efforts (Rainer, 1993).

This difference in approach became apparent to the founder of Church Growth, Donald McGavran, during his missionary work in India in the 20th century. Serving as the executive secretary and treasurer of a large United Christian Missionary Society in India, McGavran observed that despite the eighty missionaries, five hospitals, numerous schools, and a leprosy home, the mission had only produced twenty to thirty small

churches, all of which were not growing. Plagued by the question of why this was, he left his administrative position and focused his energies on researching why some churches grew and others did not (Rainer, 1993). His research utilized contemporary sociological and behavioral methodology research tactics. After several years of applying these tactics to study the result of mission strategy across India and African missions, in 1955 he penned *The Bridges of God* summarizing his findings (McGavran, 1955). *The Bridges of God* called for a renewed dedication to effective evangelism which was based on the ideas that (Moreau, 2000, p. 200):

- The central purpose of missions was to see that lost men and women are found and reconciled to God. God wants his lost children found.
- The Church has one main role: to multiply itself via evangelism; all else is subordinate.
- Discipling is a priority over perfecting; understanding that discipling is bringing unbelievers into commitment to Christ and into active fellowship in a church; and perfecting is teaching them all things.
- Effective evangelism approaches should be embraced and utilized as long as it does not go against biblical principles.
- People like to become Christian without crossing racial, linguistic, or class barriers. This is known as the Homogeneous Unit Principle.
- It is essential to understand the social and cultural structures of a location. Evangelization will only be heard and understood in social, linguistic, and culturally relevant terms.

In the years following the publication of *Bridges to God*, McGavran continued to expand his research findings via analysis of the sociological and behavior aspects contributing to the effective receptivity of evangelism. His research sought to answer (Hunter, 1992):

- 1) What are the causes of church growth?
- 2) What are the barriers to church growth?
- 3) What are the factors that make a Christian faith a movement among some populations?
- 4) What principles of church growth are reproducible?

To answer these questions, McGavran continued to collect data from case studies. These initial case studies were carried out by McGavran via a series of denominationally sponsored research trips to the mission fields in Puerto Rico, the Philippines, Thailand, India, and Jamaica (Works, 1974, pp. 136–143).

Although these studies provided initial insights into the effectiveness of evangelism in local context, the main contribution of McGavran was the development of his methodological approach to evaluate mission effectiveness. This methodology is known as Church Growth theory. In Church Growth theory, the aim is to utilize sociological tools to gain an understanding of the social, linguistic, and cultural context of a setting. From this understanding, evangelistic tactics could be designed and subsequently evaluated, in the ultimate aim of discovering replicative, effective, and a contextual means of evangelism.

Having laid the conceptual groundwork of Church Growth, McGavran left mission field leadership and established an Institute of Church Growth at Northwest Christian College in Oregon in 1961, and which was then relocated to Fuller Theological Seminary in Pasadena, California in 1965. In the decade proceeding 1965, the Institute for Church Growth expanded its reach and influence—particularly amongst American Evangelicals. Fuller Theological Seminary, being one of the most influential American Evangelical seminaries, brought many emerging Evangelical leaders, pastors, and missionaries into contact with Church Growth theory and methods. With this exposure,

interest in the theory and its methods grew. As student involvement grew, McGavran was able to enhance his research data through student field studies and reports of additional international mission case studies. These field studies and reports covered a wide geographic area including Mexican migrant workers in the southern U.S., Korea, Brazil, and Liberia (Works, 1974, pp. 214–221).

Although Church Growth theory's focus was on developing effective international missions, participation in Church Growth development by American evangelicals caused an increasingly interested in the potential application to the American setting.

Americanization of Church Growth Theory

Although McGavran initially showed reluctance to entertain the idea of applying Church Growth methods to the American setting, he eventually agreed to sit with a small class of American church leaders in the fall of 1972 (Cook, 1998, pp. 56–58). The class of students were so impacted that the class became a regular course offering—starting the Americanization process of Church Growth. Several individuals from that initial class became prominent leaders in the Americanization process.

One such individual was Win Arn. Arn's transition to Church Growth grew out of his frustration with American evangelistic approaches in the 1960s and 70s. Having served as the Director of the Portland Area Youth for Christ, he was well acquainted with mass evangelism rallies of the day. In such rallies, organizations (such as Youth for Christ) would gather large groups of individuals, present the Christian gospel message, and culminate the event with a call for individuals to make a 'decision to follow Christ'

(McGavran & Arn, 1977). However, after years of facilitating decisions, Arn began to ask, “What [happens] to those who [make] ‘decisions’? [Do] they become actively involved in a local church? What [are] the long term results? What are the actual facts?” (McGavran & Arn, 1977, p. 10).

To answer these questions, Arn began to use Church Growth methodologies to analyze the effectiveness of revivals, the mass evangelistic rallies of Billy Graham, and the tactic of saturation evangelism of Bill Bright. His analysis results showed that only a small percentage of individuals that made a ‘decision’ became a church member within one year; Youth for Christ—1 in 4; Billy Graham—1 in 15; Bill Bright—3 in 100 (McGavran & Arn, 1977, p. 10). As a result of Arn’s study, and additional studies supporting Arn’s results, American Church Growth (ACG) theorists made a call for a revision of American evangelism methods. Specifically, ACG proponents proposed that an effective evangelism tactic should be 1) fundamentally rooted and integrated into the local church and 2) designed via a close analysis of the social, demographic, and cultural setting of America (McGavran, 1980; Wagner, 1984).

Responding to this call, Christian social demographers, research pollsters, and marketing researchers began to produce literature which analyzed the sociological and cultural trends found within American populations (Barna, 1992a, 1992b, 1993; Strobel, 1993). From this data, Church Growth theorists began develop best practices and eventually started to disseminate literature detailing successful Church Growth tactics (George & Bird, 1993; Rainer, 2001; Wagner, Arn, & Towns, 1986).

Church Growth practices gained popularity in America, fueled by the adoption of Church Growth approaches by several prominent Evangelical megachurch pastors in

America—most notably Robert Schuller, pastor of Crystal Cathedral in Garden Grove, California (Schuller, 1974); Rick Warren, pastor of Saddleback Church in Lake Forest, California (Warren, 1995); and Bill Hybels, pastor of Willow Creek Church in South Barrington, Illinois (Hybels & Hybels, 1995). As these materials circulated through American congregations, churches began to re-evaluate their practices, replacing them with the emerging Church Growth approaches modeled by these megachurches.

However, as many commentators have noted, there was a subtle but significant ideological shift in Church Growth theory that occurred when it was applied to the American setting (Cook, 1998; Guinness, 1993; MacArthur, 1993). McGavran sought to utilize social science to understand the cultural patterns of a setting such that evangelism could be effectively integrated. However, this shifted subtly with ACG. Whereas McGavran sought to discover cultural patterns, ACG sought to use social science to discover the perceived needs / judgements of culture. Therefore, instead of seeking to find ways to deliver the gospel within cultural patterns, ACG sought to attend to the cultural needs / judgements of culture as a means to provide a better setting to deliver the gospel message.

This subtle shift caused some notable changes to church practice—practices which came to be known as the “seeker-sensitive” or “seeker-driven” movement (Tucker, 1998). Seeker sensitivity is an approach to church which aims to arrange the churches’ praxis, communication, image, and material culture around the needs of the unchurched (Guinness, 1993). Seeker-sensitive churches traded in many traditional practices for ‘contemporary practices’ to better align with the needs of the unchurched: Bible-based preaching shifted to felt-need preaching, traditional church music styles shifted to pop

music styles, historic liturgy shifted to drama skits and use of contemporary media, and church planning took the form of vision statements and marketing campaigns. Most notably for this discussion, ACG also offered an architectural proposal to shift church building design from traditional church prototypes to secular typologies.

Americanized Church Growth and Architecture

The call of Church Growth advocates to relocate evangelistic efforts back to the local church effectively changed the direction of missionary activity. Prior to the application of Church Growth principles, the church's missionary activity flowed from the church outwards by sending individuals to unchurched context with a message. This outward directionality—as previously discussed—relied on the use of temporary structures, or rented structures located geographically in an unchurch area. However, Church Growth theory change the directionality from sending outward, to calling inward. Instead of sending individuals out to unchurched contexts, Church Growth adherents sought to attract unchurched individuals to the local church. Consequently, the local church building, and its design, became a critical aspect of missionary activity. Thus, as a major element of mission strategy, architecture started to be evaluated for its effectiveness in attracting the unchurched. Was local church architecture a enhancing or causing barriers for unchurched attendance?

To better understand the relationship between unchurched and church architecture, leading church-growth-adherent churches (e.g. Willow Creek in Chicago, Saddleback Church in greater Los Angeles) developed model sociological profiles of their target audiences. These studies were published for both their church's use and the

use by other Church Growth adherents. Willow Creek's study is entitled, *Inside the mind of Unchurched Harry and Mary: How to reach friends and family who avoid God and the church* (Strobel, 1993); and Saddleback Church's developed the sociological profile who they named 'Saddleback Sam' and detailed in their publication entitled, *The Purpose Driven Church* (Warren, 1995).

These profiles identified the targets of a new demographic to reach: individuals who were engrossed in a larger corporate, commercial, experience-based, noncommittal, authority-distrusting, church-rejecting but spiritually-embracing culture. With these sociological profiles in mind, Americanized Church Growth practitioners sought to revise the design of church architecture so that it would better align with the needs of these individuals.

To begin, Church Growth practitioners observed, as indicated by the sociological demographics, these unchurched individuals are deeply engrossed in commercial and corporate worlds. Therefore, they deduced, Unchurched Harry or Mary would be most comfortable in a building typology they were accustomed to instead of a churchly building of which they were unfamiliar with. Corporate, commercial, and entertainment typologies meet the needs of unchurched and do not cause barriers for attendance like churchly designs do. As the logic continued, if the exterior architecture of a church is the initial interaction for the unchurched, and the unchurched are most comfortable and used to approaching commercial typologies, then it is most important that the church should adopt these secular typologies for its exterior design.

This missiological logic for architecture was exemplified and propagated by Bill Hybels, pastor of Willow Creek Community Church. Hybels believed that Unchurched

Harry and Mary were constantly in the process of making value judgements from the architecture while approaching the church. “Are you up to date? Are you contemporary? Or are you locked in antiquity? Are you trying to force an atmosphere on us that’s contrived?” To counter this, Willow Creek intentionally designed its building to contrast to a churchly atmosphere. The building is purposefully designed in a corporate typology, and displays no Christian symbols. As Hybels explains, “What we want him [Unchurched Harry] to do is just say... ‘I was just at corporate headquarters for IBM in Atlanta, Wednesday, and now I come to church here and it’s basically the same’...Neutrality, comfort, contemporary, clean. Those are the kinds of values that we want to communicate” (Pritchard, 1994, p. 287). As Hybels put it, “We are trying to make the person off the street feel comfortable...by creating a safe place for unchurched people,” (Pritchard, 1994, p. 290).

The ultimate aim; however, was not for comfort alone. Church Growth motivation is fundamentally evangelistic. Therefore, the ultimate aim of the creation of an environment in which it is possible for the unchurched person to feel unthreatened. And as a heading in a 1996 Willow Creek Leadership Conference brochure read, “Traditional church forms can be barriers to our communicating with unchurched people.” Therefore, the question for church architecture became how to design a building that would remove barriers of communication such that the gospel could be presented to individuals familiar with contexts such as the modern office buildings (Robinson, 1992, p. 78).

Architectural Evangelism's Missiological Logic

In the decades to follow the first considerations of the evangelistic role of the church architecture, church leaders and architects have sought to answer the question of how to design a church that removes barriers for the unchurched. This discussion has spanned across multiple forums including contemporary Christian periodicals, conferences, elder meetings, church building committee consultants and architectural design practice. The results from these decades of discussions has produced a basic missiological design logic for unchurched church architecture. Although the conversation remains active to this day, there are several sociological observations and resulting design prescriptions that formulate the basics of architectural evangelism's missiological logic.

The missiological logic (ML) of unchurched church architecture proposes²:

ML-1) Churched and unchurched individuals have a different conception of church architecture; therefore, to create a church suited for the unchurched, the traditional design of churches must be evaluated and reconsidered.

ML-2) In order to draw in unchurched individuals, church architecture should seek to be comfortable and welcoming; therefore, the church building design should seek to remove any barriers to this for the unchurched.³

² The missiological logic, as presented above, is a summarization of the principles commonly discussed over decades Church Growth conferences and conventions (e.g. *Worship Facilities Expo*), Church Growth specific literature, journalistic coverage of the rise of the mega-church (e.g. *New York Times*) and notably within evangelical trade magazines dedicated generally to the practice of Evangelical Christianity (e.g. *Christianity Today*) and church architecture (e.g. *Church Designer Magazine*, *Worship Facilities Magazine*).

³ For a current example see the discussion of the new facility at Riverpointe Church in Richmond, TX in the article "We Welcome You with Open Arms" in *Church Designer* magazine, Dec. 2014. The article reads, "Among the biggest goals that River Pointe laid out was the church's desire to create a welcoming, non-threatening space. But that did that mean? It means creating a building that is non-institutional, that is inspired and encourages pedestrian-friendliness..."

ML-3) Ecclesiological building typology, markers and symbolism are a barrier for the unchurched due to their unfamiliarity and general distrust of institutional authority. Therefore, church should a) adopt architectural forms that unchurched are familiar with – namely secular typologies and b) eliminate religious symbolism.⁴

ML-4) A building which is perceived to have a worship or religious primary function is a barrier for the unchurched for similar reasons to ML-3. However, a building with a perceived community emphasis is preferred by the unchurched due to the general desire for more community amidst an increasing individualized American society. Therefore, the church should design structures which primarily express engagement with the community instead of engagement in worship and spirituality.⁵

ML-5) Perceptions of church hypocrisy is a significant barrier for unchurched. One perception of hypocrisy is within perceived misalignment between the church's desire to serve the underserved and the church's practice of building expensive, ornate buildings purely for the sake of aesthetics. Therefore, the church should look to more austere, simple forms of architecture—which will more accurately express a great care for the community and lived service to others.⁶

In following chapters, this ML formulation will serve as the basis of empirical testing of the fundamental presuppositions, claims, and proposed design prescriptions of architectural evangelism.

⁴ For a current example see discussion of the development of Preston Trail Community Church in the article, “Accepted & Excepted” in *Worship Facilities* magazine, June 2015. The article, under the sub-heading “Inviting Design” reads, “The campus design is literally and figuratively formed around the church’s motto, Accepted and Expected... There are no ‘iconic’ church design elements that would let the average passerby identify this building as a church, rather it was important to church leadership to design a building that was welcome and non-threatening to the un-churched.”

⁵ For a current example, see discussion of utilizing community function as a means of creating welcome, “When Building Becomes a Welcoming Hand” on *Worship Facilities* Blog, http://www.worshipfacilities.com/article/when_a_building_becomes_a_welcoming_hand1 (accessed Sept 23, 2015)

⁶ For a current example, see the discussion of “Should Churches Spend Money on Nice Buildings” <http://www.thegospelcoalition.org/article/should-churches-spend-money-on-nice-buildings/> (accessed Sept23, 2015), and “We want to stay light and mobile, Flexible, and ready” <http://www.thegospelcoalition.org/article/we-want-to-stay-light-and-mobile-flexible-and-ready/> (Accessed Sept. 23, 2015)

CHAPTER III

Theoretical Basis for Research

Introduction: Finding Empirical Groundings for an Empirically Inspired Theory

Architectural evangelism, and its root ML, draw from empirical analysis of culture to prescribe architectural design tactics for an unchurched church design. Yet, ironically, the rigor of empirical analysis promoted by Church Growth theory and that caused architecture to be used as a tool of evangelism has not historically been utilized to develop the specific design prescriptions of architectural evangelism. The ML of architectural evangelism has developed through a collective process of informal inductive reasoning. Moreover, the process and conversations that have developed the ML have taken place between church and missionary leaders. Rarely, if at all, has this conversation directly included unchurched individuals beyond data results from sociological pollsters.

Acknowledging this historic limitation within architectural evangelism, this dissertation seeks to suggest a theoretical basis for empirical research that evaluates the specific claims of architectural evangelism's ML.

To do so, this chapter will first review the two commissioned empirical studies of unchurched preferences for church design. After reviewing the details of the studies, the review will make particular note of their lack of systematic analysis of architectural evangelism's ML presuppositions and prescriptive claims. Following, this chapter will

then suggest a theoretical foundation for an analysis which can provide for the systematic analysis of the ML presuppositions and prescriptive claims.

Contemporary Research of Efficacy of Unchurched Church Architecture

Architectural evangelism has influenced countless churches throughout the decades even though there has been no systematic study of its aptness or effectiveness. However, this long-standing lack of interest in evaluating its effectiveness has recently begun to shift. This shift is demonstrated by two recent commissioned studies into the effectiveness of the ML by the Cornerstone Knowledge Network, the research wing of APSEN Group, one of the leading architecture firms working in the church building industry.

The first study commissioned Life Way Research Group (2008)—a prominent evangelical sociological / missiological research group—to explore concepts of sacred architecture and third space as understood by the unchurched. In this study, entitled “Sacred Space: looking through the eyes of people that don’t go to church”, 1,700 unchurched individuals were first asked questions relating to the architecture they spend time at outside of the work and home. Specifically, they were asked questions relating to the qualities they found appealing in those architectures: what typologies of space would they most like to meet and interact in, what the atmosphere is like, and what is the reasons for choosing such a space. Results demonstrated that individuals preferred to meet individuals at a comfortable and relaxing sit-down restaurant that is quiet enough to talk while eating.

In the second part of the research the participants were asked to allocate 100 points to four different church exterior photos, giving more points to those they prefer and less or none to those they liked less. The results challenged the legitimacy of the ML claims. As seen in Figure III- 1, Image 3, the least churchly design received the least amount of points, at 16%. Image 4, the most churchly design received the largest apportionment of point at 48%. The other two images, designs with more subtle churchly appearances, received slightly higher apportionment than Image 3 with apportionments of 18% and 19%. The results, as reported by Lifeway suggested that the unchurched preferred more churchly architecture.



Image 1- 18%



Image 2 – 19%



Image 3- 16%



Image 4 – 48%

*Figure III- 1: Research test images
(Life Way Research Group, 2008)*

In a second study, Cornerstone Knowledge Network commissioned Barna Research Group (2014, Chapter 4) to explore the Millennial's (individuals 18-24 years old) preference and judgements of church spaces. Barna Group conducted a two part research study of Millennials across the United States. In the first part, they surveyed

843 individuals testing their preferences for church and church architecture. To begin their investigation, they initially asked millennials to choose words to describe their vision of the ideal church. A two-thirds majority or greater picked the words on the left in Table III- 1.

Community	78%	Privacy	22%
Sanctuary	77%	Auditorium	23%
Classic	67%	Trendy	33%
Quiet	65%	Loud	35%
Casual	64%	Dignified	36%

Table III- 1: Millennial Descriptors of Ideal Church
(Barna Research Group, 2014, p. 75)

Following, the study tested four series of four images, asking each participant to select the image that is most appealing to them. These image sets covered sanctuary images, alter images, images of nature, and images of stain glass window design. The sanctuary image set is the most applicable to the topic at hand. The results shown in Figure III- 2 indicate a higher level of appeal for more traditional spaces, with the least traditional spaces receiving only 18% each.



Figure III- 2: Millennial Selection of Most Appealing Sanctuary Images
(Barna Research Group, 2014, p. 81)

In the second part, Barna Group conducted two qualitative focus groups of 10 participants each from a variety of religious background. Each group was taken through a tour of several religious and non-religious spaces and asked to share their perceptions of each space and how they would use it. In addition, the individuals were asked further general questions about religious facilities and their ideas of what Christian churches should be. The results of the research suggested that millennials desired spaces designed with visual clarity which aligned with its purpose, spaces which allowed for natural light and nature, and spaces which offer respite from a highly fragmented and frenetic world.

Limitations of Current Studies

Although the two commissioned empirical research studies above have studied unchurched preferences and their conclusion have suggested possible revisions to the ML, their scope and depth were limited.

Regarding scope, both studies failed to go beyond preference judgements to explore any of the fundamental assumptions within the ML. Therefore, they were unable to provide any analysis of the incremental reasoning found within the ML. Although the ML main goal is increased unchurched preference, it is very specific about the judgments that undergird preference for the unchurched. By not engaging any judgements deeper than ultimate preference, these studies are limited in their useful analysis of the ML. Furthermore, each study failed to consider the most basic presupposition of the ML, in that churched and unchurched individuals hold different understandings of church architecture. The Lifeway study only tested unchurched individuals, and thus had no way to compare with churched preferences. The Barna study did collect data regarding

religious affiliation; however, due to its focus on Millennials as the primary demographic marker of analysis, the study failed to consider the basic difference between churched and unchurched individuals.

Regarding depth, both studies were very limited as well. In each case, there was no systematic exploration between specific design characteristics or design profiles and judgements. This is partially due to the limited number of images tested, with each image set in both studies containing only four images. Also, this is partially due to a lack of systematic rigor in the selection of images. Even though the results of the Lifeway research reported that unchurched preferred more traditional church architecture, what this exactly means is left open for interpretation. Granted, a visual inspection of the four images can confirm their reported conclusions. However, by failing to define specific design characteristics tested, the conclusion has limited usefulness beyond general evaluation of the ML—such as in the use in the specific refinement of church design elements.

With these limitations of current studies in mind, this dissertation proposes a theoretical foundation that is able to attend to a systematic analysis of architectural evangelism and its undergirding ML.

Theoretical Foundations

A systematic analysis of the proposed ML must be able to examine both its foundational assumptions and specific design prescriptions. First, it is proposed that the literature of place theory can serve as a theoretical foundation for the examination of the ML foundational assumptions. Second, it is proposed that the literature of environmental

aesthetics can serve as a theoretical foundation into the analysis of the relationship between specific design prescriptions and individual's judgements and preferences.

To begin, as noted in the introduction, architectural evangelism begins with the observation that unchurched do not attend church due to personally held conceptualization of church which prevents them from attending. Therefore, it reasons, unchurched conceptualizations must shift in order for them to be willing to attend church. Consequently, churches should do all they can to shift unchurched conceptualizations. Yet there are limitations to these efforts due to fact that there is little interaction between unchurched and the church. However, the logic further observes, the church has a public face which the unchurched engage with on a regular basis—namely the church building. Thus, if the church needs to shift unchurched conceptualizations, one way to do so would be to shift the design of its buildings in order to both change judgements and attract unchurched. Furthermore, as the ML continues, the church should attempt to shift several key areas of unchurched conceptualizations—namely conceptualizations of comfort, emphasis, and austerity.

The above progression in the ML relies on a few basic presuppositions. First, the ML holds a foundational presupposition that church and unchurched individuals hold different understandings of church buildings. Second, the ML of architectural evangelism also presupposes the interconnectedness between physical form, conceptualizations and actions—thus allowing for the possibility to shift unchurched conceptualizations by shifting the church's physical form. Lastly, the ML presupposes that unchurched individuals have construct categories of comfort, emphasis, and austerity and that these construct categories are primary in their thinking.

In order to evaluate these claims, this dissertation recognizes the congruence between the ML held assumptions and the broader theoretical work in the area of place theory. And in particular, this research looks to the work in place construct theory by David Canter as a theoretical foundation. The following section will review the literature on place theory, which will serve to inform the dissertation research inquiry into the aptness of these ML assumptions.

Secondly, a full analysis of the ML also requires an examination of its prescribed church design characteristics and individual judgements and preferences. The ML identifies churchly architecture as a barrier for the unchurched and thus prescribes secular architecture typologies. Through the use of secular architecture, according to the ML, unchurched preferences for church architecture will increase and thus they will be more attracted to attend church. Furthermore, the ML presumes that the best way to increase preference for the unchurched is through the increased positive judgements of comfort, welcome, emphasis, and fiscal alignment with community service.

The ML intent to increase unchurched preference by not using prototypical forms, thus eliciting more positive judgements, shares theoretical overlap with broader research found in the field of environmental aesthetics. And in particular, this dissertation notes that environmental aesthetics research into the relationship between preference and aesthetic judgements, environmental roles, and proto-typicality can serve as a theoretical foundation for the exploration of the ML claims.

In the following section a review of place theory literature, the foundational and applicable literature of environmental aesthetics, is reviewed.

Place Theory

The concept of ‘place’ is a commonly discussed idea within the fields of social science, environmental psychology, and human geography. These discussions attempt to delineate a difference between ‘space’ as a certain location, and ‘place’ which encompasses both location and its interactions with people on the physical, symbolic, and functional level. Due to the widespread use of the concept of place across disciplines, there are variations within its specific definitional formulation and approach.

In one formulation, place is articulated within a phenomenological framework, emphasizing subjective interpretation of a space. Design theorists (e.g. Norberg-Schulz, 1980) and humanistic geographers (e.g. Tuan, 1977) who employ a phenomenological framework seek to demarcate ‘place’ from ‘placelessness’ through a mode of individual experience, known as ‘sense of place.’ This approach is exemplified by the work of Relph (1976), *Place and Placelessness*. Relph’s work grew out of dissatisfaction with the 1970’s discussions of place, which he felt were philosophically and experientially anemic (Seamon & Sowers, 2008). In efforts to rectify the inadequacies of this perspective, Relph sought to fully understand the role of human experience in the definition of place. Adopting the research method of ‘a phenomenology of place’ (Relph, 1976, pp. 4–7), Relph attempted to understand place as the significant and inescapable dimension of human life and experience. Relph’s approach, along with other phenomenological based approaches, understands place as situated within individual, subjective, “bracketed”⁷ experience.

⁷ Bracketing is a term utilized in phenomenology which described the process of understanding a phenomena through the intentionally systematic process of setting aside layers of meaning such that only the pure experience remains. Such a process allows for a phenomena to be understood in its phenomenological purity.

In another formulation, primarily utilized in the empirical traditions of the social sciences, place is understood in more analytical terms. In contrast to a subjective, bracketed analysis of a sense of place, this formulation often tests empirically the extent to which differing dimensions of environmental meaning do or do not correspond. In early formulations these empirical tests sought correlations with the three primary dimensions developed by Osgood, Suci, and Tannenbaum (Osgood, 1957): evaluation, potency, and activity (EPA) (Canter, 1969; Collins, 1969; Hershberger, 1969). However, as further empirical investigation focused specifically on the relationships between people and the built environment, Osgood's primary dimensions were refined. This refinement is best represented by the work of Canter (1986, 1988, 1991), who offers the most developed analysis of place within the empirical formulation initially presented in *The Psychology of Place* (1977) Canter proposes that place is best defined as the intersection of three fundamental components: actions, conceptions (or meanings), and the physical environment (See Figure III-3). In addition to these three components, Canter also proposes that these three fundamental components of place are defined in terms of the "shared aspects of experience" (Canter, 1986, p. 218). These shared aspects of experience, as Canter explains, are most often defined or constructed via the social roles and rules of a setting (Groat, 1999, 2006; Sime, 1995).

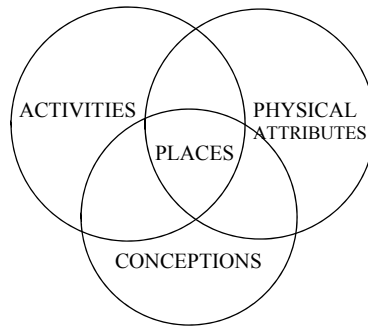


Figure III- 3 A visual metaphor for the nature of place

Although both approaches aim to understand place, there remains a critical difference between the approaches. Namely, where the phenomenological based understanding of place locates its understanding within the individual subjective perceptions, the empirical approach locates place understanding at the center of the shared aspects of experience defined by social roles and rules.

This distinction is significant in relation to the evaluation of the ML proposals for unchurched church architecture. Although the ultimate aim is for an individual to feel comfortable with the place of the church, the ML is based in broad sociological and demographic analysis, thus the ML seeks to alter place constructs at the group level of the unchurched. The motivation is to alter the shared ‘rules’ of church architecture and redefine the shared ‘roles’ of the unchurched. Therefore, Canter’s model of place serves as a useful tool in evaluating the relationship between the exterior design of the church (physical attributes) and church / unchurched perceptions of the church (perceived actions and conceptions). Consequently, this proposal utilizes Canter’s model of place as the theoretical foundation for understanding, categorizing, and analyzing the exploration between the exterior of Protestant church design and place constructs as held by the churched and unchurched.

In a similar fashion, numerous studies have also utilized Canter’s model of place as a foundation for empirical research of the built environment, such that it has been

considered the seminal theoretical model for a research based understanding of place (Groat, 2006). In the twenty-five years since its publication, Canter's model of place has served as a useful model for empirical research into people-environment relationships. For example, in Ann Lusk's (2002) doctoral research on place qualities of destinations along greenways, she utilized Canter's place model in order to develop in situ survey questions and more detailed interviews aimed at identifying the particular aspects of desirable place destinations. Additionally, Joongsub Kim's (2001) doctoral research on whether the aims of the New Urbanist development of Kentlands in Gaithersburg, MD—particularly an enhanced sense of community—were realized. In this research, Canter's model of place guided the creation of the survey questionnaire which asked sets of questions constructed from each part of the model, e.g. "How important are these features (followed by a list of 25 specific physical attributes) in (one of the four measures of sense of community) to Kentlands (or Orchard Village)? (Groat, 2006, pg. 17).

As in these studies, Canter's model of place is proposed to act as a key foil for understanding place. However, unlike the above studies where Canter's model served as the organizing theory for the research design, in this study, Canter's model of place will act as the primary organizing lens for the analysis of collected data and the interpretation of analysis results, letting the structure of the ML serve as the primary organizing element for the overall research design sequence.

Environmental Aesthetics

The research tradition of environmental aesthetics brings together two areas of inquiry found within empirical aesthetics and environmental psychology in order to

scientifically explore the relationship between physical stimuli and human response with the concern to improve the quality of the human habitat (Nasar, 1988). From these roots, environmental aesthetics research has two defining characteristics. First, inherited from empirical aesthetics, environmental aesthetics understands aesthetics broadly to include the exploration of environmental influences on the full range of human affect (Wohlwill, 1976). Secondly, inherited from environmental psychology, environmental aesthetics concerns itself with applied research which has the potential to improve the design of the environment such that it influences human affect in a positive way on the individual level and within the general public (Nasar, 1988).

These two emphases serve the present examination of the ML well. First, as the ML seeks to alter physical design to enhance human affect, environmental aesthetics serves as a foundational precedent for examining the relationship between environmental design and judgements and preference. Secondly, as the proposed research seeks to examine a design theory against broad public views, environmental aesthetics acts as a precedent for examining environmental judgements and preference in relation to the public as understood through the foil of experts and non-experts—or in the present case—churched and unchurched.

Environmental Aesthetics: Judgements and Preferences

Contemporary inquiry into the basis of aesthetic experience and judgements is rooted in the work of Gustav Fechner in the late 19th century. His publication of *Vorschule der Ästhetik* in 1876 argued that without empirical support, any system of aesthetics would be like “a giant with feet of clay”, and suggested that instead of

speculative aesthetics from above—which drew on consensus and deductive methods to generalize principles derived from expert intuitions—a more apt research approach would be rooted in empirical studies from below—which drew on objective measures gathered from large samples of ordinary individuals.

This approach to understanding aesthetic preference and experience was popularized in the 1970s by Daniel Berlyne (1971, 1974). Adopting Fechner’s research approach, and working within a behaviorist paradigm, Berlyne sought to bring together a unified theory that would integrate aesthetic experience with ideas regarding reward, motivation, and action. His model—known as the *psychobiological model*—argued that the foundation of aesthetic experience and preference was rooted in arousal potential, or the degree to which stimulus tended to increase arousal. As he suggested, since motivation was tied to arousal, whether something was considered rewarding—such as in aesthetic experience—was thus ultimately a matter of arousal.

Noting that organisms prefer moderate levels of arousal and find too much or too little arousal un-pleasurable, Berlyne’s experimental work identified three properties which affected arousal: psychophysical properties (e.g., brightness, loudness); ecological properties (e.g., associations with biologically beneficial conditions); and collative properties (e.g., properties of novelty, complexity, uncertainty, surprise, familiarity). His research further identified that the collative properties were the critical elements dictating aesthetic judgement. Working from an objectivist research paradigm, he then concluded that stimuli contain objective informational properties which influences arousal, motivates action (e.g., approach, avoidance, exploration) and creates experience (e.g., pleasure, interest). In subsequent decades, environmental scholars have sought to further

develop and augment Berlyne's research through a direct application to the built and natural environment.

Within the natural environment, the work of Kaplan (1982, 1988a, 1988b) exemplifies such research efforts. Starting from an evolutionary framework, Kaplan postulates that species have a fundamental ability to recognize the sorts of environments in which they function well. This is not a learned process, but an innate and immediate knowledge; drawing from the behaviorist stance adopted by Berlyne. Therefore, he continues, preference can be viewed as the outcome of the process in which individuals perceive things and spaces, reacting to their potential usefulness and supportiveness. These resulting preferences do not necessarily align with current functional perceptions, but what was functional during the evolution of the species. And for the human, preferred functions must align with two primary purposes: 'making sense' (i.e., the concern to understand and keep bearings on multiple scales); and 'involvement' (i.e. the concern to learn, figure out, and be stimulated) (Kaplan, 1988a).

When applied to the landscape, these primary purposes play out at the levels of the visual array and three-dimensional space. For the visual array, preference is related to levels of coherence (making sense) and complexity (involvement). For the level of three-dimensional space, preference correlates with legibility (making sense) and mystery (involvement). In short, humans prefer places that are involving and make sense or promise to make sense.

Within the exploration of the built environment, the research has spanned several decades. As Nasar (1994) notes, the results of this research have generally shown 1) that an increase in interest is associated with complexity; 2) that preference is associated with

moderate complexity in an inverted-U relationship; and 3) that preference is positively correlated with order (i.e. order, coherence, fittingness, congruity, legibility).

Numerous studies have sought to utilize Berlyne's framework to further explore these relationships between architectural design and preference, complexity, novelty, order, etc. The scope of this review will focus the discussion of exemplary literature and a brief survey of two recent studies as a representative of a larger body of this research tradition. Akalin et. al. (2009) explored the relationship between preference, complexity, and impressiveness on evaluations of house facades. Their hypothesis, drawing from previous literature by Berlyne (1974) and Wohlwill (1968), was that preference rates would be in a U-shaped relationship, with the highest preference for intermediately altered houses and that perceived impressiveness and perceived complexity would have a linear relationship. The results demonstrated this hypothesized inverted U-shape relationship between complexity and preference. In another study Reis et. al., (2012) examined the preferences for contemporary and historic building compositions in Porto Alegre, Brazil as it related to different levels of order and visual stimuli. Analyzing six different building compositions with 120 respondents, this study concluded that preference is positively correlated with the degree of order within visual stimuli.

The research conclusions from environmental aesthetics research serve as a useful precedent for this proposal. However, the primary focus of the proposal is not on the exploration of the aesthetic experience of exterior Protestant church design in general. Rather, the proposed research seeks to explore the relationship between the exterior aesthetics of Protestant churches and the assumptions implicit in and purported ML design principles. To that end, the broader environmental aesthetic literature serves

primarily as a precedent in the specific research aims of exploring the effect of proto-typicality on judgements and the effects of environmental roles on preference for building design features.

Environmental Aesthetics: Proto-typicality

At the end of WWII, the predominant psychological paradigms—including behaviorism—began to shift. During this time of methodological experimentation, Ulric Neisser (1957) began to re-consider the process of thought to be a multiple phased process. Summarizing a series of experiments and drawing together a series of disparate theories, Neisser published his book *Cognitive Psychology* (1967), thereby launching the start of cognitive psychology as a predominant psychological paradigm. In this text, and in particular in his publication *Cognition and Reality* (1967), Neisser proposed that perception depends on the skills and experience of the perceiver, which are formulated into cognitive schema. As he defines it, cognitive schema is the, “portion of the entire perceptual cycle which is internal to the perceiver, modifiable by experience, and somehow specific to what is being perceived. The schema accepts information as it becomes available at sensory surfaces and is changed by that information; it directs movements and exploratory activities that make more information available, by which it is further modified,” (Neisser, 1976, p. 54).

As the predominant paradigms in psychology shifted from behaviorism to cognitivism, which argued for the place of cognition within emotional response to stimuli, Berlyne’s theories were submitted to further empirical verification and re-interpretation. In the 1980s, Martindale (Martindale & Moore, 1988) and Whitfield

(1983) drew attention to the contradiction within Berlyne's model, which Martindale called the isohedonic anomaly. Martindale argued that within Berlyne's model, stimuli which hold the same arousal potential should be equally preferred; however, in reality there is a difference between the aesthetic experience of white noise and a symphony composition even though they hold the same arousal potential. Therefore, through a series of experimentations, Martindale concluded that the identity of a stimulus better accounted for aesthetic preference than collative variables (Martindale & Moore, 1988; Martindale, Moore, & Borkum, 1990; Martindale, Moore, & West, 1988). Martindale's proposal became known as the *prototype-preference theory*. This theory proposes that pleasingness is not simply derived from a reaction to collative properties. Rather, due to the role of cognition within emotional responses, pleasingness is derived from the judgement of typicality which gives rise to a stronger activation of the related salient cognitive categories.

Proto-type theory has been utilized in a broad range of studies across the fine and applied art domains, such as Whitfield and Wiltshire's (1982) study on the effect that prototypicality and perceived interest relate to design preferences of chairs. In the field of architecture, several studies have provided empirical support for the role of prototypicality in judgements. An instructive example in this approach is Groat's (1982) research into the meaning of postmodern architecture. This research study was interested in whether architects conceptualized works of postmodern architecture differently than lay people; the study tested the design theory hypothesis that postmodern architecture is more meaningful to the general public than modern buildings. In her conclusion, Groat noted that one of the primary constructs for respondents was that of type category. She

concluded that perception of alignment to type, or the perception of appropriateness of apparent purpose, undergirded judgments of success and appeal of a building (Groat, 1999). Or in other words, this study supported the idea that alignment to a perceived prototype is influential in individual's preference judgements.

Additionally, Allan Purcell has conducted several experiments exploring the organization of the built environment. In his initial study (Purcell, 1984b), Purcell asked research participants to judge diverse instances of church buildings in relation to their perception of degree of goodness of example as a church and interest level. Via a multidimensional scaling analysis of the results, Purcell concluded that the experience of the environment is prototypically organized. These results were further supported, and further nuanced, by nearly a decade of further research studies (Purcell, 1984a, 1984b, 1986; Purcell & Nasar, 1992) ultimately leading Purcell to conclude that most preferred buildings are those that deviate slightly from the perceived good, which is understood as the most typical, with the notable exception that architects preferred more prototypical discrepancy.

Similarly, the research of Groat has also suggested preference for prototypes is nuanced by a observed preference for slight variation of prototypes. Groat's (1984) examined the perception a building's contextual fit with its surroundings in relation to the building's design characteristics. The research studied the perceived contextual fit of 25 buildings by 73 non-architects, concluding that judgements of contextual fit are most correlated with judgements of façade design, and are most preferred when there was a relatively high level of replication between the buildings and the context. However, similar to Purcell, she notes that the research results indicate that it is not complete

replication or prototypicality that scores the highest preference rankings. Rather, it is the buildings that are mostly replicated, but are slightly off the prototypical replication that are the most preferred and judged to have the best contextual fit.

These research findings serve as both a foundational research rationale and critical starting point for the proposed research, which seeks to examine the validity of a design prescription and which proposes the intentional use of non-prototypical typologies in order to increase preference.

Environmental Aesthetics: Effects of environmental roles

In addition to exploring what foundational design characteristics of a stimulus undergird aesthetic preference and judgements, environmental aesthetic research has also sought to understand the effect that demographics and environmental roles have on one's aesthetic judgements. Working from the presuppositions of cognitive psychology, researchers have extensively examined the effect that environmental roles—particularly architect and non-architect—have on the development of cognitive schema and resulting judgements (Stamps, 1999).

This line of research inquiry began with Hershberger's (1988) observation that in Osgood's (1957) foundational study there were differing understandings between experts and non-experts. Inquiring whether this observation held true within the realm of building, Hershberger explored whether there was in fact difference between architects and non-architects in their judgements of architecture. In his research, Hershberger tested groups of students from two different universities that fit the profiles of graduating architecture thesis students, pre-architects, and non-architects. He asked each respondent

to rate connotative meanings of twenty-five building aspects on thirty semantic scales. The results of the research showed that architects (graduating thesis students) and non-architects (pre-architects and non-architects) differed significantly on 53 of 125 comparisons.

Continuing from Hershberger's original observations is the work of Robert Gifford (Brown & Gifford, 2001; Gifford, Hine, Muller-Clemm, & Shaw, 2002). In these two studies, Gifford and his colleagues tested to see whether architects were able to predict the public's aesthetic evaluations of architecture. In the first study (Brown & Gifford, 2001), they asked architects and laypersons to rate 42 large urban structures of diverse styles. Architects were asked to both make ratings themselves and predict, or try to mimic, a typical non-architect's impression. Non-architects were also asked to rate the structures. Results suggest that architects are unable to exchange their own criteria for the conceptual properties of the general public.

In attempts to further understand this phenomenon, Gifford et. al. (2002), sought to explore why architects and laypersons judge buildings differently. In this second study, architects and laypersons were asked to assess the aesthetic quality and six cognitive properties (complexity, clarity, friendliness, originality, meaningfulness, and ruggedness) of 42 buildings. Utilizing the lens model analysis, Gifford et. al. concluded that due to architects socialization by their education and profession, there exists an aesthetic gap between themselves and the public. Or in other words, architects have been regularly exposed to a different aesthetic value system, and thus have developed an expert cognitive schema. Therefore, when presented with stimuli, they process the stimuli in quite a different manner than non-architects, leading them to hold different

preferences and judgements. This conclusion, situated within cognitive psychological understandings of cognitive schema and processing fluency theories, verified a previous foundational research conclusion that due to the socialization of architects there is a judgement gap (Wilson, 1996).

Working from these foundational studies identifying the effect of environmental roles, numerous studies have confirmed differences between architects and non-architects' perceptions, cognitions, and aesthetic preferences (Akalin et al., 2009; Devlin, 1989; Fawcett, Ellingham, & Platt, 2008; Ghomeshi, 2013; Groat, 1982; Hershberger & Cass, 1974; Phil Hubbard, 1996; Imamoglu, 2000; Montañana, Llinares, & Navarro, 2013; T. Purcell, 1995; Wilson, 1990). These studies range from an examination of architects' versus non-architects' perceptions of contextual compatibility (Groat, 1988), understanding of meaning in postmodern architecture (Groat, 1982), perception of housing style (Nasar, 1989; Purcell, 1992), preferences for urban planning (Beer, 1983; Schuster, 1997), and preference for design approaches (Devlin & Nasar, 1989).

Within these studies, several key design principles and architectural design features are identified as correlating with non-architect preference. These studies identify the effect that design characteristics – such as complexity and order – have on design judgements, which has been discussed previously in this chapter. While nearly all studies listed above reaffirm general design principles (i.e. complexity, order), several studies identify key design characteristics which affect non-architect preference. For example, several studies have identified the relationship between roof shape and preference judgements. The work by Groves & Thorne (1988) identified roof design as a key design characteristic which affected non-architect preference in their study of cross-cultural

housing preferences. In this study, Groves & Thorne re-evaluated Canter and Thorne's research (1972) on environmental aesthetic preference of Scottish and Australian students. In their evaluation, they identified that the use of a pitched roof design over a flat roof correlated with preference. Additionally the work of Devlin and Nasar (1989) found that in addition to the use of building materials, horizontal orientation, alignment of entrances, and colors, roof design also correlated with aesthetic judgements highly related to preference for non-architects. Several decades later the work of Fawcett, Ellingham, and Platt (2008) re-confirmed these two earlier studies on the relationship between roof design and preference for non-architects. In this study, Fawcett et. all tested three physical features of suburban office buildings for correlation with preference judgements: roof shape, wall material, and architectural character. The results showed that roof shape most effected preference for non-architects and architectural character most effected preference for architects. Specifically, the study found that designs with a pitched roof where more preferred by non-architects and differed most between architect and non-architect preferences.

These numerous studies call attention to the critical role that differing cognitive schemas of different demographic groups play in aesthetic preference and judgements. Therefore, when considering the proposed differences between churched and unchurchd judgements, this literature serves as a critical theoretical framework. However, the proposed research also serves to augment current understandings. In Stamps (1999) meta-analysis of research examining demographic roles in aesthetic judgements, he concluded that several expert roles—such as architect vs. non-architect—have been well established and are not in need of further research. However, he also concluded that

more work is needed to better understand the effect of special interest groups on aesthetic judgements. To that end, the research will augment the current field through its examination of the special interest group of the churchd in relation to its counterpart – the unchurched.

Summary

In order to fully explore the aptness of the ML and the efficacy of the architectural design prescriptions, place theory and environmental aesthetics provide the necessary theoretical framework and research precedents. Accordingly, the following chapter works from these theoretical foundations to outline the dissertation research methodology and research design.

CHAPTER IV

Research Methods

Research Design Overview

This dissertation research examines the influential theory of architectural evangelism by testing the aptness of its ML presuppositions and the efficacy of its architectural design prescriptions. To do so, the research asks the questions:

- 1) What is the relationship between the design of Protestant church exteriors and the use of place construct systems held by church and unchurched individuals?
- 2) What is the relationship between the design characteristics of Protestant church exteriors and judgements of church and unchurched individuals?

Generally speaking, this research gathers church and unchurched judgements of a structured series of Protestant church images that represent a range of design profiles, and analyzes the results in relation to the claims of the ML.

Yet, in doing so, there are two fundamentally competing levels to the analysis of the ML. First, it must be noted that the ML design prescriptions are intended to be a universal set of guidelines for America. It must also be noted that although the ML intends to be a universal theory, its prescriptions are applied to the socially embedded institution of the local church situated in and serving a particular community context. These competing realities of the theory and its application, call for a mixed-method research design.

In order to attend to the specific universal assumption and prescriptions of the ML, the research design and analysis methodology will employ tactics utilized in the broader research of place theory and environmental aesthetics which serve as the theoretical foundation for the study. As will be discussed further in following sections, the proposed research methodology utilizes image-based sorting task interviews as a means to collect both quantitative and qualitative data. Further this data will be analyzed via multiple dimensional scalogram analysis and non-parametric statistics.

In order to attend to the highly contextualized nature of the local church, the research design must also include considerations of the church's context. Consequently, the research design of this dissertation utilizes a case study approach.

Following, the case study design will first be outlined, including the description of the four cases selected—providing a broad overview of the research organization. This overview is followed by a detailed description of the selected case studies. Next, the rationale for, and design of, the image-based sorting task interview will be detailed. In this, the specifics of image selection, participant selection, and interview design are provided. In the final section of this chapter, the analysis methodology is established utilized in the data analysis of the following chapters.

Case Study Design

According to Yin (2009), in his book on the design and use of case studies, he proposes a definition of a case study. He states, “A case study is an empirical inquiry that investigates a contemporary phenomenon in depth within its real-life context, especially when the boundaries between phenomenon and context are not clearly

evident...” Continuing, Yin notes, “The case study inquiry copes with the technically distinctive situation which there will be more variables of interest than data points, and as one result...benefits from the prior development of theoretical propositions to guide data collection and analysis,” (Yin, 2009, p. 18). Thus, in the present research where boundaries between the phenomenon (the design approach) and the context (the local church) are not distinct and there exists established theoretical proposition to test, the case study is applicable.

Though, as Yin notes (Yin, 2009, p. 63), the incorporation of case study into a mixed-method research design requires the researcher to identify the role the case study (or comparative case studies) play(s) within data collection and answering the research question. He proposes there are two basic approaches to nesting case studies within a mixed-method design. Figure 1 illustrates an example of two sample approaches to the nested comparative case study, presuming the use of a survey (Yin, 2009, p. 63).

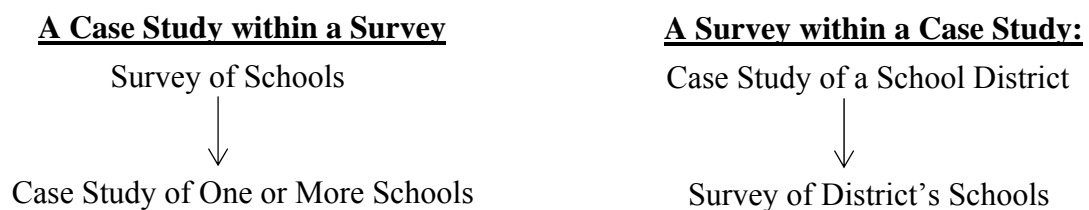


Figure IV- 1 Mixed Methods: Two Nested Arrangements

The dissertation research methodology takes the nested approach, as Yin labels it, of ‘A Case Study within a Survey’. In this approach the foundational aim is to explore the universality of the design approach as understood within the context of the local church. This is opposed to the approach whereby the local church becomes the primary research aim as illustrated by Yin’s ‘A Survey within a Case Study’—which departs from

the intention of the proposed research question. Figure IV- 2Figure IV- 2 Proposed Nested Comparative Case Studies illustrates the application of ‘A Case Study within a Survey’ to the present research.

A Case Study within a Sorting-Task Interview

Sorting-Task Interview testing foundation and prescriptions of architectural evangelism



Comparative Case Studies of Multiple Churches

Figure IV- 2 Proposed Nested Comparative Case Studies

Further, the present research utilizes a multiple case study design. By utilizing a multiple case study design, the research design allows for comparison between cases based on levels of replication—ultimately allowing for a more in-depth consideration of the context. As Yin (2009) instructs, the use and selection of multiple cases, “must be carefully selected so that it either (a) predicts similar results (a *literal replication*) or (b) predicts contrasting results but for anticipatable reasons (a *theoretical replication*),” (p. 54).

The case study design proposes four case studies within two different locations, with two case studies per location (See Figure IV- 3).

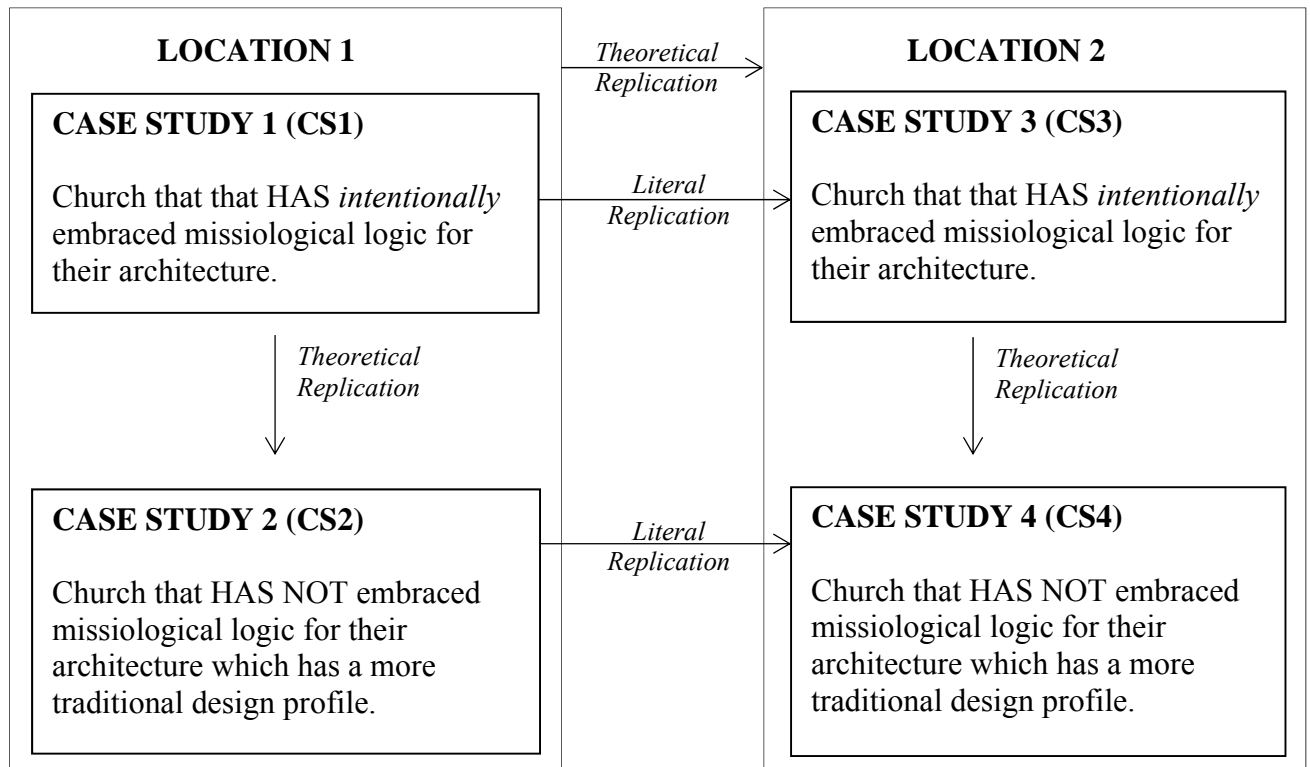


Figure IV- 3 Case-Study Replication Design

Case Study Selection

The case study design utilizes four churches in two locations.

Church Selection: The primary criterion for the selection of specific churches will be their alignment with the tested ML and resulting architectural approach, thus allowing for literal replications: CS1 / CS3 and CS2 / CS4. By utilizing alignment with ML as the primary criterion the research design allows for both perspectives to emerge within the interviews of the church leadership, and provide an equal sampling of church attendees who are regularly exposed differing approaches to church architecture.

In addition to the primary criterion of alignment with ML, there are several other considerations for the selection of case churches. First, in the selection of the individual

case studies, size is a consideration for several reasons: 1) its effect on the spatial dynamics and public presence of a the church building 2) its impact on a church's operating budget and resulting operations and outreach 3) the application of the research to the architecture profession which is trending away from mega-church facilities. To that end, it is proposed that all case study churches hold a worshiping population between 500-2500. This range puts the churches above smaller church congregations which have the potential of holding non-typical viewpoints and have limited funds for outreach, and a mega-church which is defined as 2500+ congregants. Further, this size aligns with the broader design trends in church construction which is seeking to limit the size of new churches to no more than 1000 – 1500 seat auditoriums.⁸

Secondly, there is the consideration of denominational affiliation. Noting that 1) the ML in question was derived from the Church Growth movement and predominately embraced by the evangelical Protestant population in America, and 2) Evangelicalism is a trans-denominational movement with several expressions, it is proposed that the case study selection is not tied to a particular denomination but is generally aligned with Evangelicalism. This insures a level of consistency of church priorities, emphasis, and worship styles between the cases.

The selection criteria described above allows for a literal replication between all churches general characteristics. Further, the design allows for literal replication between churches of similar architectural approach in different locations (CS1 & CS3;

⁸ Within the evangelical Protestant Church, there has been a steady rise of the predominance of the mega-church since the 1970s, whereby thousands of members would attend at a single location. Over the past decade this approach has been criticized for its ability to create community within the church as well as be an active member in all the surrounding communities it is drawing members from. In efforts to address these concerns, many mega-churches have embraced a campus or satellite model where the single church meets in numerous smaller buildings scattered throughout an area – effectively reducing the desired size of church spaces.

CS2 & CS4); also, allowing for a theoretical replication based on architectural approach of the church within the case study pairs, and differing location between the case study pairs.

Location Selection: The case study design utilizes two separate locations with two churches in each location to allow for both theoretical and literal replication. The two locations are 1) South East Michigan, in the Ann Arbor area (i.e. Dexter, Brighton / Ann Arbor); and 2) Southern California, in the Riverside area.

Both locations are also predominantly sub-urban with pockets of small urban centers located approximately 1-1.5 hours outside of major metropolitan areas. However, these two locations differ in some significant ways. First, the evangelical Protestant population in the Southern California Inland Empire has been significantly influenced by the Church Growth Movement ideas, claiming home to several of the leading churches which popularized the architectural approach in question (Crystal Cathedral, Saddleback Church, Calvary Chapel, etc), making it a key location to anchor case studies in. In contrast, the Ann Arbor, MI area's evangelical population is mainly influenced by mainline denominations and reformed traditions—which tend to embrace more traditional architecture on the whole—creating a key difference in the broader religious built environment.

These differences allow for a basic literal replication in the sub-urban setting, and allow for a theoretical replication between the different regions of the United States.

Case Study Church Descriptions

The case study churches utilized in the research are as follows in Figure IV- 9. In South East Michigan, 2|42 Church (2|42) is the selected case that has embraced architectural evangelism approaches, and Dexter United Methodist Church (DUMC) is the case that has not embraced architectural evangelism. In Southern California, East Hills Church (EHC) is the selected case that has embraced architectural evangelism, and Riverside Baptist Church (RBC) is the selected case that has not embraced architectural evangelism.

2|42 Community Church, Brighton Michigan⁹

2|42 Community Church (242) is a non-denominational evangelical church located in Brighton, MI—approximately 20 miles north of Ann Arbor, MI. Brighton, MI is a suburban community with a population of approximately 8,000. However, Brighton is part of a larger South-Lyon-Howell-Brighton urban area. The estimated median household income is approximately \$52,000 and is home to a population that is 94% white.

Since its founding in 2005, 2|42 has sought to live out its core ethos of love, authenticity, cultural relevance, fun, reproduction, creativity and simplicity. In doing so, 2|42 has embraced the contemporary evangelical church approach in ministry and architecture that holds its roots in the Church Growth movement. In this ministry model, church attenders are encouraged to take the next steps with God which include

⁹ All socio-economic demographic data presented in the following descriptions of the four church case studies is from www.citidata.com, accessed May 13, 2016.

incremental steps in the areas of ‘Honoring God’, ‘Love[ing] Each Other’, and ‘Impact[ing] the World’.

2|42 considers itself one church worshiping in three locations. Utilizing contemporary church planting approach of establishing carbon copy congregations in alternate urban areas, 2|42—broadly speaking—consists of their main campus in Brighton, one church in Ann Arbor, MI, and one church in Lansing, MI. The founding membership was 30 individuals in 2005. Since then, growth rates have ranked them as one of the 20 fastest growing churches in 2013, 2014, and 2015 by *Outreach* magazine. Current attendance across all three campuses is approximately 4000. Noting that each campus is independent financially, draws from different metropolitan areas, and has an average attendance between 1000-1500 individuals, this case study considers only the Brighton church campus—treating it as an individual church.

In efforts to match their building resources with their growing congregation, 2|42 constructed its Brighton campus church building in 2014 which included an 800-1000 seat auditorium and a host of community function spaces. The resulting church building was subsequently awarded a Solomon Award—an award granted to the best American Evangelical architecture.

The constructed building carries the central markers of the ML. It eschews all traditional markers of church design and embraces a secular typology for its building. The exterior is a host of primary colors and mega graphics emphasizing a large boxy massing. Closest to the street, the church first introduces itself to the community via its café, “The Commons” (far right of image).



Figure IV- 4: 2|42 Community Church Exterior Facade

As individuals are ushered from the main parking, they are faced with an entrance which is constructed of a large curtain wall and flat roof. The entrance directly leads to the church's main community space / foyer, which takes the form of an indoor soccer field.



*Figure IV- 5: 2|42 Church Building
Main Entry (Left); Main Community Space / Foyer (Right)*

In talking with 242 leadership, they noted that the use of secular architecture was very intentional. So much so, they hoped people would mistake them for a community center. The building was designed to put community functions first. When designing their structure, as one pastor noted, the aim was that individuals would have to first walk through at least one dedicated community space in order to get to any space that housed a church function.

Dexter United Methodist Church, Dexter Michigan.

Dexter United Methodist Church (DUMC) was founded by Judge Samuel Dexter in 1832. Although DUMC has historically aligned itself with the historical variants of Methodism throughout the centuries, and at present it is affiliated with the United Methodist tradition. Further, DUMC aligns itself and practices from a broadly evangelical orientation. DUMC is located in Dexter, MI—approximately 10 miles outside of Ann Arbor, MI. Dexter, MI is a semi-rural suburban community with a population of approximately 5,000. The estimated median household income is approximately \$70,000 and is home to a population that is 90% white.

From 1842 to 1992, DUMC housed itself in a small white traditional church building topped with a large steeple. In 1992, the congregation had grown large enough that they needed to relocate their congregation. In 1994, DUMC purchased the nearby Boy Scout Camp, and proceeded with a 20 year phased construction plan. Since their move, DUMC has grown to approximately 1000 members.

DUMC continues to grow in population and thus are in the process of planning the next phase of construction. In speaking with the leadership about this new construction, they affirmed that there was full intention to keep the church as a sacred place such that it can be a respite set apart from normal forms of life, and set within the natural landscape of Michigan.

This orientation towards fully embracing churchly forms is further demonstrated through the church's recent exploration into changing its name. Directly prior to the launch of building planning, the leadership explored the possibility of changing their name from Dexter United Methodist Church to a more generic version that emphasized

community over church. Options considered included River's Edge Community, Dexter United, and River's Edge Community Church. However, after consultation with the congregation and further deliberation, it was decided that keeping a churchly identification was an important aspect of the congregation. The church remains named Dexter United Methodist Church.

DUMC's current church building aligns with their sacred respite vision. The building is integrated into the landscape, yet remains recognizable as a church. Rising above the approximate 600-800 seat auditorium, is a prominent rising steeple, topped with a cross and displaying the United Methodist Emblem. Behind the steeple is a large sloping roof covers the sanctuary. The remaining building carries through the color, material, and transparency of the sanctuary amidst the natural vegetation.



Figure IV- 6: Dexter United Methodist Church Building

East Hills Community Church, Riverside CA

East Hills Community Church is an evangelical Reformed church located in Riverside, CA. The aim of EHC is to connect people to God, to each other, and to a more purposeful life. To do so, it has intentionally located itself on a site that is embedded

within a prominent neighborhood of Riverside known as Orangecrest, and holds a strong outreach emphasis to the neighborhood. The Orangecrest neighborhood has a population of approximately 17,000 individuals and is situated in the larger city of Riverside, a suburban community outside of Los Angeles, with a population of approximately 320,000 people. The median household income of Riverside is approximately \$54,000 and is home to a population that is 53% Hispanic, 31% White, 7% Asian, and 5% Black.

EHC describes itself as an Outreach-Oriented, Mission-Minded, Family-Focused, Biblically-Based, Christ-Centered church. In speaking with the leadership, they noted that they intentionally remain small enough to care about the individual and family. The church seeks authentic caring relationships instigated by unconditional love and intentional outreach to the community. A congregation of approximately 600-800 individuals, EHC is fully dedicated to reaching out to the 17,000 in Orangecrest.

While part of this outreach takes the form of special events such as neighborhood Super Bowl Parties, or providing facilities during nearby air-shows, one form of outreach is in their building location and design. Their current church building was constructed approximately 10 years ago under the direction of the previous pastor. Sharing the same outreach orientation, this pastor served the congregation not only as its minister, but also as a licensed architect.

EHC building is a building that eschews all forms of traditional church markers. It has no religious symbolism, a horizontal emphasis, no rising steeples or towers, no pointed arches, no stained glass windows, and a flat roof for the majority of the building. The building is situated back from the edge of the street, behind a large parking lot—intended to provide convenience and comfort for individuals driving in from the

neighborhood. With this design approach, the church seeks full integration –and resulting acceptance—with the neighborhood. It is not set apart in a sacred churchly way, but constructed at a residential scale.



Figure IV- 7: East Hills Community Church

Riverside Baptist Church, Riverside CA

Riverside Baptist Church is an evangelical Baptist church located in Riverside, CA. RBC purports itself to be a friendly church, advertising in their material that RBC is, “the end of your search for a friendly church.” RBC is located in central Riverside, a town of approximately 32,000 individuals with a median household income of \$54,000 and a diverse racial population.

Riverside is home to a number of Baptist churches due to the influence of California Baptist University and several denominational headquarters located in Riverside. However, RBC—a church of approximately 600-800—has taken a different approach than most Baptist churches. RBC shares a similar outreach orientation with the other Baptist churches, which includes the running of a Riverside Baptist Family Life Center. However, RBC has not embraced the approach of architectural evangelism like the majority of nearby Baptist churches.

Instead, RBC has fully embraced its traditional churchly building—often using the image of it as their main marketing image. Built in the 1970's RBC's building showcases many churchly elements including bell towers, traditional nave and aisle massing, raised primary floor, direct orientation and proximity to the street, and the use of traditional religious symbolism. Additionally, the RBC building design incorporates all of these traditional churchly elements with a regional mission style architecture, for which Riverside, CA is known for.



Figure IV- 8: Riverside Baptist Church

Church Attribute Comparison: The four case study churches and their characteristics, as seen in Figure IV- 9 and Table IV- 1: Matrix of Literal and Theoretical Replication of Cases Table IV- 1 following, align with the intended literal and theoretical replication design previously discussed.

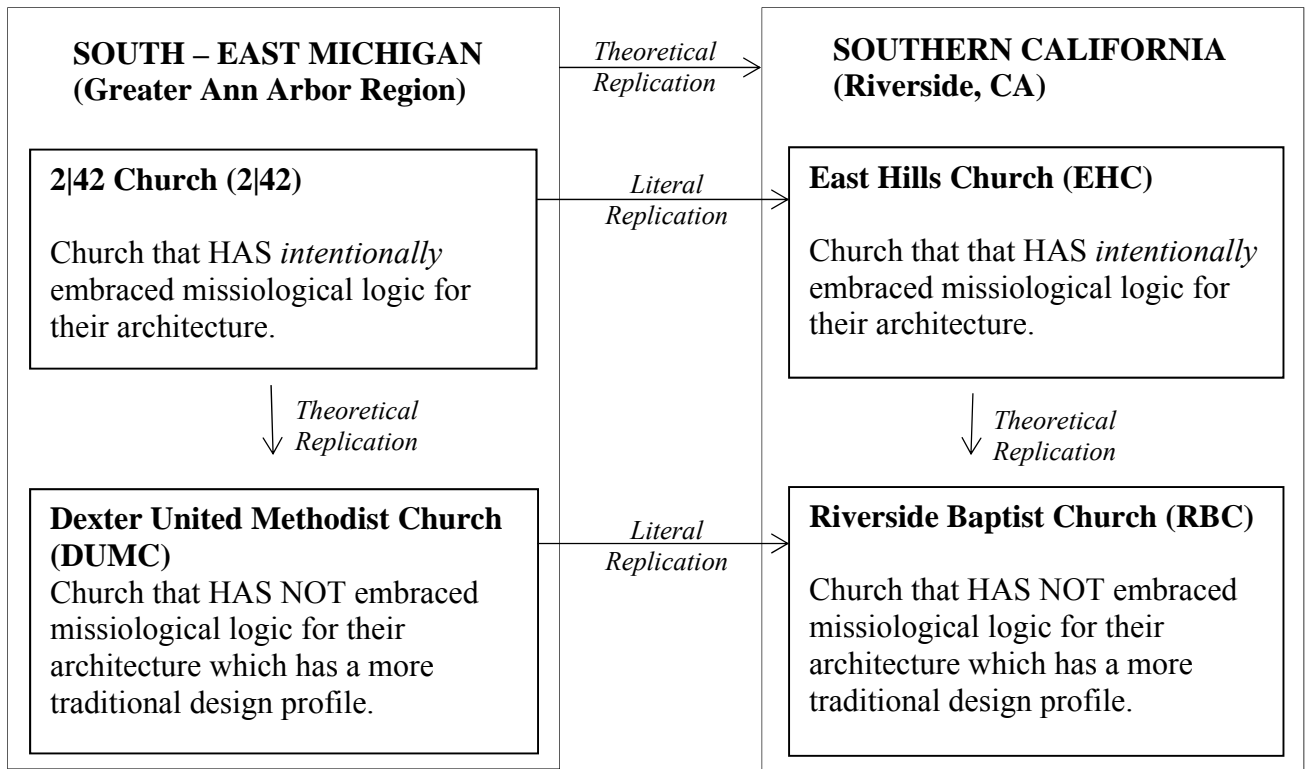


Figure IV- 9: Case-Study Church Selection Replication Design

Image-based Sorting Task Interview

The research design, as proposed, utilizes a nested case study with the image-based sorting task interview tactic as the primary means to collect qualitative and quantitative data for the universal exploration of the efficacy of the ML. The image-based sorting task contains two primary sections: free sorting tasks and directed sorting tasks.

Free Sorting Tasks: One of the primary foundations of the ML is the claim that the churched and unchurched hold different constructs of churched architecture. Thus, for example, according to the ML a churched individual would see ecclesiological elements for their spiritual significance and triggered connotative connections of welcome, community, security, and hope. However, the unchurched would see these elements as barriers for their participation, as unwelcoming, and as off-putting. Therefore, in order to explore this foundational claim of the ML, the first part of the image based sorting task interview is a free-sorting procedure.

Within the tradition of empirical investigations of place perceptions, the testing of *a priori* cognitive structures—often via semantic differentials (Osgood, 1957)—is a common practice. This approach utilizes a rating scale of predefined bipolar contrasting adjectives to measure the connotative meaning and people’s reactions to objects, places, and concepts. The predefined terms are chosen in relation to hypothesized theories such as Osgood’s categories of evaluation, potency, and activity or in relation to Berlyne’s collative variables.

However, in efforts to understand place constructs, apt criticism has been leveled against the approach of using *a priori* testing and cognitive structures. As Canter,

Brown, and Groat (1985) argue, the use of *a priori* structures restricts explorations of people's understanding of place. By predefining response categories, respondents are no longer free to respond within the full scope of their cognitive constructs.

Instead, Canter et. al. (1985; Groat, 1982) point to the established use of sorting tasks in psychological research. While sorting tasks range in their specific application from specified distribution of q-sorts to completely open-ended free sorts, the approach removes the *a priori* construct structure, allowing for participants to respond freely and the researcher to fully explore place constructs (Rosenberg & Kim, 1975). Further, as Groat argues (1982), the sorting procedure offers other advantages beyond eliminating *a priori* structures including being a relatively less time-consuming process, its flexibility in being either a verbal or nonverbal measure, and its efficacy in investigating multi-attribute domains.

Groat's (1982) research into the meaning of postmodern architecture is an instructive example. The research design sought to test the theory that architects and lay people have different sensibilities and that post-modern architecture successfully appeals to both sensibilities thus is more meaningful to the general public than modern buildings. Through the use of free sorting research procedures she was able to capture respondents' construct categories for the architecture without any restraint or *a priori* structure, ultimately concluding that the research results did not align with the presumptions articulated by advocates of postmodern architecture.

In a similar fashion, the free sorting task within the first part of the proposed image-based sorting task interview allows individuals freedom of response and a

subsequent full exploration of respondents' place constructs as a means to test the primary presupposition of the proposed ML design theory.

Directed Sorting Tasks: Although the use of *non-a-priori* testing methods is key for the exploration of place constructs, because the ML is proposing that a secular design typology approach will alter very specific semantic categories (e.g. comfort, emphasis, preference) the use of *a priori* structure testing via semantic differentials is appropriate for the second part of the image-based sorting task interview. The proposed directed sort is intended to explore the ML regarding 1) preference, 2) judgements of comfort, aesthetic appreciation, emphasis, and 3) judgements of proto-typicality. The directed sorting tasks will be formulated within a sorting task based 5-point Likert scale response format (e.g. very, somewhat, neutral / mixed, somewhat, very).

Procedure (See Table IV- 2): The research procedure will be administered via a one-on-one interview format, each lasting approximately 45 minutes (See Appendix A for the interview script). Each participant will be given the 25-building image set and after becoming familiar with the images, asked to sort the images into groups such that images within a singular group were considered similar in some significant way. The number of groups is up to the respondent, and images are allowed to be left out if they did not fit into any of the groupings. For sake of clarity, respondents will be asked to sort the images into groups according to one and only one criterion at a time, using the most significant or obvious criterion that came to mind first. After the sort, the participants will be asked to label and describe each grouping (categories) as well as to identify the criterion (construct) they sorted by. After the completion of the first free sort, the

procedure will be repeated two additional times with the instructions to select a criterion that had not previously been used.

Following the three free-sorting exercises, respondent preferences are explored. Again, with the 25-building image set, participants are asked to sort the buildings according to their preference into five provided groups: Like very much, Like somewhat, Neutral / mixed, Dislike somewhat, Dislike very much. Following this directed sort, participants are then asked to rank their preferences of the buildings from most liked to least liked, utilizing the previous preference sort as a start.

Next, the participants will be taken through a series of semantic differential directed sorts. Participants are asked to sort the buildings on a five-point Likert scale for comfortable – uncomfortable, beautiful – ugly, looks like a church – does not look like a church, looks like a church I've had experience with – does not look like a church I've had experience with. They are asked also to sort the images according to their perceived emphasis of the building (worship, church community development, broader community engagement). Following, the participants are asked to rank the importance of those three emphases in relation to their ideal conception of a church.

The last section of the interview procedure collects demographic information for participants' age, ethnicity, and church attendance patterns.

<i>Interview Procedure</i>	<i>Response Format</i>
<i>Free Sorting Task (x3)</i>	<i>Sort images into respondent identified categories</i>
<i>Preference Sorting Task</i>	<i>Sort images into 5-point Likert Scale for semantic differential: Like – Dislike</i>
<i>Preference Ranking</i>	<i>Rank images from 1 (most liked) to 26 (least liked)</i>
<i>Comfort Sorting Task</i>	<i>Sort images into 5-point Likert Scale for semantic differential: Comfortable – Uncomfortable</i>
<i>Aesthetic Quality Sorting Task</i>	<i>5-point Likert Scale for semantic differential: Beautiful – Ugly</i>
<i>Building Emphasis Sorting Task</i>	<i>Sort images into 3 categories: Worship Emphasis, Church community development emphasis, Broader community engagement and service emphasis.</i>
<i>Building Emphasis Category Ranking</i>	<i>Follow-up to the Building Emphasis Sort: ranking of the three emphasis categories in order of importance in the respondent's ideal conception of a church.</i>
<i>Proto-typicality Sorting Task</i>	<i>Sort images into 5 point Likert Scale for semantic differential: Looks like a church – Does not look like a church</i>
<i>Identification of Significant Features</i>	<i>Choose the two images that 'look most like a church' and the two images that 'look least like a church', respondents identify significant features</i>
<i>Past Experience Sorting Task</i>	<i>Sort images into 5 point Likert Scale for semantic differential: Looks like a church I've had experience with - Does not look like a church I've had experience with</i>
<i>Demographic Questions</i>	<i>Open ended demographic questions</i>

Table IV- 2 Summary Chart of Interview Protocol

Image Selection

The research procedure utilizes a set of 25 exterior color photographs of Protestant churches (see Appendix B for detailed image information and citation).



Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



Image 7



Image 8



Image 9



Image 10



Image 11



Image 12



Image 13



Image 14



Image 15



Image 16



Image 17



Image 18



Image 19



Image 20



Image 21



Image 22



Image 23



Image 24



Image 25

The use of simulation media to represent the architecture was chosen with the understanding that the approach is both commonly utilized (Stamps, 1990) and has been validated to correlate highly with responses to the real environment in previous studies (Hershberger & Cass, 1974; Howard, Mlynarski, & Sauer, 1971; Seaton & Collins, 1972).

Simulation media is commonly used to represent the physical attributes in studies of place experience; however, a frequent critique of their use is that images ineffectively explore the relationship between construct structures and specific physical characteristics (Wohlwill, 1976). Nevertheless, several studies have studied specific physical features' relationship to respondent judgements. Research includes Krampen's (1979) and Young's (1979) work on the relationship between façade details and building type recognition and Groat's (1988) work on exploring the physical features that were related to judgements of contextual compatibility. Further studies include the exploration of judgements of architectural composition of contemporary and historic buildings (Reis et al., 2012); the analysis of house façade features in relation to preference and judgements of complexity and impressiveness (Akalın et al., 2009); judgements of residential facades in relation to void-to-solid ratios (Alkhresheh, 2012); the characteristics of architectural design which foster well-liked urban settings (Gjerde, 2011), and the strategic use of representation in architectural massing (Akin & Moustapha, 2004).

With the aim to explore the ML's recommendation to eschew traditional church architecture exterior design as a means to attract the unchurched, this study aims to explore the varying characteristics of difference between secular and traditional church

architecture. To do so, four major physical categories of a church's exterior design profile, and the variety of sublevel variations, were identified:

- 1) Use of Ecclesiological Elements: religious symbolism, vertical emphasis in massing, bell towers, steeple, lifted-high cross, stained glass, pointed arches
 - a) Strong (S-ECC) – 3 or more elements
 - b) Moderate (M-ECC) – 1 or 2 elements
 - c) None (N-ECC) – no elements

- 2) Historic Style: Utilization of established historic or neo-historic revival style
 - a) Historic (HIS) – Façade designed in historic or neo-historic revival style
 - b) Non-Historic (NHIS) – Façade not designed in historic or neo-historic style

- 3) Roof Design
 - a) Pitched Roof (ROOF) – Visible pitched roof
 - b) Flat Roof (NROOF) – No visible pitched roof

- 4) Façade Composition Hierarchy
 - a) Pre-modern (PRE) – Façade hierarchy which typically incorporates a descending hierarchy of overall massing, secondary massing, geometric differentiation, ornament
 - b) Mixed (MIX) – Façade hierarchy which includes some pre-modern tendencies, but also includes a mix of modernist tendencies
 - c) Modernist (MOD) – Façade hierarchy which does not adhere to pre-modern hierarchy ordering

These four categories serve to provide a deeper understanding to respondents' judgements of 'traditional' church architecture by identifying various attributes and design profiles found within the spectrum between traditional and secular based church architecture. Specifically the categories of 'Use of Ecclesiological Elements' and 'Historic Style' serve to identify design characteristic commonly identified with traditional church design. Further, drawing from the previous literature review of research in environmental aesthetics, the category of 'Façade Composition Hierarchy' serves to provide indicators of basic environmental aesthetic measures of complexity and order (Groat, 1982), and the category of 'Roof Design' addresses previous findings within environmental aesthetics of preference for sloped roof design (Fawcett et al., 2008; Groves & Thorne, 1988). Thus, both 'Façade Composition Hierarchy' and 'Roof

Design’ act as a cross reference of previous research findings in environmental aesthetics research.

Each image is classified according to its sublevel within each of the four categories; designating a design profile for each image (See Appendix B). The image set was selected to ensure a balance between design profiles, with consideration for the relative prominence within the built environment of some combinations. The image set is balanced within the categories of ecclesiological elements – S-ECC (8), M-ECC (9), N-ECC (8); historic style – NHIST (13), HIST or NHIST / MIX (12); roof design – ROOF (16), NROOF (9); and compositional hierarchy – PRE (5), MIX (7), MOD (13). It should be noted that the image set is slightly weighted toward secular typologies in some categories due to the larger variety found within secular-typology-based church architecture (stadium / entertainment, education, industrial, commercial, corporate) (See Table IV- 3).

<i>Classification</i>	<i># of images</i>		<i>Classification</i>	<i># of images</i>		<i>Classification</i>	<i># of images</i>
S-ECC, HIS, ROOF, PRE	3		M-ECC, HIST, NROOF, PRE	1		N-ECC, HIST, ROOF, PRE	1
S-ECC, NHIS, ROOF, MIX	3		M-ECC, NHIST, ROOF, MIX	2		N-ECC, NHIST, ROOF, MIX	1
S-ECC, NHIS, ROOF, MOD	2		M-ECC, NHIST, ROOF, MOD	2		N-ECC, NHIST, NROOF, MIX	1
			M-ECC, NHIST, NROOF, MOD	4		N-ECC, NHIST, ROOF, MOD	2
						N-ECC, NHIST, NROOF, MOD	3

Table IV- 3 Classification of building photographs by design profile (See Appendix B for specific classification of a particular image.)

Research Participant Selection

A total of 50 individuals—25 churched and 25 unchurched—from each case study location was recruited for a total of 200 participants.

The church participants were drawn from within each case study church as a means to control their current primary church architecture experience. The individuals were chosen in proportion to the overall age and gender demographics of the total church population (See Table IV- 4).

As for the unchurched, 25 unchurched individuals were recruited from each case study church's direct proximity. Furthermore, the recruitment of the unchurched was done so that there was a basic demographic comparability to the corresponding church participants. Unchurched participants corresponding to the 242 and DUMC case study were recruited utilizing local advertising and snowball approach. Unchurched participants corresponding with the EHC and RBC case studies, due to regional practices required a different recruitment approach. For these southern California cases, unchurched research participants were offered a cash honorarium for the participation in the study and were recruited using a combination of aid from a local research recruitment agency and a snowball approach.

Participants self-classified as churched or unchurched via their response to the interview question, "Do you attend church-sponsored services or events at least once per month on average?" Individuals who answered yes was classified as churched. Classification of unchurched individuals began with a negative response.

There is an ongoing debate regarding the appropriate measure of church attendance inflation for American responders—and corresponding unchurched designation (Chaves, 2004; Marcum, 1999; Presser, 1998). In response, Barna Research Group has sought to bring clarity to the definition of unchurched by drawing out a distinction within the definition of unchurched which holds an unchurched individual to

be someone who has not attended a Christian church service within the past six months excluding special services for Christian. Barna Research Group proposes that there are actually two categories sub-categories of unchurched individuals. The first group of unchurched individuals are referred to as the *churchless*, or individuals who have never regularly attended church within their adult lives. The second group of unchurched, the *dechurched*, are individuals who used to be involved in a church but no longer are, or currently are on hiatus.

In the present research, the question, “At any point in your adult life did you regularly attend church-sponsored worship services or functions at least once per month on average?” will serve as the primary follow-up question to classify and confirm individuals as unchurched. For respondents that indicated this is not the case, they will be classified as unchurched. For respondents that indicated that they have attended church sponsored worship services previously in their adult life but no longer regularly attend, an open ended follow-up questions will serve to determine the nature and length of their intended ‘hiatus’. Those respondents that felt the hiatus was the regular pattern for the current and foreseeable future will be also classified as unchurched.

2 42	<i>Male</i>		<i>Female</i>	
<i>Age</i>	Unchurched	Churched	Unchurched	Churched
20-29	3	3	3	4
30-39	3	4	2	3
40-49	2	2	2	2
50-59	1	1	2	1
60-69	2	2	3	3
70-79	1		1	
<i>TOTAL</i>	12	12	13	13
<i>DUMC Churched: 92% Caucasian, 4% Asian, 4% Black</i>				
<i>DUMC Unchurched: 92% Caucasian, 4% Hispanic, 4% Asian</i>				
DUMC	<i>Male</i>		<i>Female</i>	
<i>Age</i>	Unchurched	Churched	Unchurched	Churched
20-29		1	2	
30-39	3	3	4	5
40-49	4	4	2	2
50-59	2	2	2	2
60-69	2	2	1	2
70-79	1	1	2	1
<i>TOTAL</i>	12	13	13	12
<i>DUMC Churched: 92% Caucasian, 4% Hispanic, 4% Other</i>				
<i>DUMC Unchurched: 92% Caucasian, 4% Hispanic, 4% Asian</i>				
EHC	<i>Male</i>		<i>Female</i>	
<i>Age</i>	Unchurched	Churched	Unchurched	Churched
20-29	1	2	1	
30-39	4	4	4	5
40-49	2	1	3	2
50-59	3	2	3	3
60-69	1	1	3	3
70-79		1		1
<i>TOTAL</i>	11	11	14	14
<i>EHC Churched: 52% Hispanic, 36% Caucasian, 8% Asian, 4% Other</i>				
<i>EHC Unchurched: 56% Hispanic, 36% Caucasian, 4% Asian, 4% Black</i>				
RBC	<i>Male</i>		<i>Female</i>	
<i>Age</i>	Unchurched	Churched	Unchurched	Churched
20-29	1		4	4
30-39	3	3	1	1
40-49	1	1	2	2
50-59	2	1	1	2
60-69	2	3	2	2
70-79	3	4	2	2
<i>TOTAL</i>	13	12	12	13
<i>RBC Churched: 44% Hispanic, 44% Caucasian, 8% Asian, 4% Black</i>				
<i>RBC Unchurched: 56% Hispanic, 32% Caucasian, 8% Black, 4% Asian</i>				

Table IV- 4: Research Participant Demographics

Analysis Approach

The quantitative and qualitative data recorded through the image-based sorting task interviews contains two sections: 1) free sorting tasks utilized to explore the relationship between exterior Protestant church design and place constructs held by churched and unchurched, and 2) directed sorting tasks utilized to explore the relationship between exterior Protestant church design and place judgements by churched and churched. Consequently, the analysis also takes on two distinct approaches.

The analysis of the free sorting data will occur in two parts. First, the construct categories generated by the free-sorting tasks will be collected and submitted to a content analysis utilizing the foil of Canter's three primary categories within his model of place (see Figure I- 2, p. 6). Secondly, the analysis will use nonmetric analysis via Multiple Dimensional Scaling (MDS) to analyze the underlying construal process, or constructs, that the respondents freely brought to the research stimuli. In this, the ML claims that churched and unchurched hold differing place constructs will be examined.

Turning to Groat (1982) one more time as an instructive example, this research held similar research goals to the proposed research in that it aimed to the verity of postmodern theory by exploring constructs of two different demographic samples via image based free sorting tasks. Through the use of free sorting research procedures Groat was able to capture respondents' construct categories. This data was then analyzed using a content analysis and compared with the claims of postmodern architecture. Following, she was also able to take the data and, via MDS and Small Space Analysis (SSA), demonstrate the subtle construct differences between the architects and

accountants. She concluded that these observed differences did not align with the presumptions of postmodern architecture advocates.

In the second part of the proposed image based sorting task interview, the interview protocol asks participants to complete a series of directed sorts in relation to pre-determined semantic differentials via a 5-point Likert scale response format. The analysis of the collected data aims to explore the judgements of churched and unchurchd in relation to the ML assumptions and in relation to traditional design profile characteristics. To do so, the data collected will be analyzed via a statistical analysis of correlation and significance. With that said, this proposal fully acknowledges criticisms of the use of parametric statistics in their assumed linearity of data, as it relates to rank order, Likert scale, and judgment data. Thus, it is proposed that the analysis of the directed sort data employ the use of nonmetric statistical testing. In particular, as a means to explore the correlation between directed sorting results (i.e. comfort, preference, aesthetic, emphasis, proto-typicality, past experience) a Spearman's Rho analysis will be used. To explore the effect that differing design profile characteristics have on recorded responses by individual and by demographic grouping, the data will be analyzed via a Kruskal-Wallis statistical test and related post-hoc measures.

Lastly, any qualitative data collected during the interview process will be utilized in the triangulation of research conclusions, and submitted to a content analysis where necessary.

CHAPTER V

Place Construct Analysis

Introduction - Free Sort Task

Architectural evangelism's ML holds a fundamental presupposition that church and unchurched individuals have different understandings of church architecture. Consequently, for example, church individuals may see the use of ecclesiological elements in a traditional design profile as spiritually significant and comfortable, whereas unchurched individuals may not have the same understanding. Therefore, as architectural evangelism reasons, due to this fundamental difference in how these two populations understand architecture, there is a need for the development of an unchurched church architecture.

To begin the examination of architectural evangelism theory, this foundational assumption is explored by asking the following research question:

What is the relationship between the design of Protestant church exteriors and the use of place construct systems held by church and unchurched individuals?

As described in Chapter IV, free sorting tasks were employed to collect data about church and unchurched understandings of church architecture. Participants were provided the image set and then were prompted to:

“...sort the buildings into groups that make sense to you—that is, so that the buildings within each group are similar in some significant way. The number of groups is up to you, and you may even leave some out if they don’t seem to fit in any group. There are absolutely no correct or incorrect answers.”

The prompt continued:

“At first glance you may likely see a number of ways in which these images could be placed into groups. However, the aim of the research is to get clarity on how people think about buildings. Therefore, please sort them into groups according to one and only one criterion at a time. Further, please use the most obvious or significant criterion that comes to your mind first.”

After the first free sorting task was completed and recorded, participants were asked to repeat the activity two more times using a different criterion that they had not used in previous sorts. Most participants completed all three sorts, but several participants declined some or all sorting tasks after the first sort. A total of 569 free sorting tasks were completed.

Content Analysis of Free Sorting Task Results

The use of the image-based free sorting task allowed for the *a priori* free observation of each individual’s place constructs. After each sorting task completion, the overall sorting criteria, sub-categorization, and image sorting placement was recorded. Following, a content analysis was performed in order to achieve a basis comparison. Content analysis is a procedure for identifying, “specific characteristics of communications systematically and objectively in order to convert the raw material into scientific data,” (Mostyn, 1985, p. 117). Specifically, a content analysis was performed on the participant-identified sorting criterion. Although there is a variety of operational

strategies for conducting a content analysis—i.e. qualitative and quantitative—the analysis of sorting criterion did not necessitate a detailed qualitative analysis due to the short and directly descriptive nature of sorting criterion. To conduct the analysis, each sorting criterion (or construct) and its constituent categories were transposed to index cards. Then the cards were organized into groups, utilizing as few of groups as possible while still maintaining similarity between constructs / constituent categories within the group. The content analysis was carried out by this investigator. Additionally, to ensure reliability, a colleague familiar with the research was also asked to group the free sort constructs into the categories previously identified. Of the constructs, 92% were sorted into identical categories, with the remaining 8% were discussed and reassigned based on consensual agreement.

As noted previous chapters, David Canter’s model of place serves as a useful model for understanding personal constructs of place. Accordingly, subsequent to the content analysis of the sorting criterion, a second content analysis was completed to identify which of the three sections in Canter’s model (i.e. physical attribute, conceptions, and activities) each of the sorting criterion categories best aligned with. In a similar fashion to the first content analysis, the second content analysis was carried out by this investigator and a colleague familiar with the research. There was a 98% agreement of the groupings, with the one criterion grouping dispute resolved through consensual agreement. The results of the analysis can be found in Table V-1 – Table V-4. Each table reports the number of times a sorting criterion was used per sample group, and reports the percentage of use in relation to the total number of sorts completed.

242				
<i>SORTING CRITERION</i>	<i>CH</i>	<i>% CH</i>	<i>UN</i>	<i>% UN</i>
<i>PHYSICAL ATTRIBUTE</i>				
Style	18	33.3%	14	20.3%
Ecclesiological Feature(s)	12	22.2%	7	10.1%
Looks like a Church	2	3.7%	6	8.7%
Building Shape	1	1.9%	9	13.0%
Aesthetic Quality	3	5.6%	4	5.8%
Building Material	1	1.9%	6	8.7%
Window Design	2	3.7%	3	4.3%
Building Typology	-	-	4	5.8%
Country vs. City	1	1.9%	1	1.4%
Color	-	-	2	2.9%
Size	-	-	2	2.9%
Landscaping	-	-	1	1.4%
<i>Total Physical</i>	<i>40</i>	<i>74.1%</i>	<i>59</i>	<i>85.5%</i>
<i>CONCEPTIONS</i>				
Interest in Entering	5	9.3%	5	7.2%
Welcoming	4	7.4%	2	2.9%
Cost of Construction	1	1.9%	1	1.4%
Warmth	1	1.9%	1	1.4%
Conservative or Liberal	1	1.9%	-	-
Architect Designed	1	1.9%	-	-
<i>Total Conceptions</i>	<i>13</i>	<i>24.1%</i>	<i>9</i>	<i>13.0%</i>
<i>ACTIONS</i>				
Church for Wedding	-	-	1	1.4%
Functional or Not	1	1.9%	-	-
<i>Total Actions</i>	<i>1</i>	<i>1.9%</i>	<i>1</i>	<i>1.4%</i>

Table V- 1: 242, Frequency of construct group use for churched (CH) and unchurched (UN)

<i>DUMC</i>				
<i>SORTING CRITERION</i>	<i>CH</i>	<i>% CH</i>	<i>UN</i>	<i>% UN</i>
<i>PHYSICAL ATTRIBUTE</i>				
Style	19	25.7%	22	30.6%
Looks Like Church	9	12.2%	8	11.1%
Ecclesiological Feature(s)	1	1.4%	8	11.1%
Building Material	1	1.4%	7	9.7%
Building Typology	1	1.4%	4	5.6%
Country vs. City	3	4.1%	2	2.8%
Landscaping	3	4.1%	1	1.4%
Aesthetic Quality	1	1.4%	3	4.2%
Size	1	1.4%	2	2.8%
Color	-	-	3	4.2%
<i>Total Physical</i>	<i>39</i>	<i>52.7%</i>	<i>60</i>	<i>83.3%</i>
<i>CONCEPTIONS</i>				
Interest in Entering	10	13.5%	5	6.9%
Welcoming	9	12.2%	-	-
Cost of Construction	1	1.4%	4	5.6%
Spiritually Directed	4	5.4%	-	-
Conservative or Liberal	1	1.4%	2	2.8%
Warmth	1	1.4%	1	1.4%
Open vs. Closed	1	1.4%	-	-
Sense of Belonging	1	1.4%	-	-
Family Friendly	1	1.4%	-	-
Effectiveness of Ministry	1	1.4%	-	-
Denomination	1	1.4%	-	-
Optimism / Hope	1	1.4%	-	-
Humbleness	1	1.4%	-	-
<i>Total Conceptions</i>	<i>33</i>	<i>44.6%</i>	<i>15</i>	<i>16.0%</i>
<i>ACTIONS</i>				
Primary Activity	1	1.4%	-	-
Entertainment vs. Worship	1	1.4%	-	-
<i>Total Actions</i>	<i>2</i>	<i>2.8%</i>	<i>0</i>	<i>0.0%</i>

Table V- 2: DUMC, Frequency of construct group use for churched (CH) and unchurchd (UN)

<i>EHC</i>				
<i>SORTING CRITERION</i>	<i>CH</i>	<i>% CH</i>	<i>UN</i>	<i>% UN</i>
<i>PHYSICAL ATTRIBUTE</i>				
Style	19	25.7%	21	28.8%
Ecclesiological Feature(s)	10	13.5%	12	16.4%
Looks like a Church	5	6.8%	5	6.8%
Window Design	4	5.4%	5	6.8%
Country vs. City	2	2.7%	6	8.2%
Aesthetic Quality	5	6.8%	4	5.5%
Size	5	6.8%	1	1.4%
Building Shape	2	2.7%	3	4.1%
Building Material	4	5.4%	-	-
Typology	-	-	3	4.1%
Color	1	1.4%	1	1.4%
Building Sturdiness	-	-	1	1.4%
Energy Efficiency	-	-	1	1.4%
<i>Total Physical</i>	<i>57</i>	<i>77.0%</i>	<i>63</i>	<i>86.3%</i>
<i>CONCEPTIONS</i>				
Welcoming	8	10.8%	4	5.5%
Interest in Entering	5	6.8%	2	2.7%
Cost of Construction	-	-	3	4.1%
Warmth	1	1.4%	1	1.4%
Light or Dark	1	1.4%	-	-
Displays Life	1	1.4%	-	-
Family Friendly	1	1.4%	-	-
Relevant to Youth	1	1.4%	-	-
<i>Total Conceptions</i>	<i>18</i>	<i>24.3%</i>	<i>11</i>	<i>15.1%</i>
<i>ACTIONS</i>				
-	-	-	-	-
<i>Total Actions</i>	<i>0</i>	<i>0.0%</i>	<i>0</i>	<i>0.0%</i>

Table V- 3: EHC, Frequency of construct group use for churched (CH) and unchurched (UN)

RBC				
<i>SORTING CRITERION</i>	<i>CH</i>	<i>% CH</i>	<i>UN</i>	<i>% UN</i>
<i>PHYSICAL ATTRIBUTE</i>				
Style	16	21.3%	18	24.3%
Look like Church	7	9.3%	8	10.8%
Ecclesiological Feature(s)	6	8.0%	8	10.8%
Country vs. City	3	4.0%	5	6.8%
Building Typology	1	1.3%	5	6.8%
Building Material	2	2.7%	3	4.1%
Size	-	-	5	6.8%
Color	-	-	4	5.4%
Window Design	-	-	3	4.1%
Building Shape	1	1.3%	2	2.7%
Aesthetic Quality	1	1.3%	2	2.7%
<i>Total Physical</i>	<i>37</i>	<i>49.3%</i>	<i>63</i>	<i>85.1%</i>
<i>CONCEPTIONS</i>				
Interest in Entering	12	16.0%	3	4.1%
Welcoming	5	6.7%	3	4.1%
Cost of Construction	2	2.7%	3	4.1%
Warmth	5	6.7%	1	1.4%
Spiritually Directed	4	5.3%	-	-
Age of Congregation	4	5.3%	-	-
Family Friendly	2	2.7%	-	-
Desire for Money	2	2.7%	-	-
Ministry Style	1	1.3%	-	-
<i>Total Conceptions</i>	<i>37</i>	<i>49.3%</i>	<i>10</i>	<i>13.5%</i>
<i>ACTIONS</i>				
Prayer is Occurring	1	1.3%	-	-
<i>Total Actions</i>	<i>1</i>	<i>1.3%</i>	<i>0</i>	<i>0.0%</i>

Table V- 4: RBC, Frequency of construct group use for churched (CH) and unchurchd (UN)

In the current content analysis, the three baseline elements of Canter's model of place—physical attributes, conceptions, activities--were used to categorize the participants' sorting constructs. However, Canter's model also recognizes the importance of the overlapping relationships between these three elements, namely: between physical elements and conceptions, between physical elements and actions, and between conceptions and actions. In such a system there is more potential nuancing for categories that, at face value, appear to take on multiple characteristics. For example, the category, "looks like a church" reads as potentially physical elements or potentially conception. However, the current research sought to identify which primary element of the model the participant was emphasizing, not through the category labels, but through participant explanations of the categories during the interviews. Returning to the example of "looks like a church" participants, nearly in all cases, began and completed their explanation of the category through description of physical features and not through conceptions. Therefore, the construct was identified as "Physical Element". Thus, via this approach, each construct use was placed in a primary section of Canter's model.

Frequency of Construct Use Analysis

As demonstrated by Table V-1 – Table V-4, several key observations emerge. The following section highlights similarities and differences between 1) church and unchurched individual frequency of use and between 2) the theoretical replication of case studies that have embraced architectural evangelism (242, EHC) the case studies that have not (DUMC, RBC).

Unchurched and church individuals differed in their percentage of use of physical elements and conceptions criterion. The largest percentage difference in the

frequency of criterion use observed is between the churched and unchurched utilization of physical element criterion versus conceptual criterion. Generally speaking, unchurched individuals' understanding of church architecture is primarily based on physical attributes. In all four case studies, unchurched individuals utilized criterion from the physical attribute grouping approximately 85% of the time (242 – 85.5%; DUMC – 83.3%; EHC – 86.3%; RBC – 85.9%). The remaining 15% of unchurched sorting criterion fell under the conceptions construct grouping (242 – 13%; DUMC – 16%; EHC – 15.1%; RBC – 13.5%). This stands in contrast to churched individuals. Generally speaking, churched individuals dedicated more sorts to the conception sorting criteria than unchurched individuals. Churched individuals dedicated 25% - 50% of their sorts to conceptual categories while unchurched only dedicated approximately 15% of their sorts.

Variation is observed between the theoretical replication of case studies that have embraced architectural evangelism and the case studies that have not. In the instance of the individuals that attend churches which have a more traditional design profile—and thus have not embraced architectural evangelism—there is approximately 20% - 25% increased use of conceptual construct criterion over the individuals that attend a church with a more secular design profile. Specifically, the individuals from DUMC utilized the conception grouping 44.6% of the time and individuals from 242 only utilized the conception grouping 24.1% of the time. In a similar pattern, individuals from RBC utilized conception categories 49.3% of the time while individuals from EHC only utilized conception categories 24.3% of the time.

Both churched and unchurched individuals infrequently utilized 'Action' sorting

Although there is a key difference between churched and unchurched individuals use of

physical attribute vs. conceptions, there is a similarity between groups in that the actions category is rarely used. In all four case studies, the percentage that the actions constructs utilized ranged between 0%-2%. In the case of 242, action constructs were used twice (1 CH, 1 UN). DUMC similarly only had the action constructs utilize twice (2 CH). In the southern California case studies, EHC produced no use of action constructs, and RBC had only one recorded use (1 CH).

'Style' is the most frequently used sorting criterion. The highest frequency use of any criterion, no matter case or church / unchurch, was 'style'. This criterion was nearly always utilized as the first sorting criterion—grouping the images into groups such as 'modern,' 'traditional,' and 'mixed.' The number of sub-categorization categories varied between individuals ranging from two simple categories of 'modern,' and 'traditional,' to a sort consisting of 6-8 sub-categories that included groupings such as, 'contemporary,' 'urban contemporary,' 'futuristic,' 'traditional – country,' 'traditional – city,' 'traditional-historic,' 'historic,' 'classical,' 'nostalgic,' 'Old-American,' 'Old – European,' 'Gothic,' 'Cathedral Style,' etc. Constituting between 25%-30% of all the sorts, the 'style' criterion was the primary mode in which individual understood and categorized church architecture.

'Ecclesiological Features' and 'Looks like a Church' were both frequently used sorting criterion, but their use varies between theoretical replication of church case studies. Two distinct, yet related physical attribute categories emerged in the free-sorting tasks. The first one was an observation of the use, or prominence, of ecclesiological features in the design of the churches. This included the sorting criterion such as, 'displays a cross,' or, 'has a steeple,' and often was implemented looking at multiple

ecclesiological features at once with the individual sorting by ‘prominent feature’ and sorting into subsequent groups of ‘cross, steeple, bell tower, none.’ A second similar, but distinct sorting criterion was used, most often phrased as, ‘looks like a church or not’. Although during the verbal processing of the sort, participants would mull over the use of ecclesiological elements, the groupings ultimately formed according to, ‘yes looks like a church,’ ‘no does not look like a church’, and ‘mixed’.

Between these two categories, there is an observable pattern of use within the church sample between the architectural evangelism cases (242, EHC) and more traditional profiled church cases (DUMC, RBC). In the case of 242 and EHC, the criterion of ‘Ecclesiological Feature(s)’ is utilized far more often than the ‘Looks like a Church’ criterion (242—12 vs. 2; EHC—10 vs. 5). This stands in contrast to the use by church individuals from DUMC and RBC which utilize ‘Looks like a Church’ more often than ‘Ecclesiological Feature(s)’ (DUMC—9 vs. 1; RBC—7 vs. 6).

‘Building Typology’ is a frequent criterion, and use more often by unchurched than church individuals. Generally speaking, unchurched participants utilized physical attribute criterion more often than church individuals and therefore on the whole had a higher percentage of use of individual categories. However, there is no consistent pattern in all the cases of a more frequent use of a singular physical attribute category except for ‘Building Typology’. ‘Building Typology’ criterion category included the sorts in which individuals sorted the images into groups according to the buildings perceived base typology. Examples of these sub-groups include, ‘church,’ ‘office building,’ ‘store,’ ‘sports arena,’ ‘government building,’ ‘school,’ ‘jail,’ ‘lodge,’ ‘barn,’ etc. Within all four cases, unchurched individuals utilized this sorting criterion more often than their

counterpart churched individuals. In the case of 242, the unchurched utilized building typology 4.8% of the time to 0.0% for churched. DUMC unchurched individualized use it 5.6% vs. churched 1.4%. For EHC the category was used 4.1% of the time for unchurched to the 0.0% of churched. Finally, in RBC, unchurched used 'Building Typology' 6.8% of the time compared to 1.3% of the time for the corresponding churched individuals.

'Aesthetic Quality' sorting criterion is utilized more frequently by church members attending a church designed with architectural evangelism principles than for church members attending a more traditionally designed church. Although the physical attribute criterion of aesthetic quality was not the most frequently utilized criterion for churched individuals, there is still a discernable pattern in its use. Aesthetic criterion sorts include criteria such as 'beautiful or not,' or 'good design or not,' as well as 'pleasing to the eye or not.' The use of these criterion differed in frequency between churched individuals from the architectural evangelism cases and the more traditional design profile cases. In the case of 242 and EHC, the use of aesthetic quality criterion was utilized more often than in the case of DUMC and RBC respectively (242 – 5.6%, DUMC – 1.4%; EHC – 6.8%, RBC – 1.3%).

Churched individuals have a larger variety of conception criterion than unchurched individuals. As observed previously, churched individuals use conception category criterion far more frequently than the unchurched. Additionally, churched individuals also use a larger variety of conception category criterion as well. The use of conception criterion by unchurched is limited to the same four criterion, 'Interest in Entering,' 'Welcoming,' 'Cost of Construction,' 'Warmth'. These categories are also

used by the churched. But in addition, churched individuals use additional categories such as, 'Family Friendly,' 'Open vs. Closed,' 'Sense of Belonging,' 'Denomination,' 'Age of congregation,' 'Ministry style,' 'Conservative vs. Liberal,' and 'Spiritually Directed.' The increased variety of churched conceptual categories demonstrate a more developed level of conceptualization of church architecture. Churched individuals extrapolated building design observations into perceptions of ministry approach, congregation population, and theological orientation. This a level of conceptualization is not observed in unchurched responses.

The use of 'Spiritually Directed' criterion varies between church cases. One of the churched conception criterion, 'Spiritually Directed,' has an observable pattern of use between architectural evangelism cases and their counterparts. In the cases of more traditional design profile churches, the churched individuals utilized the sorting criterion 'Spiritually Directed' approximately 5% of the time (DUMC – 5.4%; RBC – 5.3%). However, churched individuals from the architectural evangelism churches, this criterion was never utilized.

The criterion 'Comfort' was not utilized by unchurched respondents. One of the key observations in the analysis of frequency of sorting criterion utilized is the absence of the criterion 'comfort' for the unchurched. The theory of architectural evangelism places a heavy emphasis on the comfort of the unchurched as it relates to architectural form. However, in the 291 free sorting exercise completed by unchurched individuals, not once was the criterion of 'comfort' directly utilized.

Granted, the criterion of 'Welcoming,' was utilized between 0%-4% of the time by unchurched. However, the sub-categories of the 'Welcoming' sorts do not express

ideas of comfort. Sub-categories of unchurched ‘welcoming’ included ‘Cold / Modern,’ vs ‘Warm / Established;’ ‘Boring / Plain,’ vs ‘Warm / Welcoming.’ Other sub-groupings included, ‘Inviting / Warm’ vs. ‘Not Inviting.’

Additionally, the unchurched did utilize the category ‘Interest in Entering’.

However, similar to ‘Welcoming,’ this criterion did not have the connotation of comfort. Instead, the sorting groups often took the formation of ‘Interested in entering to see inside,’ or ‘Interested to see if beautiful inside,’ ‘Catch eye – go see,’ and ‘Draws me to it.’ The connotation of the ‘Interest in Entering’ criterion arguably is based on observations of physical attributes and not on conceptions of comfort.

Overall, the frequency of use analysis reinforces architectural evangelism presuppositions that church and unchurched understand church architecture differently, but simultaneously calls into questions the theory’s proposal as to how each group understands church architecture. First, architectural evangelism suggests that church and unchurch individuals understand architecture differently. The above analysis suggest the general accuracy of this presupposition. As observed, unchurched individuals primarily (85% of the time) understand church architecture in terms of physical attributes, and to a much lesser extent in conceptual categories (15%). However, church individuals are more balanced between their use of physical attribute and conception categories—with nuance between whether they attend a more traditionally designed church or not.

Although this supports the general notion of a difference in thinking between the church and unchurched, architectural evangelism’s reliance on the relationship between physical attributes and constructs may be misplaced. Architectural evangelism’s design

prescriptions are rooted in the idea that if the church can change its architecture it can change the conception of the church as held by the unchurched. This idea has some grounding, noting the 85% physical attribute, 15% conceptual relationship for the unchurched. However, this ratio also provides a critique to the full reliance on the presupposition of the direct relationship between physical attributes and conceptual understandings for the unchurched.

Additionally, the observation of the absence of a ‘comfort’ criterion of unchurched provides a critique to architectural evangelism. Much of the ML of architectural evangelism is based on the removal of barriers of comfort for unchurched. However, as observed above, in no instance did the unchurched utilize a sorting criterion of ‘comfort.’ This misalignment between the ML emphasis and observed unchurched constructs calls into the question the aptness and efficacy of architectural evangelism foundations.

Place Construct - MDS Analysis

The frequency of criterion use analysis reveals key differences and similarities between how churched and unchurched individuals understand church architecture. However, this analysis has an *a priori* assumption of the separation of groups (churched and unchurched). In order to explore fully whether there is a difference between the use of place constructs between churched and unchurched individuals, the analysis needs to be carried out at the individual level—without *a priori* assumptions. To do so, a multidimensional scalogram analysis (MDS) of individuals’ sorting criterion use was carried out. MDS is a multivariate analysis approach which utilizes graphing to examine patterns of responses in data—and in this case in the use of sorting criterion. In an MDS

analysis, the relationship between all respondent responses is plotted in a two dimensional space such that the closer the points are together on the plot, the more similar they are in their pattern of response (Zvulun, 1978).

In preparation for MDS analysis, a similarity matrix was prepared matching individual participants, per case study, against the use of the major sorting criterion established in the content analysis reported in Table V-1 – Table V-4. It should be noted that an MDS analysis seeks to plot multi-variate data within a two-dimensional space such that categories of variables are revealed within spatial partitioning (Borg, Groenen, & Mair, 2013). However, when more than two variables are plotted in 2-dimensions, the results cannot be perfectly mapped and a degree of error is added to the plotting of the points. The accuracy, or goodness of fit, of the MDS plot is indicated by the stress statistic, calculated based on Kruskal's stress formula and iterations of S-stress. In an MDS plot, the lower the stress the value, the higher the goodness of fit. Thus the stress value should be as low as possible.

In the present MDS analysis, a two dimensional space is used to plot more than two variables (242 – 15, DUMC – 16, EHC – 15, RBC – 18). However, the stress levels of the analysis are arguably within an acceptable range. Despite some stress induced inaccuracy of the placement of individual points, if the MDS demonstrates distinct spatial partitioning, then the analysis will verify and define the essential structural relationship between respondent's understandings of church architecture.

In the MDS plots below (Figure V-1 – Figure V-4) each point represents one individual. 50 points are graphed per plot representing the 50 respondents within each case study. Points 1-25 are churched respondents, and points 26-50 are unchurched

respondents for each case. If churched and unchurched respondents understand church architecture differently, we would expect there to be an observable spatial partitioning between churched participants (1-25) and unchurched participants (26-50).

An analysis of the MDS plots in Figure V-1 – Figure V-4 demonstrate that there is a generally distinguishable spatial partitioning between churched and unchurched participants such that a diagonal line can be drawn between the groups. As demonstrated by the graphs, there are a few exceptions to the spatial patterning such that, for example, one or two participants from the one group fall on the other side of the line (indicated by colored marker). However, there remains a strong general spatial pattern, suggesting that there is a distinguishable difference in how churched and unchurched individuals conceptualize and understand church architecture. Further, since this demarcation can be found in all four case studies, the results of the present MDS analysis suggests that there is generally a consistent difference in how churched and unchurched understand church architecture. These results support the frequency of use analysis above, and ultimately support the foundational presupposition of architectural evangelism that churched and unchurched understand church architecture differently.

In addition to the clear universal spatial demarcation between churched and unchurched individuals, there are further spatial patterning to consider. Although not as distinct as the demarcation between churched and unchurched, each plot shows a central cluster for each CH and UN, and then several points outside of that central cluster. After close examination of responses of these participants, the points outside the cluster differed in their use of ‘style’ categories. Specifically, these participants either did not use ‘style’ construct or used it for several of their sorts.

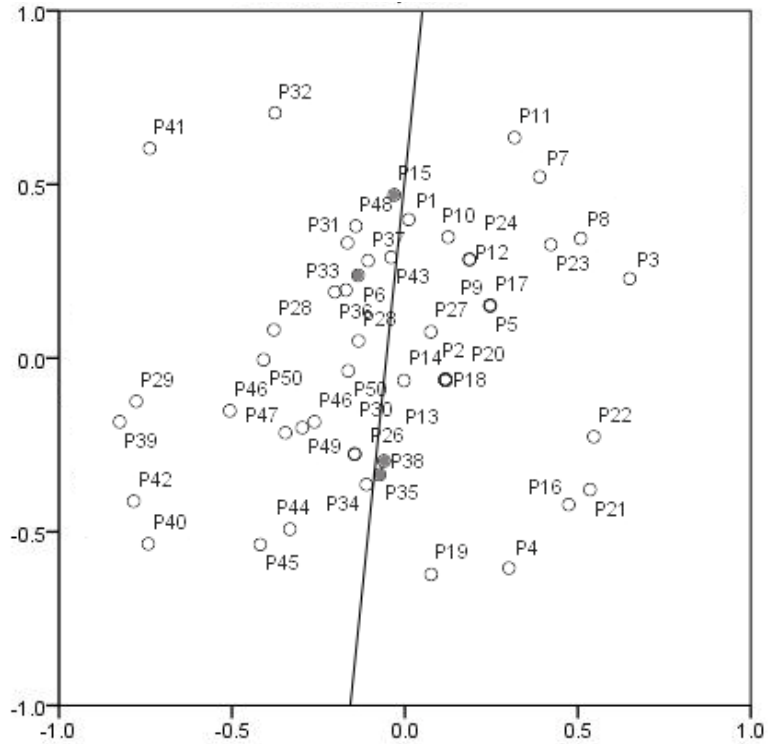


Figure V- 1: 242 MDS Analysis, Use of construct groups
 1-25: Churched Participants; 26-50 Unchurched Participants; Normalized Stress = 0.08820

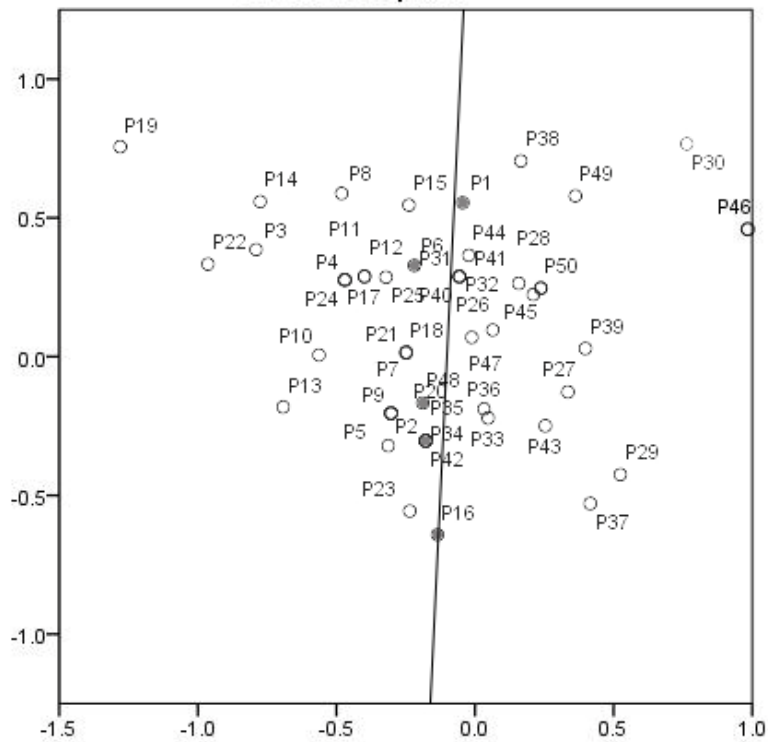


Figure V- 2: DUMC MDS Analysis, Use of construct groups
 1-25: Churched Participants; 26-50 Unchurched Participants; Normalized Stress = 0.09150

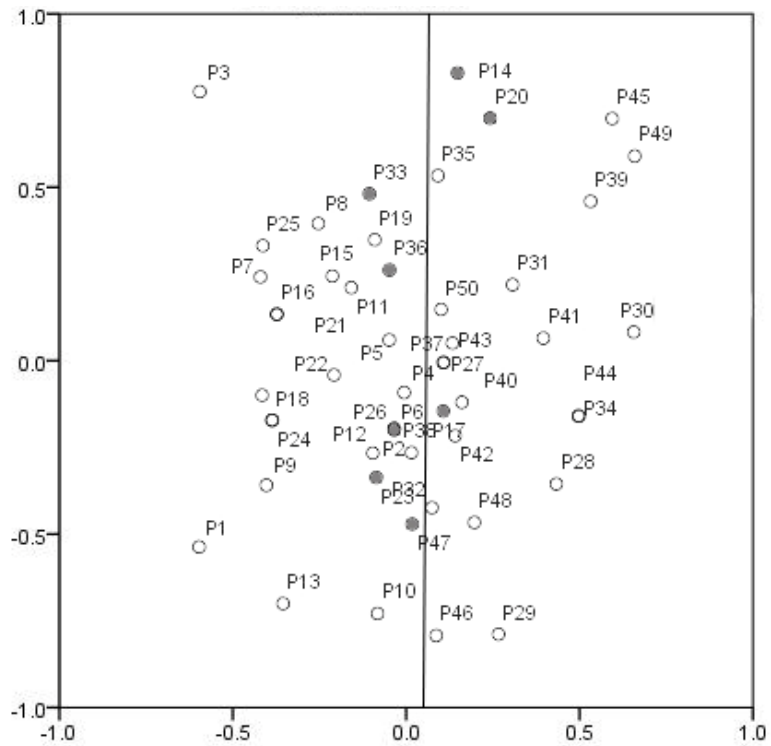


Figure V- 3: EHC MDS Analysis, Use of construct groups
 1-25: Churched Participants; 26-50 Unchurched Participants; Normalized Stress = 0.08078

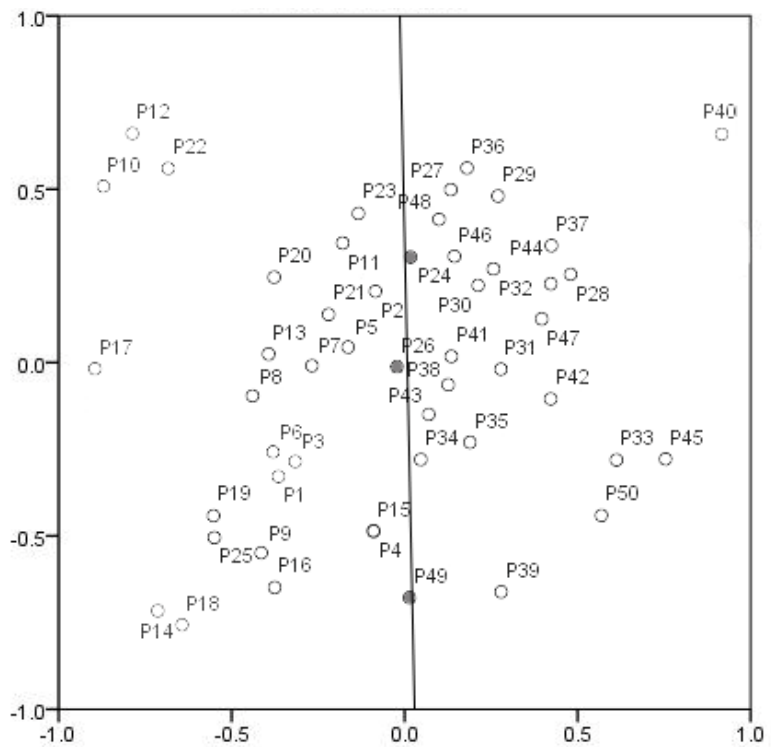


Figure V- 4: RBC MDS Analysis, Use of construct groups
 1-25: Churched Participants; 26-50 Unchurched Participants; Normalized Stress = 0.08872

A Distinctive Unchurched Understanding of Church Architecture

The results from the frequency of use analysis and MDS analysis above support the presupposition of architectural evangelism which postulates that churched and unchurched individuals understand church architecture differently. The frequency of use analysis demonstrated that a key difference between churched and unchurched such that unchurched primarily understand church architecture in terms of physical attributes. This is in contrast the churched individual constructs which is made up of both physical attributes and conceptual constructs, in varying ratios between church members in more and less traditional church buildings. In addition, the increase in use of conceptual constructs use by churched respondents is further amplified by the increased variety of conceptual construct categories. This stands in contrast to the limited variety of conceptual categories employed by the unchurched.

The limited variety of conceptual categories by the unchurched is particularly notable in the fact that the construct of ‘comfort’ was not utilized by the unchurched—a primary construct that architectural evangelism seeks to engage. The following chapter explores this misalignment further. Specifically, the following chapter examines the relationship between the judgments of comfort and the design profile of church architecture as it relates to the design prescriptions of architectural evangelism.

CHAPTER VI

Judgements of Comfort

The Effect of Design Profile Characteristics on Judgements of Comfort¹⁰

As discussed in the previous chapter, architectural evangelism grounds its ML and design prescriptions in the presupposition that churched and unchurched individuals have a different understanding of church architecture—and therefore church architecture must be evaluated and reconsidered. Following, the ML continues to reason that church architecture must be comfortable and welcoming for the unchurched in order to draw the unchurched, and should consequently seek to remove any barriers to unchurched conceptions of comfort (ML-2, pg. 21).

One such barrier proposed by architectural evangelism is that an ecclesiological building typology and traditional church markers are a barrier for the unchurched due to their unfamiliarity (ML-3, pg. 22). Therefore, in order to remove this barrier, churches should adopt architectural forms which the unchurched are familiar with as well as seek to eliminate traditional markers of a church. Specifically, the ML prescribes the use of

¹⁰ A variance exists between the order of the directed sorts interview protocol (see pg. 67) and the order of the following analysis chapters. The interview protocol order was established so that respondents could first provide preference judgements prior to considering further factors of their preference. The analysis order, and order of proceeding chapters, was established so to align with the framework of the ML under examination.

secular building typologies such as corporate, commercial, entertainment, sporting, or industrial for the design of churches.

As explored in the previous chapter, unchurched respondents seemingly do not hold a ‘comfortable’ construct of church architecture. Therefore, to specifically test architectural evangelism’s claims regarding the relationship between building design and comfort, the research utilized a directed sorting task specifically focused on this proposal.

Churched and unchurched participants were provided with the image set and subsequently asked to imagine that they were to attend a church sponsored service or event. They were then prompted to sort the images based on the level of comfort they would have walking into each of the buildings. The categories provided were: Very Comfortable, Somewhat Comfortable, Neutral/mixed, Somewhat Uncomfortable, Very Uncomfortable. Data was collected as to how each respondent sorted each of the 25 images. Subsequent to all data collection, respondent’s specific response for each of the 25 buildings was converted into numeric ordinal data: 5 – Very Comfortable, 4 – Somewhat Comfortable, 3 – Neutral / Mixed, 2 – Somewhat Uncomfortable, 1 – Very Uncomfortable.

In order to explore the question of what effect specific design profile criteria has on individual’s judgements of comfort, the data was then analyzed to determine whether each of the four design profile characteristics (ECC, HIST, ROOF, FAC, see pg. 71) statistically affected judgements of comfort or not. To do so, a Kruskal-Wallis test was conducted for each corresponding combination of judgement and building design profile characteristics. Results of the analysis are seen in Table VI-1.

242 Comfort		CHURCHED		UNCHURCHED	
VARIABLE	df	<i>H</i>	<i>p-value</i>	<i>H</i>	<i>p-value</i>
Ecclesiological Elements	2	16.7	< 0.05	54.1	< 0.05
Historical Style	1	4.4	< 0.05	63.1	< 0.05
Roof Design	1	5.0	< 0.05	52.9	< 0.05
Façade Composition	2	29.0	< 0.05	140.6	< 0.05

DUMC Comfort		CHURCHED		UNCHURCHED	
VARIABLE	df	<i>H</i>	<i>p-value</i>	<i>H</i>	<i>p-value</i>
Ecclesiological Elements	2	33.1	< 0.05	55.0	< 0.05
Historical Style	1	4.6	< 0.05	32.4	< 0.05
Roof Design	1	26.2	< 0.05	27.7	< 0.05
Façade Composition	2	99.9	< 0.05	129.7	< 0.05

EHC Comfort		CHURCHED		UNCHURCHED	
VARIABLE	df	<i>H</i>	<i>p-value</i>	<i>H</i>	<i>p-value</i>
Ecclesiological Elements	2	14.6	< 0.05	30.8	< 0.05
Historical Style	1	2.13	0.14	22.0	< 0.05
Roof Design	1	1.39	0.24	8.1	< 0.05
Façade Composition	2	62.2	< 0.05	72.6	< 0.05

RBC Comfort		CHURCHED		UNCHURCHED	
VARIABLE	df	<i>H</i>	<i>p-value</i>	<i>H</i>	<i>p-value</i>
Ecclesiological Elements	2	49.5	< 0.05	31.0	< 0.05
Historical Style	1	20.3	< 0.05	39.2	< 0.05
Roof Design	1	21.1	< 0.05	20.1	< 0.05
Façade Composition	2	89.0	< 0.05	100.1	< 0.05

Table VI- 1: Kruskal-Wallis Test of effect of design profile characteristics on comfort ranking

The results of the Kruskal-Wallis test indicate that in nearly all cases, design profile characteristics do statistically affect judgements of comfort. In only one case, EHC churched sample, there was not a statistically significant effect from all four design characteristics. In this EHC churched sample, the use of historic style and roof design where not statistically significant factors in judgments of comfort.

The Kruskal-Wallis test allows for the statistical examination of whether a design characteristic affects comforts of judgement. However, this statistical test does not

directly indicate how the characteristic affects comfort judgements. Therefore, to explore the specific relationships between design profile characteristics and comfort judgements, boxplots were generated for the relationship between each design characteristic and corresponding judgment of comfort. Boxplots were separated into churched and unchurched responses for comparison (Fig. VI-1 - Fig. VI-16).

A boxplot is an exploratory graphic utilized to examine significance of subcategories of variables. In the case of the present research, it is utilized to graphically analyze which sublevel is statistically significant for the response variable.

A box-and-whisker plot graphs several elements. First, the dark line in the center of the box marks the median, or mid-point of the data. Secondly, the box above and below the median line together demarcates the inter-quartile range, or the middle 50% of the data. Each of the upper and lower boxes represents 25% of the data, or the upper quartile and lower quartile respectively. The whiskers, or vertical lines emerging from the center of the inner quartile boxes, represent the data which is outside the middle 50%. The small horizontal line ending a whisker indicates the minimum and maximum value excluding outliers. At times, a boxplot will graph small circles beyond the whiskers of the graph. These circles document any outliers, defined as any data point more than $3/2$ times of the upper quartile.

In the graphs below, the x-axis indicates the design characteristic sub-level, and the y-axis indicates the comfort judgment ranking (i.e., 5 – Very Comfortable, 1 – Very Uncomfortable). Accordingly, a sublevel box with a median line and interquartile box that is graphed higher in the chart, the more comfortable that particular sublevel is perceived.

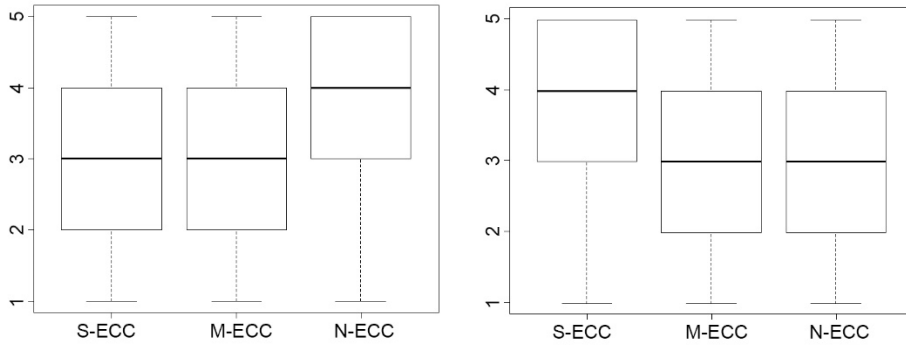


Figure VI- 1: 242- Boxplots representing effect of ECC on comfort: CH (Left) UN (right)

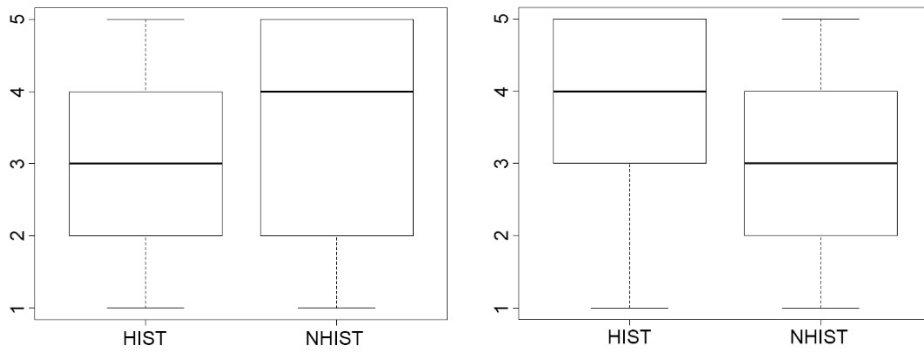


Figure VI- 2: 242- Boxplots representing effect of HIST on comfort CH (left), UN (right)

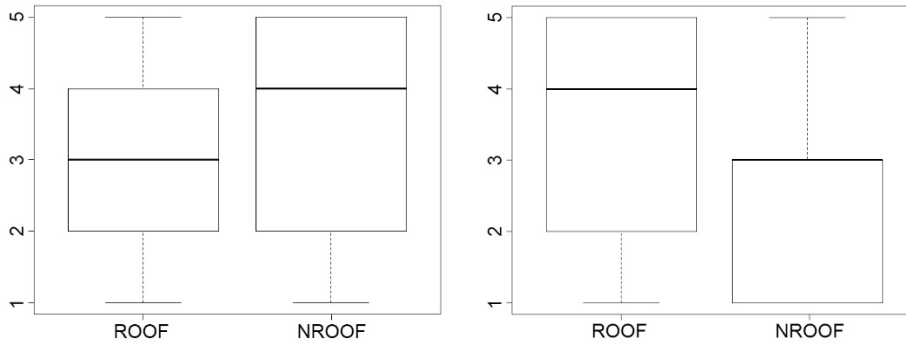


Figure VI- 3: 242-Boxplots representing effect of ROOF on comfort CH (left), UN (right)

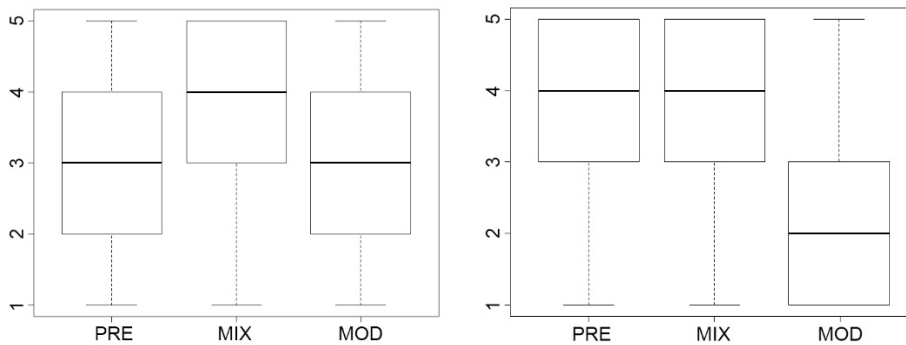


Figure VI- 4: 242-Boxplots representing effect of FAC on comfort CH (left), UN (right)

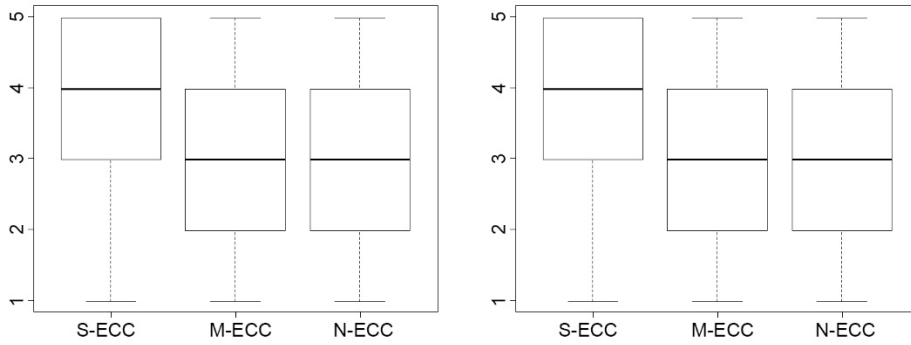


Figure VI- 5: DUMC- Boxplots representing effect of ECC on comfort CH (left), UN (right)

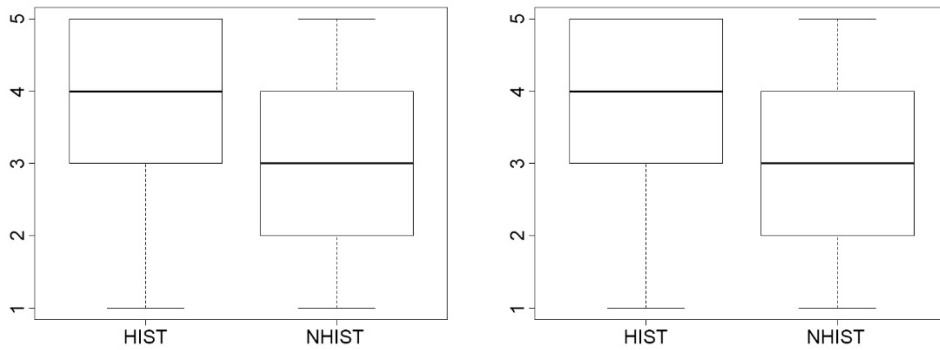


Figure VI- 6: DUMC- Boxplots representing effect of HIST on comfort CH (left), UN (right)

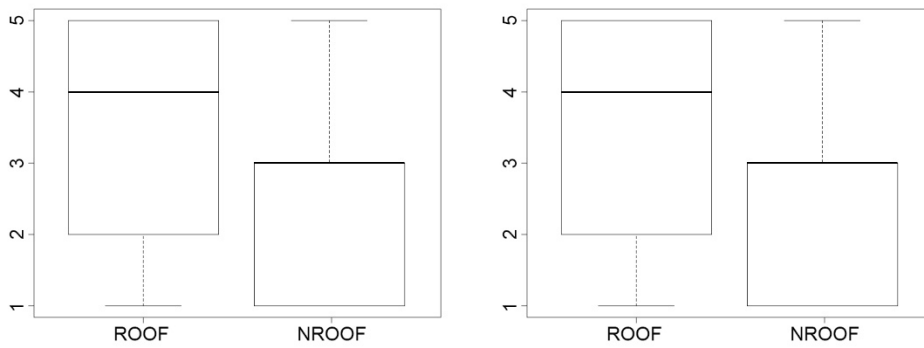


Figure VI- 7: DUMC-Boxplots representing effect of ROOF on comfort CH (left), UN (right)

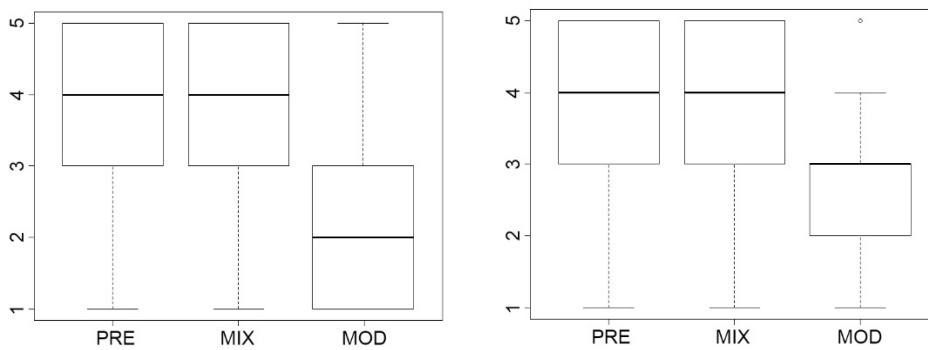


Figure VI- 8: DUMC-Boxplots representing effect of FAC on comfort CH (left), UN (right)

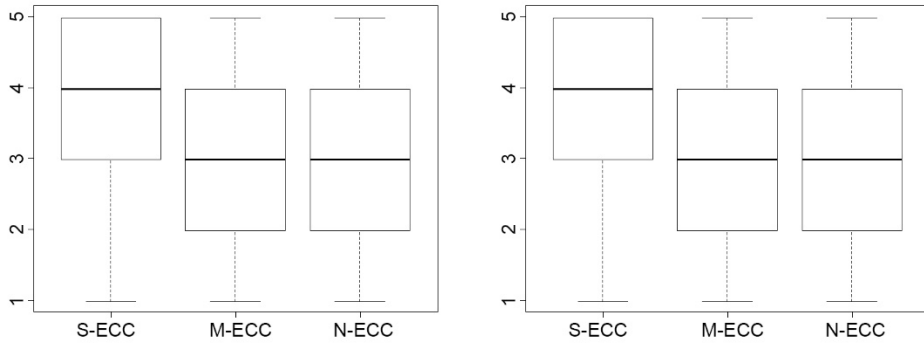


Figure VI- 9: EHC- Boxplots representing effect of ECC on comfort CH (left), UN (right)

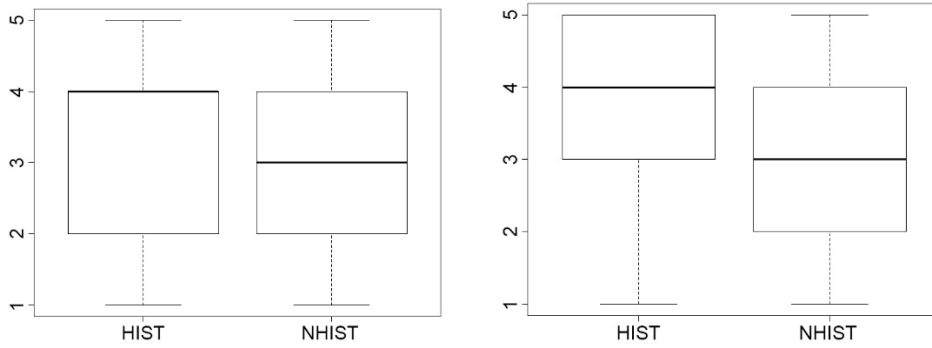


Figure VI- 10: EHC- Boxplots representing effect of HIST on comfort CH (left), UN (right)

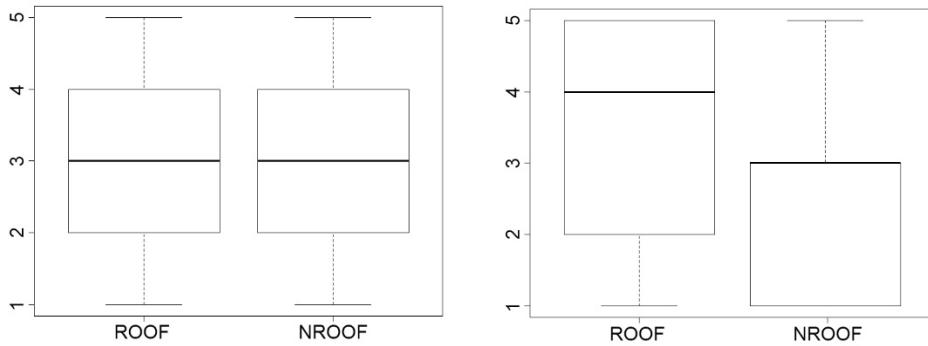


Figure VI- 11: EHC-Boxplots representing effect of ROOF on comfort CH (left), UN (right)

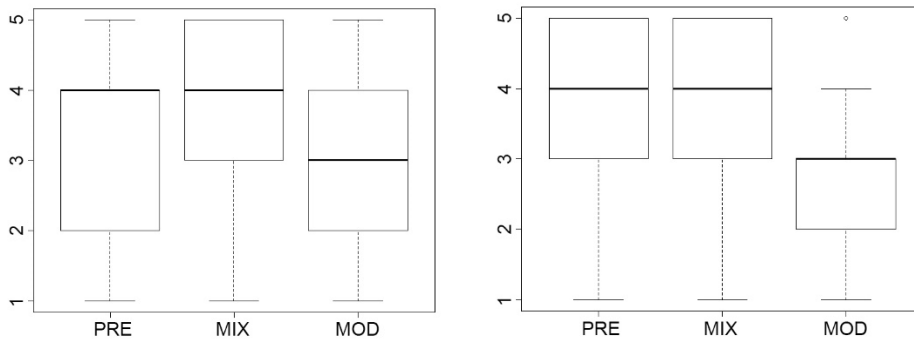


Figure VI- 12: EHC-Boxplots representing effect of FAC on comfort CH (left), UN (right)

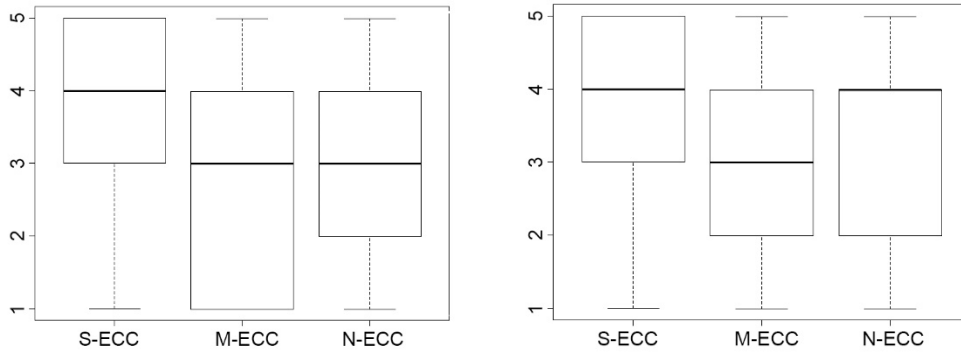


Figure VI- 13: RBC- Boxplots representing effect of ECC on comfort CH (left), UN (right)

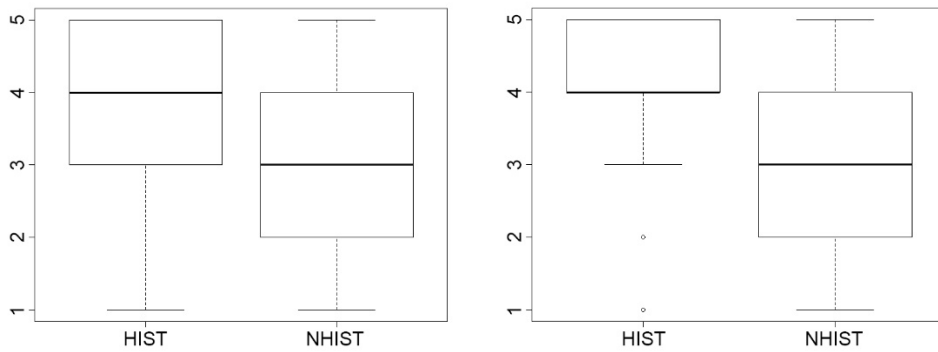


Figure VI- 14: RBC- Boxplots representing effect of HIST on comfort CH (left), UN (right)

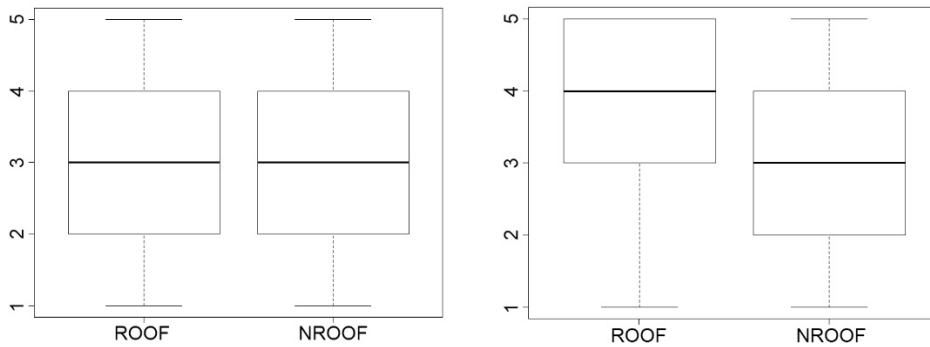


Figure VI- 15: RBC-Boxplots representing effect of ROOF on comfort CH (left), UN (right)

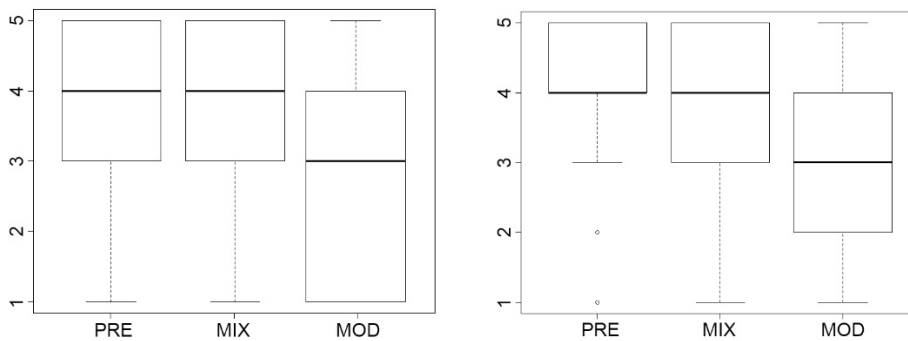


Figure VI- 16: RBC-Boxplots representing effect of FAC on comfort CH (left), UN (right)

As demonstrated by Figure VI-1 – VI-16, several key observations emerge. The following section highlights several key observed difference and similarities between church and unchurched judgments of comfort in relation to design profile characteristics and the theoretical replication of case studies that have embraced architectural evangelism (242, EHC) and the case studies that have not (DUMC, RBC).

Church buildings with stronger use of ecclesiological elements in their design profile are consistently judged as more comfortable by unchurched, and inconsistently judged as more comfortable by church respondents. In general, there is a strong trend whereby elements with strong ecclesiological use (S-ECC) show a median value of 4 as compared to a lower median value of 3 or lower for moderate use (M-ECC) or no use (N-ECC).

Regarding the unchurched sample, results are consistent across all four case studies: churches with strong use of ecclesiological elements hold a median judgement of a 4 (Somewhat Comfortable), and an inter-quartile range between 3 (Neutral / Mixed), and 5 (Very Comfortable). These results indicate that in all four of the case studies, unchurched respondents judged churches that have a strong use of traditional ecclesiological elements as comfortable.

The results for the church sample are not as consistent as the unchurched sample, with a difference observed between the two more traditional churches (DUMC, RBC), and the churches that had embraced architectural evangelism (242, EHC). In the cases of DUMC and RBC, the results are in line with the unchurched judgments: judging churches with strong use of ecclesiological elements as more comfortable. Specifically DUMC church results are identical to unchurched results, and RBC results show an

even stronger preference for a strong use noting that the lower inter-quartile range for M-ECC reaches 1 (Very Uncomfortable).

The cases of 242 and EHC depart slightly (EHC) and dramatically (242) from the unchurched results. In the case of EHC, churches with a strong use are judged as more comfortable. However, the lower inter-quartile range does not stop at 3 (Neutral / Mixed), but extends down to 2 (Somewhat Uncomfortable), indicating a more diverse set of judgements within the set of strong ecclesiological designed churches. The case of 242 church sample exhibits a very different judgement pattern than both the unchurched and the other case studies. Respondents who attend this church judged S-ECC and M-ECC churches equally with a median score of 3, but in contrast judged churches with no use of ecclesiological design as most comfortable with a median score of 4 (Somewhat Comfortable).

Church buildings that utilize historic styles are judged as more comfortable consistently by unchurched and inconsistently by churched respondents. The use of historic styles finds a similar affect pattern to that of use of ecclesiological elements. Unchurched respondents across all four cases consistently judge buildings with historic stylings as more comfortable, scoring a median judgment of 4 (Somewhat Comfortable) as opposed to non-historic styled churches which score a median judgement of 3 (Neutral / Mixed). This pattern deviates only slightly in the RBC unchurched respondents who hold even a stronger judgment of comfort of historic styled churches with a median of 4 and no lower inter-quartile range below 4.

Also following the pattern of ECC, churched judgements are in general agreement that historic churches are more comfortable, with the notable exception of churched

respondents within the 242 and EHC cases. In the case of 242, churched respondents held a reversed judgment such that HIST scored a median of 3 while NHIST scored a median of 4—indicating a higher comfort level with non-historic churches. In the case of EHC, there was no statistical significance between HIST and NHIST. DUMC and RBC aligned with unchurched judgments such that churches with historic styling were judged more comfortable, with a median score of 4, than non-historic styled churches with a median score of 3.

Church buildings that utilize sloped roofs are judged more comfortable than church buildings with flat roofs. Again, a similar pattern to HIST is reflected in ROOF judgments—although more pronounced judgement of comfort with sloped roofs. Within the unchurched sample, there is a consistent judgment of buildings with sloped roofs as more comfortable. Similar to the median patterns of HIST, ROOF buildings scored a median of 4 and NROOF buildings a median of 3. However, this difference is more pronounced due to the fact that NROOF judgements do not have an upper inter-quartile range above 3 in 3 of the four cases. Further, the lower inter-quartile range of NROOF reaches completely to 1 (Very Uncomfortable).

The churched sample judgements of comfort for ROOF design is varied. The DUMC case study aligns with unchurched judgments, judging sloped roofs as more comfortable. RBC churched respondents found little difference between ROOF and NROOF, with equal boxplots for ROOF and NROOF. EHC case study results were not statistically significant, thus ROOF did not affect judgements of comfort. As before, 242 case is the greatest deviation from the general trends. In the case of 242 churched

respondents, buildings with a flat roof are judged to be more comfortable, with a median of 4, over churches with sloped roofs, scoring a median of 3.

Of all the characteristics FAC has the most consistent correlation with comfort such that church buildings that are designed with a PRE or MIX façade hierarchy are judged as more comfortable. Of all the design characteristic categories, FAC finds the most consistency in judgments of comfort between the churched and unchurched respondents. In general, the results of the boxplots demonstrate that buildings with MIX or PRE façade composition hierarchy are more comfortable. Within the unchurched respondents, PRE and MIX generally both find median scores of 4 (Somewhat Comfortable) and an inter-quartile range between 5 (Very Comfortable) and 3 (Neutral Mixed). This stands in contrast to comfort judgements of MOD scores more within the uncomfortable ranges. Within the Michigan case studies, MOD buildings score a median rank of 2 (Somewhat Uncomfortable), and has an inter-quartile range between 3 (Neutral / Mixed) and 1 (Very Uncomfortable). MOD buildings are slightly more comfortable for the California case-studies where they score a median rank of 3 (Neutral / Mixed) and have an inter-quartile range reaching to 3 (Neutral / Mixed) for EHC and up to a 4 (Somewhat Comfortable) for the RBC case.

For the churched respondents, MIX and PRE churches generally were judged more comfortable than MOD. Slight variance occurs between the cases. 242 churched respondents found MIX more comfortable than PRE—which scored the same as MOD. DUMC judged PRE and MIX with a median rank of 4 (Somewhat Comfortable) and MOD median rank of 2 (Somewhat Uncomfortable). EHC ranked PRE and MIX as a median of 4 and MOD a median rank of 3. Additionally, EHC ranked MIX more

comfortable than PRE in that the MIX inter-quartile range reaches 5 (Very Comfortable), where-as PRE inter-quartile range only reaches 4 (Somewhat Comfortable). RBC equally ranked PRE and MIX, finding them more comfortable than MOD which was ranked with a median score of 3 (Neutral / Mixed) and an inter-quartile range reaching down to 1 (Very Uncomfortable).

Overall, the use of all traditional ecclesiological design profile characteristics correlate with higher judgments of comfort by the unchurched: The Kruskal-Wallis analysis and post-hoc boxplot analysis indicate that the specific use of individual design profile characteristics does affect judgements of comfort, except in a few instances of the effect of HIST or ROOF for EHC churched respondents. Within the churched sample, there is variation in judgements, particularly between respondents who are attending a more traditionally designed church and those attending a church designed after architectural evangelism tenants. The difference between these two groupings trend in correlation to their church architecture experience. Specifically, churched individuals attending more traditionally designed churches find churches with more traditional characteristics more comfortable; whereas individuals from less traditional churches find church architecture with less traditional profile characteristics to be somewhat to more comfortable. Contrary to this variation in churched respondents, the unchurched respondents were consistent in their judging churches with more traditional church design profile characteristics as more comfortable. These results contradict architectural evangelism's proposition that unchurched are more comfortable in secular based modern designed churches that are limited in ecclesiological expression.

Judgements of Comfort - Visual Analysis

The previous analysis statistically considered the relationship of individual design profile characteristic effects on judgments of comfort—providing key insights. However, this analysis approach has a limitation in that it only considers the effect of an isolated design profile characteristic. It should be noted that a non-parametric statistical test, the approach for analyzing ordinal data, is traditionally not applied beyond single factor considerations. Therefore, to attend to this limitation, the section below conducts a visual analysis of ranked mean comfort judgment scores for each building broken down by case and population. Table VI-2 and Table VI-3 document, in images, the ranking of mean comfort scores for the churched and unchurched in each case (See Appendix C for full results). The following section highlights several key observed differences and similarities observed via the visual analysis¹¹.

Church buildings that exhibit multiple design characteristics typically found in traditional ecclesiological typologies are found to be more comfortable by unchurched.

A review of the buildings ranked most comfortable by the unchurched demonstrates a high comfort level with buildings that utilize multiple characteristics of a traditional profile. In all four cases, the most comfortable buildings exhibit strong use of ecclesiological markers, sloped roofs, PRE façade composition, and most often historic styling. These include images a consistent top ranking for image 1, image 2, image 3, and image 4.

¹¹ Design profile characteristics abbreviations as listed on pg. 70
Use of Ecclesiological Elements: S-ECC – Strong; M-ECC – Moderate; N-ECC- None
Historic Style: HIST – Use of historic style; NHIST – No use of historic style
Roof Design: ROOF – Visible pitched roof; NROOF – No visible pitched roof
Façade Composition Hierarchy: PRE – Pre-modern; MIX – Mixed; MOD - Modernist

There are two notable exceptions to the S-ECC, HIST, ROOF, PRE profile: image 5 and image 10. Image 5, top ranked by three of the four case studies, departs slightly from the S-ECC, HIST, ROOF, PRE profile and exhibits an S-ECC, NHIST, ROOF, MIX profile. Yet, despite the fact that image 5 does not exhibit a historic styling or a PRE façade composition, the design of image 5 uses elements that are recognizable in a traditional ecclesiological typology such as its massing arrangement, orientation of the building, and bell-tower / spire. At a glance, image 5 can be likened to image 1 (S-ECC, HIST, ROOF, PRE)—another top ranked building.

A second notable exception is image 10, ranked in the top five most comfortable by two of the four cases, which has the profile: M-ECC, HIST, ROOF, MIX. At first glance, the characteristics profile varies significantly from the other images. However, a visual analysis reveals that the design of image 10 holds several key recognizable elements found in a traditional ecclesiological typology. The building, does not display any religious symbolism, but does exhibit the massing characteristics of a traditional church. The building massing has a vertical emphasis, with a narrow, tall rectangular nave—akin to traditional Catholic cathedral design. Further, the design has a prominent entry door at the narrow end of the massing, leading into the space—again akin to cathedral design. So even though image 10 does not share the formal profile as the other images, a visual analysis shows that it closely aligns with a traditional ecclesiological design.

Church buildings that have an S-ECC or M-ECC profile, and are combined with non-traditional ecclesiological typology characteristics, are ranked by the unchurched as uncomfortable. A review of the buildings ranked as uncomfortable by the unchurched

show that some of these buildings exhibit some level of churchly architecture characteristics, including crosses, steeple, and bell towers. For example, images 17 and 14 both exhibit a tall free-standing spire with a cross atop; image 7 and image 13 both have a prominent free-standing bell-tower; image 12 has a prominent steeple at the peak of its building; and image 23 and image 15 both display a large prominent cross on the side of its façade. However, what distinguishes these buildings from the buildings judged as comfortable is the combination of S-ECC or M-ECC use in a design profile that is most often NROOF and NHIST—and in particular always with a MOD composition hierarchy. As the Kruskal-Wallis test indicated, the unchurched found buildings with an S-ECC use of ECC more comfortable. But this judgement is tempered with the application of the use of ECC with a MOD design.

This trend is seen in the unchurched rankings. While there are a variety of buildings of such profiles ranked as uncomfortable, image 7 and image 23 are ranked by all four case studies as uncomfortable. Image 7 displays an S-ECC use and ROOF design, but with a NHIST and MOD approach. In such a combination all unchurched participants—as well as all churched participants—judged it to be uncomfortable. Image 23 displays a lower level of ECC—displaying a cross on its sign—but again does it in a NROOF, NHIST, MOD approach, rendering it judged as uncomfortable by all four unchurched cases.

Furthermore, this general trend of judging buildings with ecclesiological elements applied to modern façade compositions as uncomfortable is a trend shared by churched respondents. In all four case studies of churched respondents, image 7, image 15, and image 13 are found to be uncomfortable. All of these three buildings have the

combination of S-ECC, NHIST and MOD, and vary between ROOF/NROOF.

Additionally, individual cases also identified images with these characteristics as uncomfortable: 242 – image 8; DUMC – image 14, image 23; EHC—image 14, image 23; RBC—image 16, image 14.









































Rank	242 CHURCHED	242 UNCHURCHED	DUMC CHURCHED	DUMC UNCHURCHED
1	 5	 1	 5	 5
2	 20	 2	 1	 1
3	 24	 5	 4	 3
4	 25	 4	 10	 2
5	 19	 3	 20	 10
21	 12	 17	 9	 23
22	 8	 14	 14	 15
23	 13	 13	 23	 12
24	 15	 15	 15	 15
25	 15	 23	 15	 13

Table VI- 2: 242 & DUMC Ranking of Mean Value Comfort Judgements (Numbers added for reference)









































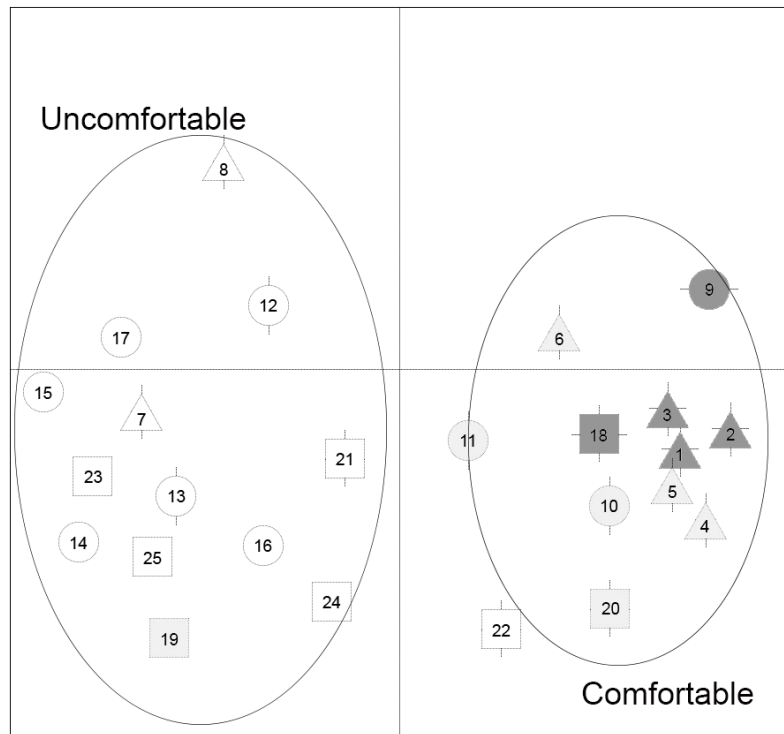
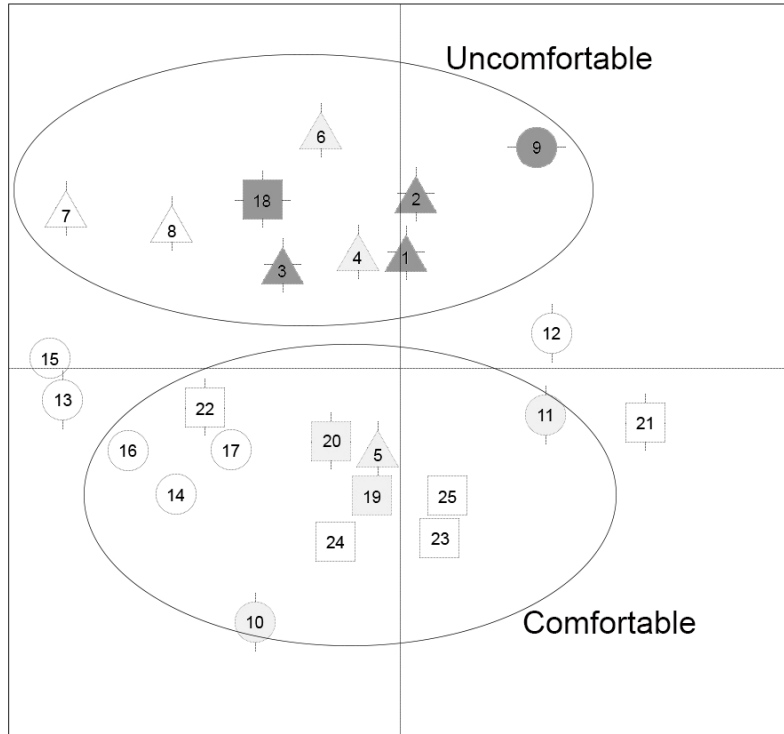
Rank	EHC CHURCHED	EHC UNCHURCHED	RBC CHURCHED	RBC UNCHURCHED
1				
2				
3				
4				
5				
21				
22				
23				
24				
25				

Table VI- 3: EHC & RBC Ranking of Mean Value Comfort Judgements (Numbers added for reference)

Judgements of Comfort - MDS Analysis

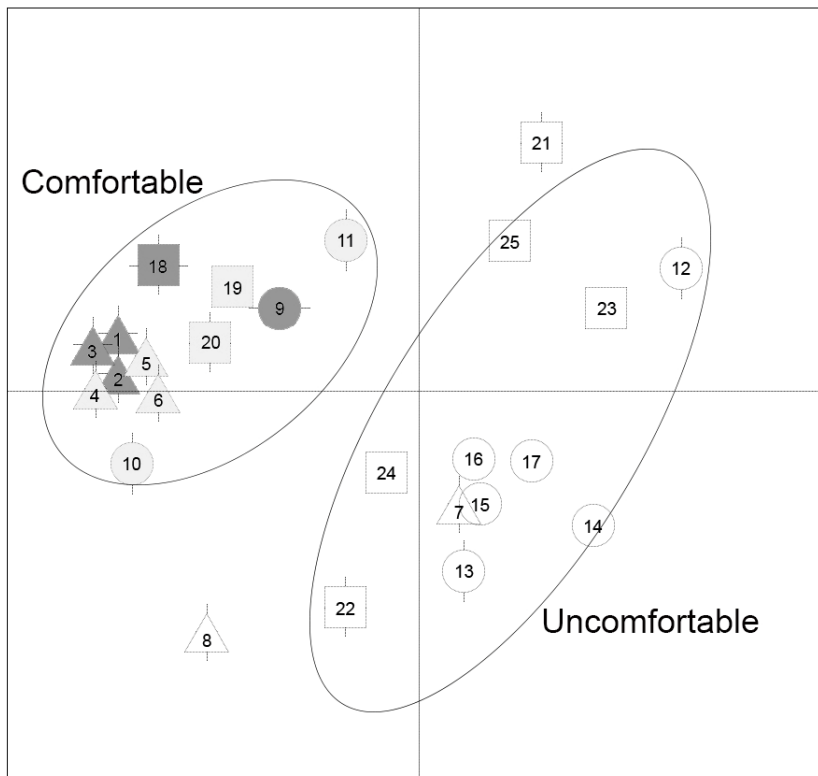
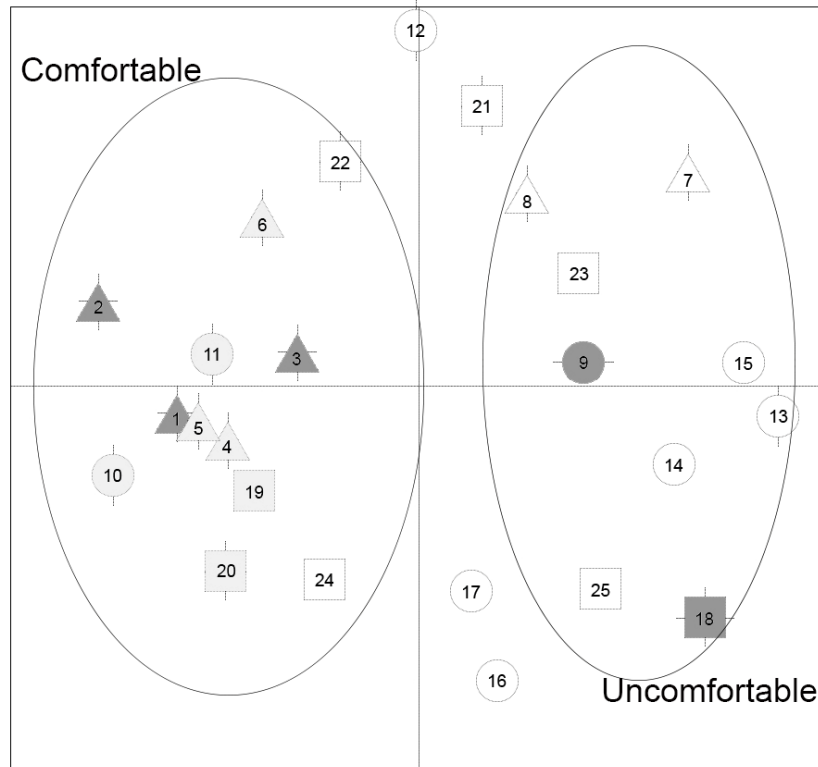
Previous, the visual analysis explored the combination of design profile characteristics on judgments of comfort—seeking to address limitations of non-parametric statistical analysis. However, the ranking of judgements of comfort based on mean scores too has limitation. By ranking the images based on median judgment scores per case study, the results can provide a general linear sense of buildings that are judged comfortable to uncomfortable. However, this linear reading is not able to accurately reveal the relationships between individual judgements of the buildings. In other words, the linear ranking fails to expose any internal structure of how each building rates in relation to all other buildings. To attend to this limitation, a MDS analysis of comfort judgments of all 25 buildings was carried out.

In preparation for the MDS analysis, a similarity matrix was constructed based on research participant responses of whether each building was ‘comfortable’ (i.e. if the building was judged as 5-Very Comfortable or 4-Somewhat Comfortable) or ‘uncomfortable’ (i.e. if the building was judged as 1-Very Uncomfortable or 2-Somewhat Uncomfortable). A similarity matrix was created for CH and UN participants in each case study. Subsequent to the creation of the similarity matrix, an MDS analysis was carried out via SPSS PROXSCAL in two dimensional space. Results are shown in Figure VI-17 – Figure VI-20. On the plots, the numbers represent the building image number. Further, each number is embedded in a symbol representing its design characteristics profile.



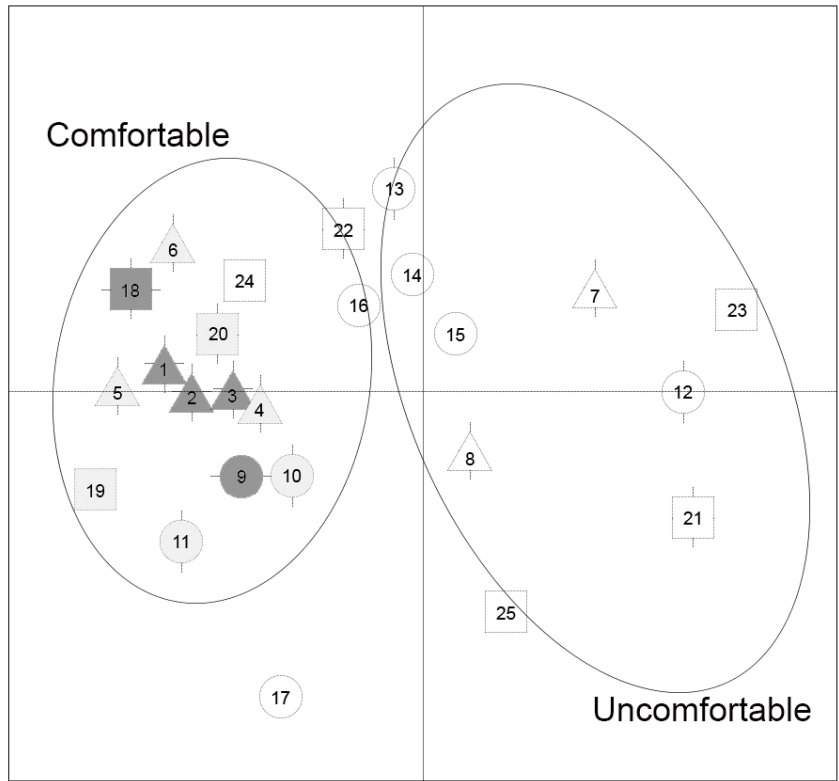
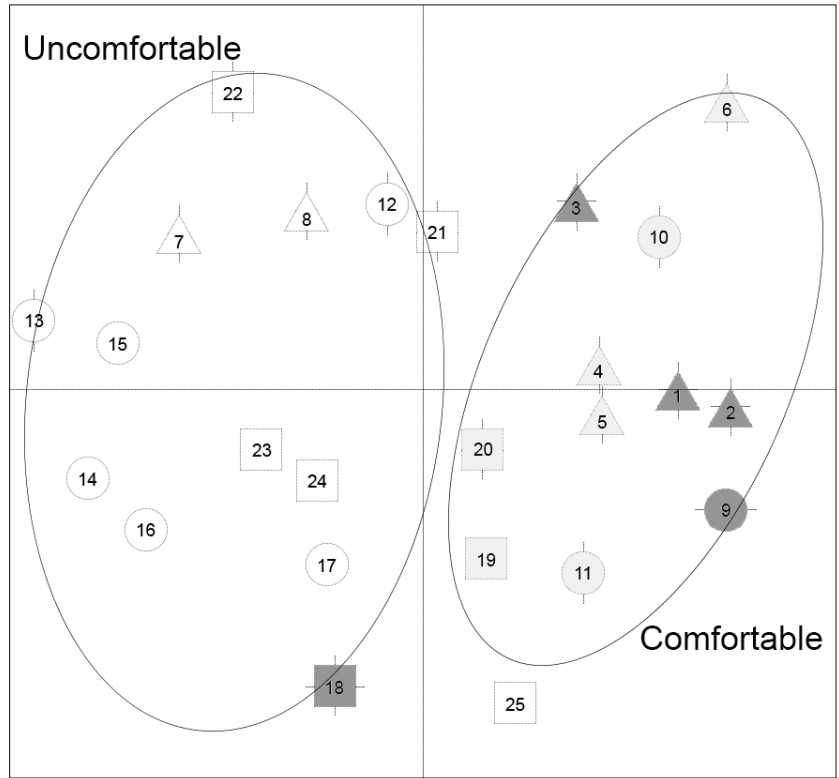
KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | | ROOF

Figure VI- 17: 242 MDS Analysis of Comfort Judgements
 CH (top) Stress=0.10161, UN (bottom) Stress=0.06793



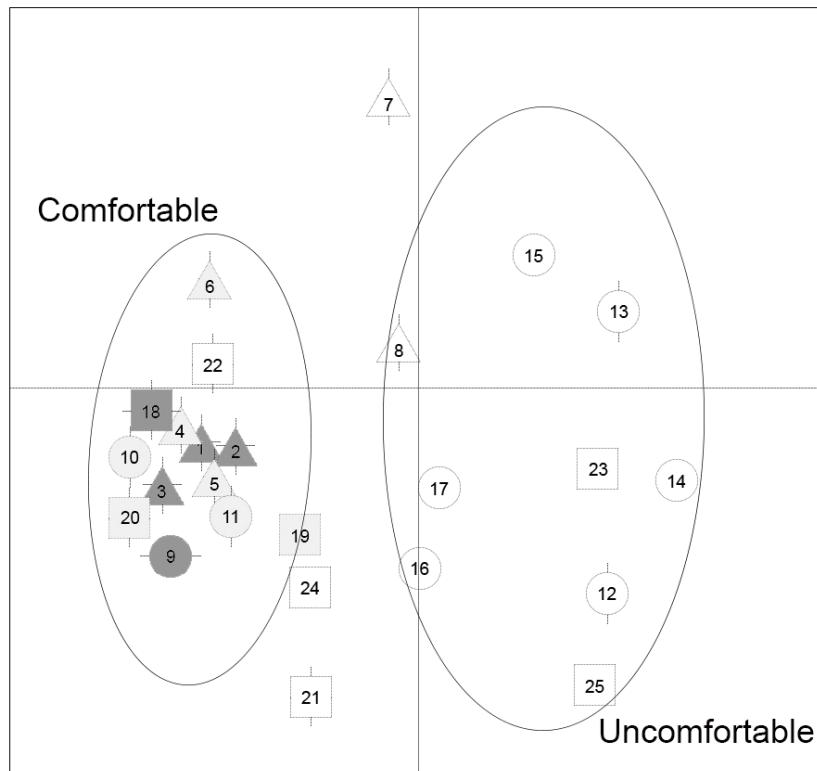
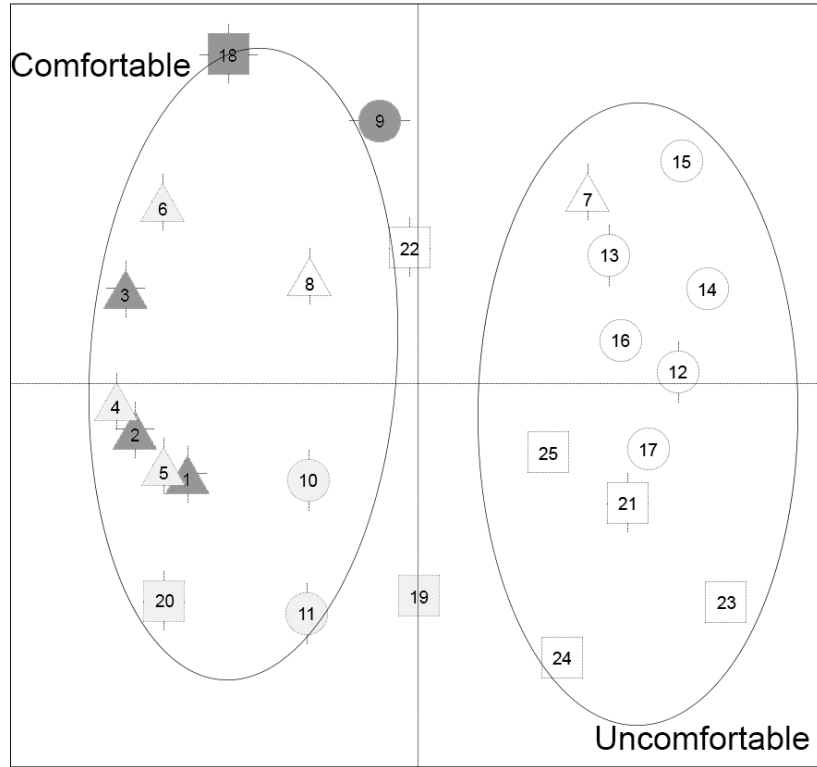
KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | - ROOF

Figure VI- 18: DUMC MDS Analysis of Comfort Judgements
 CH (top) Stress=0.10749, UN (bottom) Stress=0.07455



KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | | ROOF

Figure VI- 19: EHC MDS Analysis of Comfort Judgements
 CH (top) Stress=0.16214, UN (bottom) Stress=0.11511



KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | - ROOF

Figure VI- 20: RBC MDS Analysis of Comfort Judgements
 CH (top) Stress=0.09871, UN (bottom) Stress=0.10584

Building from observations in previous analyses, an analysis of the MDS plots indicate several patterns of relationship within judgements of comfort. These patterns are described below.

Unchurched respondents hold a more consistent and distinct pattern of comfort judgements than churched respondents. A review of the UN MDS plots in relation to corresponding CH MDS plots show a distinct pattern of difference in density of clustering. In each case study, the buildings that were judged as comfortable by UN form a dense tight cluster compared to the cluster density of CH comfort judgements. The UN cluster density indicates three patterns within UN comfort judgments. First, UN are more consistent in their judgements of comfort than the CH. The images are tightly clustered due to the fact that more UN respondents judged the same buildings in the same way than the CH respondents. Secondly, UN respondents have a more distinct pattern of judgement of comfort than CH patterns of comfort judgements. As the MDS plot reveals, the CH pattern of judgment is much looser in density indicating a less distinct pattern of judgment. Finally, third, the UN pattern of comfort judgment is more distinct than the UN pattern of judgements of non-comfort. In contrast to the tightly clustered comfort judgments, the images that the UN found uncomfortable are widely dispersed revealing inconsistency and lack of distinct patterning.

Façade composition hierarchy is a predominant design characteristic in images judged as comfortable by unchurched respondents—and in large part by churched respondents. Reviewing the MDS plots in relation to the design profile characteristic symbols reveals a strong pattern related to façade composition hierarchy. Within the unchurched clusters of comfortable buildings, in nearly all cases, these buildings are

either designed with a PRE (dark grey) or a MIX (light grey). Subsequently, all buildings within the uncomfortable clusters are designed with a MOD façade hierarchy. Although the Kruskal-Wallis tests indicated that in almost all cases, all four design characteristics statistically affected judgements of comfort, the MDS shows the deep relationship between façade composition hierarchy and comfort. There are less distinct trends within the other characteristics, but not nearly as consistent as FAC. There are a few notable exceptions for the unchurched. Image 24 and image 22 are judged as comfortable each in one of the four case studies.

This general pattern is also present in large part in the churched respondents as well—although less consistent. For example, in the case of 242, all PRE buildings were judged as uncomfortable. Further in case of DUMC and EHC, PRE images 9 and 18 are generally clustered as uncomfortable. It should be noted that image 9 and image 18 are the two PRE images that are not also designed with a strong use of ecclesiology—a design profile identified in previous analysis to be uncomfortable.

Inconsistency between ML and Patterns of Unchurched Comfort Judgments

The intention of this chapter was to examine the claims of architectural evangelism ML that in order for the church to draw in unchurched individuals, the building must be considered comfortable and welcoming, and therefore should seek to remove any barriers of comfort (ML-2). Further, as the theory reasons, traditional ecclesiological building typologies and traditional church markers are a barrier for the unchurched due to their unfamiliarity with the forms (ML-3). Therefore, as the theory prescribes, churches should seek to re-design their churches in a typology more familiar

to the unchurched, namely secular typologies. Thus, if this theory is correct, the results should indicate that unchurched individuals would find buildings with a more secular design profile (N-ECC, NHIST, NROOF, MOD) to be most comfortable.

However, the results from the Kruskal-Wallis analysis, the visual analysis, and the MDS analysis demonstrate that building characteristics affect UN judgments, but opposite from what is proposed by architectural evangelism. The results show that, within the four case studies, unchurched consistently found buildings that were designed with a strong use of ecclesiological elements, a sloped roof, and a pre-modern or mixed façade composition hierarchy—all elements of traditional ecclesiological design profile—were judged to be more comfortable. Further, as the MDS indicated, these judgments of comfort are consistent and distinct as compared to judgments of non-comfort and churched respondent judgments.

In short, unchurched respondents have a very consistent and distinct pattern of comfort judgments—a pattern that finds buildings with more traditional churchly design to be comfortable. These results from the four case studies suggest that ML-2¹² and ML-3¹³ architectural evangelism’s design prescriptions for a secular typology based church architecture is inconsistent with patterns of unchurched comfort judgements.

¹² ML-2) In order to draw in unchurched individuals, church architecture should seek to be comfortable and welcoming; therefore, the church building design should seek to remove any barriers to this for the unchurched. (see pg. 21)

¹³ ML-3) Ecclesiological building typology, markers and symbolism are a barrier for the unchurched due to their unfamiliarity and general distrust of institutional authority. Therefore, church should a) adopt architectural forms that unchurched are familiar with – namely secular typologies and b) eliminate religious symbolism. (See pg. 22)

CHAPTER VII

Judgements of Emphasis

The Perceived Importance of the Church's Emphasis

Architectural evangelism seeks to adjust the physical design of church architecture with the intent to remove 'barriers' for unchurched attendance. The previous chapter explored the claim that a traditional ecclesiological design profile is a 'barrier' to unchurched individuals due to perception of comfort. In addition to comfort barriers, architectural evangelism also proposes that the perceived emphasis of the church may also act as a barrier for unchurched individuals. Specifically, as ML-4 claims, church buildings that are perceived to have a primary function of worship is a barrier due to unchurched unfamiliarity with worship, and general distrust of institutional authority. Continuing, ML-4 then proposes that due to the general desire for community admits an increasing individualized American society, unchurched individuals consider community engagement more important than worship. Therefore, the church should design forms that do not express worship but community engagement, which is most successfully done with a secular based church design.

To explore the claims that a perceived emphasis of worship is a barrier for unchurched, research participants were provided with the image set and prompted:

“Protestant churches often view their purpose in a three-fold fashion: Worship to God, developing the individuals and community within the church, and engaging the broader community through service. “

The prompt continued:

“Please take a look at the images and decide which of the three categories each building emphasizes most by sorting them into these three categories: 1) Worship Emphasis, 2) Church Community Development Emphasis, 3) Broader Community Engagement & Service Emphasis.”

Following the completion of the sorting task, respondents were then asked to rank the three emphases in order of importance, according to their ideal conception of a church.

Figure VII-1 – Figure VII-4 chart the results of participants ranking of the importance of the three emphases within each case study, and divided by CH and UN. Following are key observations from a review of Figure VII-1 – Figure VII-4:

Unchurched respondents consistently rank ‘Worship Emphasis’ as the most important to them in relation to their ideal conception of a church. Although the percentages vary slightly, in all four case studies, unchurched respondents more often ranked ‘Worship Emphasis’ (worship) as of 1st importance over ‘Church Community Development Emphasis’ (church development) or ‘Broader Community Engagement & Service Emphasis (community engagement). In the case of 242, 44% of UN rated worship as 1st importance as compared to 32% for community engagement and 24% for church development. DUMC UN respondents had a similar pattern with respondents rating worship of 1st importance 48% of the time compared to rating community engagement of 1st importance 32% of the time, and church development 20% of the time. Similarly, EHC UN respondents rated worship of 1st importance 64% of the time, community engagement 20% of the time, and church development 16% of the time. Finally, RBC UN respondents showed the strongest ranking of worship as the top importance having rated worship of 1st importance of 80% of the time, community engagement 12% of the time, and church development 8% of the time.

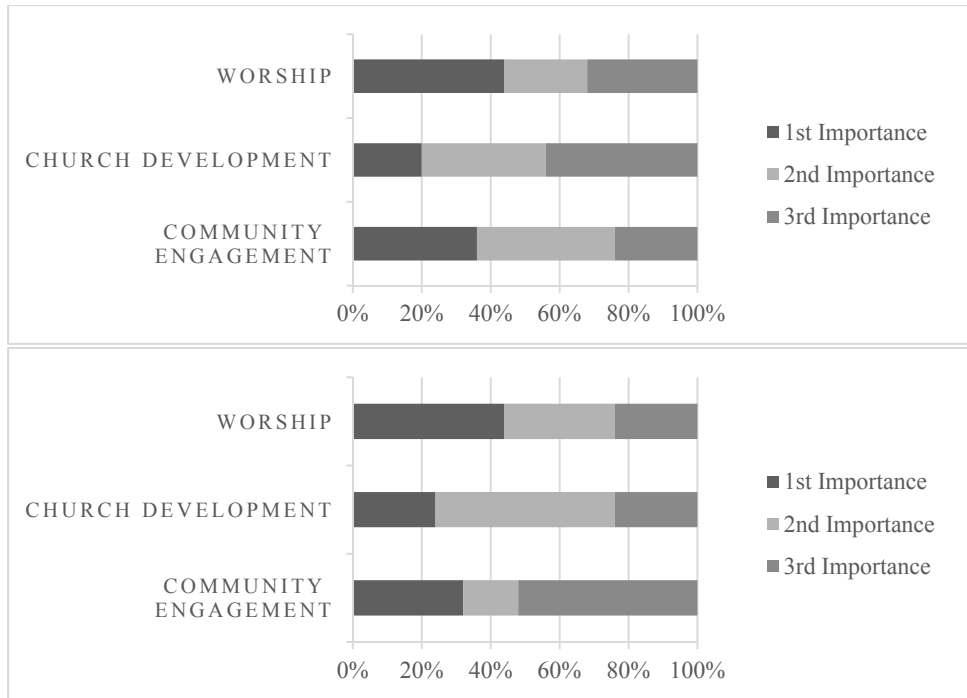


Figure VII- 1: 242 Ranked Importance of Ecclesiastical Emphasis CH (Top), UN (Bottom)

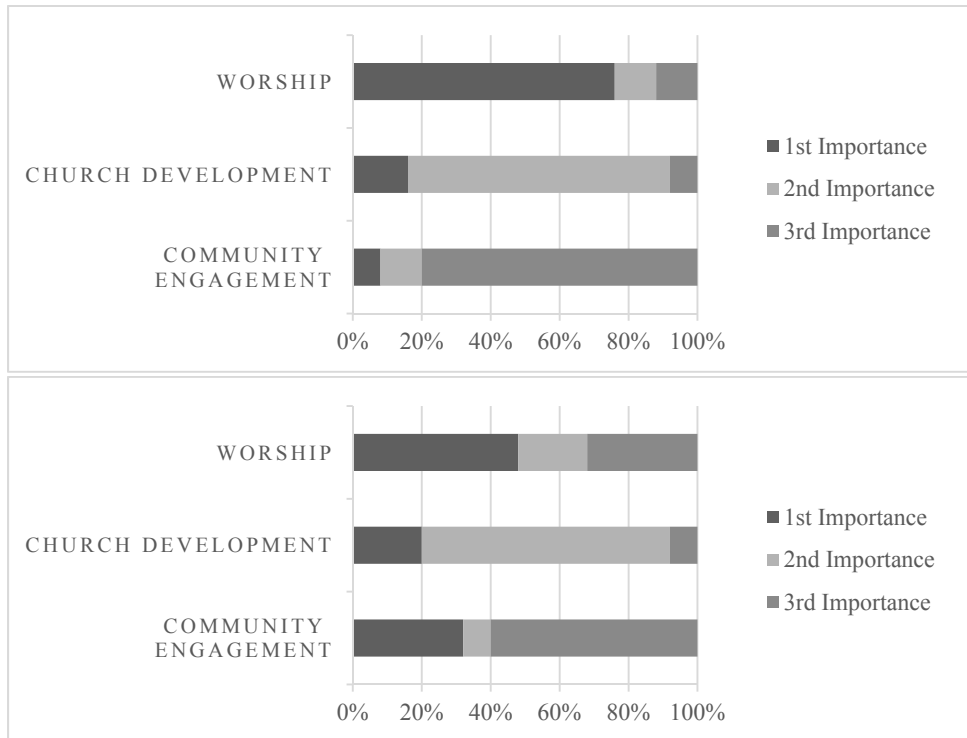


Figure VII- 2: DUMC Ranked Importance of Ecclesiastical Emphasis CH (Top), UN (Bottom)

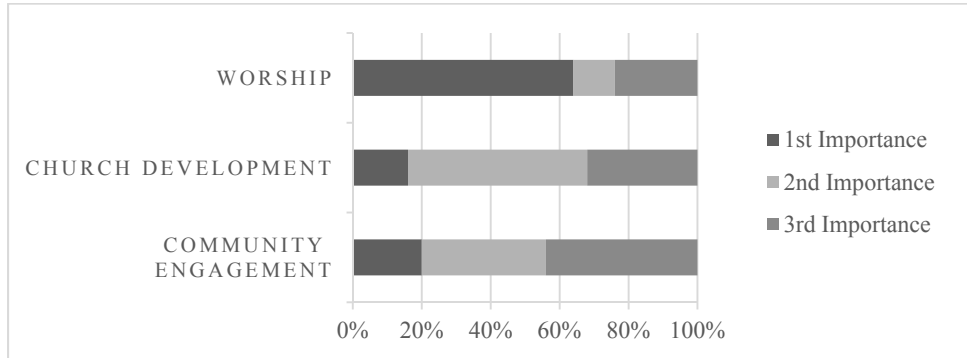
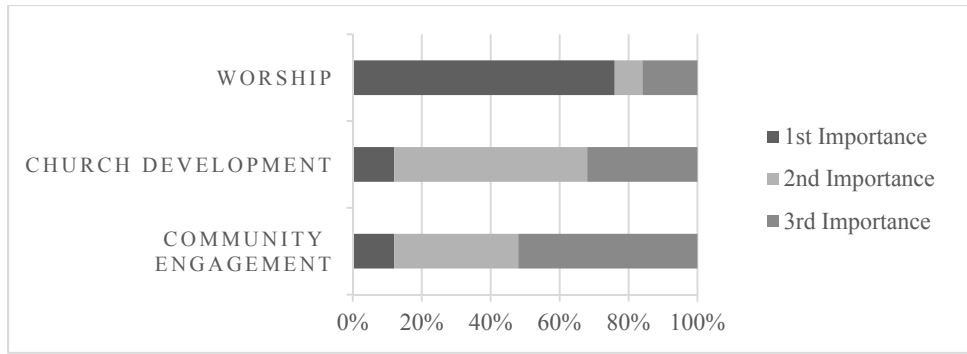


Figure VII- 3: EHC Ranked Importance of Ecclesiological Emphasis CH (Top), UN (Bottom)

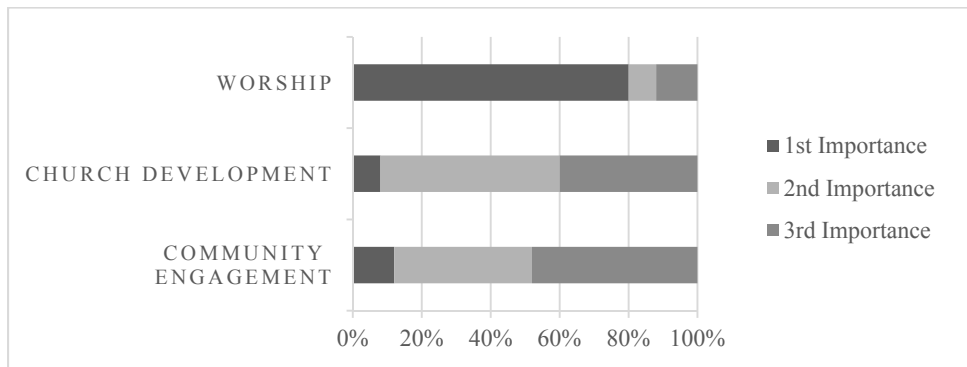
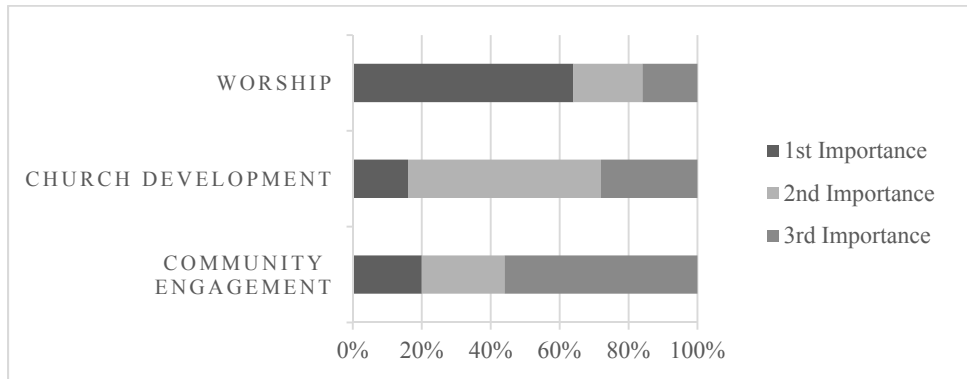


Figure VII- 4: RBC Ranked Importance of Ecclesiological Emphasis CH (Top), UN (Bottom)

Churched participants, across all case studies, rank 'Worship Emphasis' as the most important, in relation to their ideal conception of a church. In a similar pattern to the UN, CH participants also put forth worship emphasis as the most important emphasis of a church the majority of the time. The case study of 242 church had the lowest percentage of respondents ranking worship as the top emphasis, 44%, but placed a higher emphasis on community engagement, 36% than corresponding UN participants. In the other three case studies, CH participant ranked worship emphasis as most important at a higher percentage rate than 242 CH: DUMC – 76% of the time; EHC – 76% of the time; and RBC – 64% of the time.

Unchurched respondents from Michigan (242, DUMC) ranked church development of second importance compared to community engagement as third importance, but unchurched respondents from California (EHC, RBC) more equally ranked church development and community engagement as second priority. In the case of the Michigan case studies, 242 UN respondents ranked church community as second importance 52% of the time compared to community engagement 16% of the time. DUMC UN respondents rated community development emphasis as second importance 72% of the time compared to 8% of the time rating community engagement as second importance. For the cases located in southern California, there was a more even distribution—although church development was still rated as second importance more often overall. In the case of EHC, UN respondents ranked church development as second importance 52% of the time compared to 36% of the time for community engagements. Finally, RBC UN respondents ranked church development as second importance 52% of

the time compared to ranking community engagement as second importance 40% of the time.

Unchurched respondents, in general, rank church development as first or second importance more often than community engagement. Similar to the ranking of worship emphasis patterns, in all four case studies, UN respondents ranked church development as first or second importance more often than community engagement. In the case of 242, church development was ranked first or second importance 76% of the time compared to community engagement 48% of the time. For the case of DUMC, church development was ranked first or second 92% of the time compared to 40% of the time for community engagement. EHC is similar in that UN respondents ranked church development as most important 68% of the time compared to 56% for community engagement. Finally, RBC UN respondents ranked church development first or second importance 60% of the time compared to community engagement ranked first or second 52% of the time.

Churched ranking of emphasis importance does not correlate to whether or not their church has embraced architectural evangelism. The theory of architectural evangelism is a community outreach / missional outreach practice. Consequently, it would be expected that churches that have embraced architectural evangelism would more often rank community engagement higher than church development or worship. However, the results from the four case studies does not support that notion. As discussed above, worship is ranked of most importance in all four cases. Similar to first rank, the ranking of second importance also does not correlate in relation to the embracing of architectural evangelism. In the case of 242, community engagement was ranked either first or second importance 76% of the time compared to church

development ranked first or second 56% of the time. However, the other case which embraced architectural evangelism demonstrated a different priority in ranking emphasis. In the case of EHC CH respondents ranked community engagement first or second importance 48% of the time while ranking church development first or second importance 68% of the time. The two cases which did not embrace architectural evangelism, similar to EHC, placed a higher importance on church development than community outreach. In the case of DUMC, community engagement was ranked first or second 20% of the time compared to church development which was ranked first or second importance 92% of the time. In the case of RBC, CH respondents ranked community engagement first or second 44% of the time, and church development was ranked first or second 72% of the time.

Overall, unchurched respondents rank worship as first priority, followed by church development over community engagement. Contrary to architectural evangelism's proposal that unchurched individuals find a building that is perceived to emphasize worship as a barrier, the results above showed that in all four case studies, unchurched respondents ranked worship as the most important emphasis for a church. This ranking by unchurched matches the church ranking worship as most important. Although there is a consistency in ranking worship as first importance, there is less agreement in whether community engagement or church development follows as the next most important. Although inconsistent in proportions, in all four case studies, unchurched respondents ranked church development as first or second importance more often than they ranked community engagement first or second importance. These results call into question

architectural evangelism's prescription of moving towards an architecture than emphasis community engagement.

Judgements of Emphasis - Visual Analysis

The above section explored how churched and unchurched respondents ranked the three Protestant ecclesiological emphasis in order of importance—finding that worship was generally ranked as most important. Exploring architectural evangelism's claims further, this section explores the relationship between architectural design profile characteristics and judgements of emphasis.

To begin, data was collected from the directed sort whereby participants were asked to sort the buildings according to whether they perceived the building to have an emphasis of worship, church development, or community engagement. To analyze the data, a Kruskal-Wallis test was ran on each respondents judgment of each individual building in order to determine whether or not each design profile characteristic (ECC, HIST, ROOF, FAC) statistically affect judgements of emphasis. Results of the analysis are seen in Table VII-1.

As Table VII-1 demonstrates, in all cases each design profile characteristic statistically affects the judgments of emphasis. Further post-hoc tests reveal that the primary statistical effect occurs within the use of traditional ecclesiological design characteristics such as S-strong use of ecclesiological elements, H – historic styling, R – sloped roof, and PRE – pre-modern façade design.

To explore just how the use of traditional ecclesiological design characteristics affects judgements of emphasis, Table VII-2 – Table VII-3 provide a visual ranking of

building emphasis—highlighting the top three ranked building in each emphasis category for each case study, divided by CH and UN responses.

242 Emphasis		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	52.2	< 0.05	87.7	< 0.05
Historical Style	1	22.3	< 0.05	71.9	< 0.05
Roof Design	1	46.7	< 0.05	95.3	< 0.05
Façade Composition	2	40.9	< 0.05	87.7	< 0.05

DUMC Emphasis		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	108.5	< 0.05	156.4	< 0.05
Historical Style	1	68.3	< 0.05	67.1	< 0.05
Roof Design	1	138.4	< 0.05	124.2	< 0.05
Façade Composition	2	97.4	< 0.05	107.8	< 0.05

EHC Emphasis		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	66.9	< 0.05	104.7	< 0.05
Historical Style	1	31.1	< 0.05	43.0	< 0.05
Roof Design	1	62.3	< 0.05	63.8	< 0.05
Façade Composition	2	59.4	< 0.05	104.7	< 0.05

RBC Emphasis		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	66.5	< 0.05	136.5	< 0.05
Historical Style	1	41.4	< 0.05	45.2	< 0.05
Roof Design	1	61.7	< 0.05	64.8	< 0.05
Façade Composition	2	73.1	< 0.05	61.4	< 0.05

Table VII- 1: Kruskal-Wallis Test of effect of design profile characteristics on emphasis ranking





































Rank	242 CHURCHED	242 UNCHURCHED	DUMC CHURCHED	DUMC UNCHURCHED
1W	 1	 1	 2	 3
2W	 2	 2	 10	 2
3W	 6	 3	 1	 1
1C	 21	 21	 21	 21
2C	 25	 25	 11	 19
3C	 11	 20	 25	 11
1E	 24	 17	 14	 24
2E	 17	 17	 17	 17
3E	 18	 14	 24	 14

Table VII- 2: 242 & DUMC Ranking of Mean Value Emphasis Judgements (Numbers added for reference)
W – Worship Emphasis, C – Church Development Emphasis, E – Community Engagement Emphasis

Rank	EHC CHURCHED	EHC UNCHURCHED	RBC CHURCHED	RBC UNCHURCHED
1W				
2W				
3W				
1C				
2C				
3C				
1E				
2E				
3E				

Table VII- 3: EHC & RBC Ranking of Mean Value Emphasis Judgements (Numbers added for reference)
W – Worship Emphasis, C – Church Development Emphasis, E – Community Engagement Emphasis

An investigation of Table VII-2 – Table VII-3 shows that the use of traditional ecclesiological design characteristics strongly affects judgments of worship. In nearly all cases for both the CH and UN, the images that are judged to have worship as a primary emphasis have the design profile of S-ECC, HIST, ROOF, PRE. Only two images are ranked in the top three worship emphasis that deviate from this design profile. Image 10 does not have a strong use of ECC; however, as discussed in previous chapters, the building design closely resembles the massing and layout organization of traditional ecclesiological churches. The second image that deviates from the S-ECC, HIST, ROOF, PRE profile is image 6, which has an S-ECC, NHIST, ROOF, MIX profile. Image 6, although, shares similarities with image 10 in that it too has a massing that emphasizes the vertical, is shaped in the typical long nave form with the door on the longitudinal axis—similar to that of the traditional Roman catholic European cathedral design.

Beyond the effect of traditional design profile characteristics on judgments of worship, a further examination of Table VII-2 – Table VII-3 reveal a few other key patterns:

The buildings that do not have a traditional ecclesiological design characteristics, and are more simple or plain in design are most often ranked as emphasizing church development. Looking at the images found in 1C, 2C, 3C in the above tables shows a consistent pattern. The predominant images perceived to be most church development focused are image 11, image 21, image 23, and image 25. Although these buildings have variation in their design profile (11 – M-ECC, NHIST, ROOF, MIX; 21 – N-ECC, NHIST, ROOF, MOD; 23 – N-ECC, NHIST, NROOF, MOD; 25 – N-ECC, NHIST, NROOF, MOD), in comparison with the buildings judged as community

engaging, they are of more modest, or inexpensive design. Further, these buildings in the church development category have designs that in most cases borrow from semi-public typologies. For example, respondents often noted that image looked like a house or private Montessori school; image 25 respondents frequently verbalized that it reminded them of a school or a prison; image 11 is a modification of a church form—also a semi-public typology. A few buildings deviated from the semi-public typologies, most notably the images that respondents often expressed looked like a ‘store’, ‘mall’, or ‘strip mall’. These buildings include image 19 and image 23.

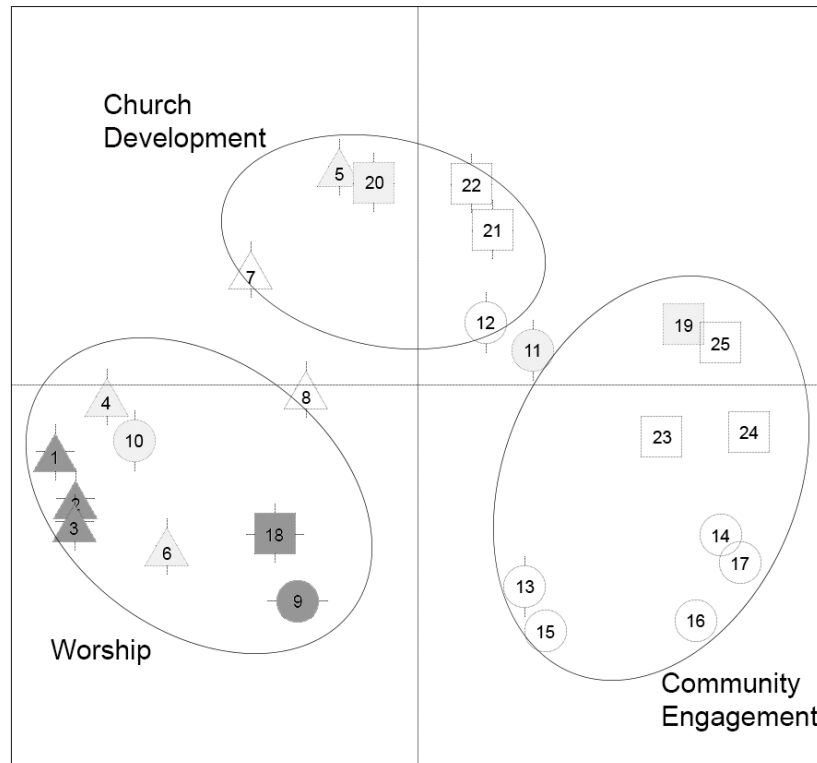
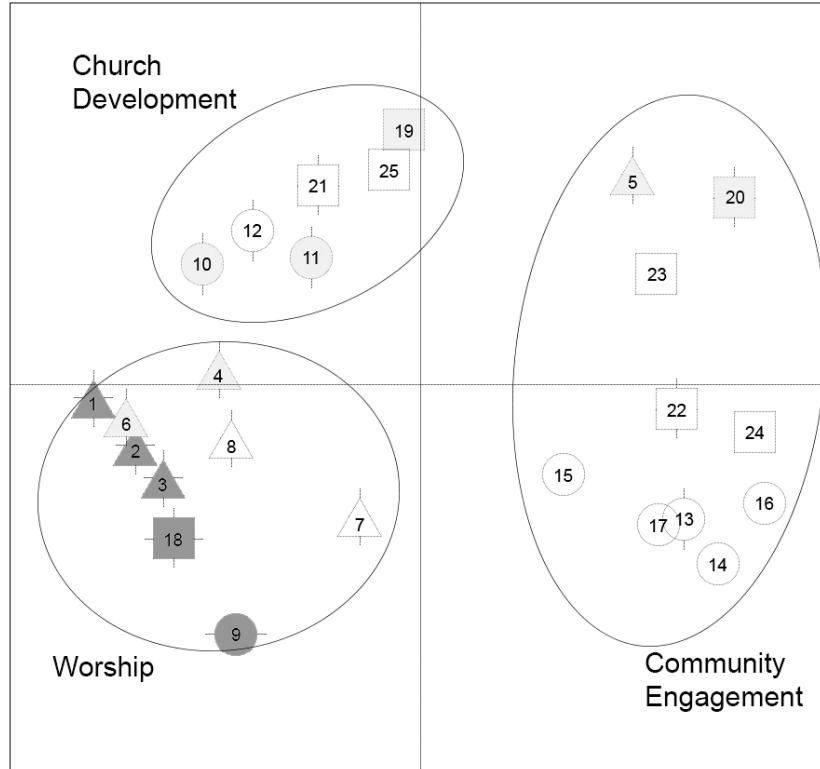
Buildings that borrow from a more public typology are more often perceived as emphasizing community engagement. Continuing the discussion above regarding the relationship between borrowed typology and emphasis judgement, it is notable that nearly all images selected to have a community engagement emphasis share two similarities. First, all of these buildings are built with limited use of traditional ecclesiological design characteristics. Secondly, and perhaps more importantly, these buildings have borrowed from public typologies. During the directed sorting task, participants frequently verbalized that these images ‘looked like’ a public typology. For example, image 24 was often referred to as, ‘a really nice community center or museum;’ image 17 was identified as either a library or hospital; participants pointed out that image 16 looked like a down town museum or community center, and respondents were quick to point out that image 14 looked like a stadium. The typologies of community center, library, hospital, stadium, and museum are all highly public typologies that are community focused and built with the intention of serving all individuals in the community. In contrast, the typologies of school, strip mall, store, and church can arguably be classified as semi-public typologies,

intending to only serve a segment of the population. With this in mind, there is a consistency in the emphasis rankings.

Judgements of Emphasis - MDS Analysis

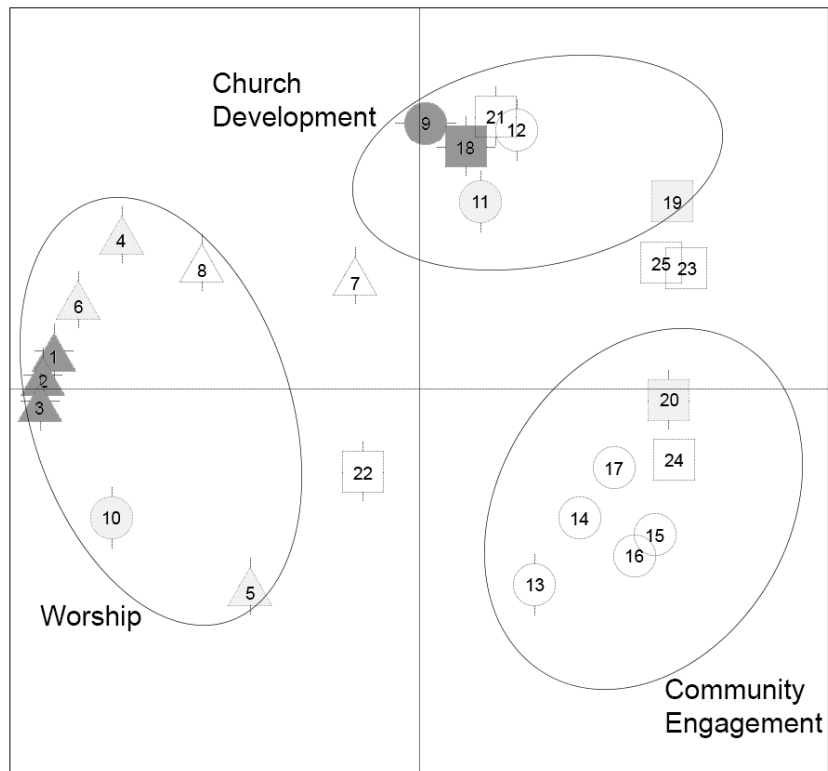
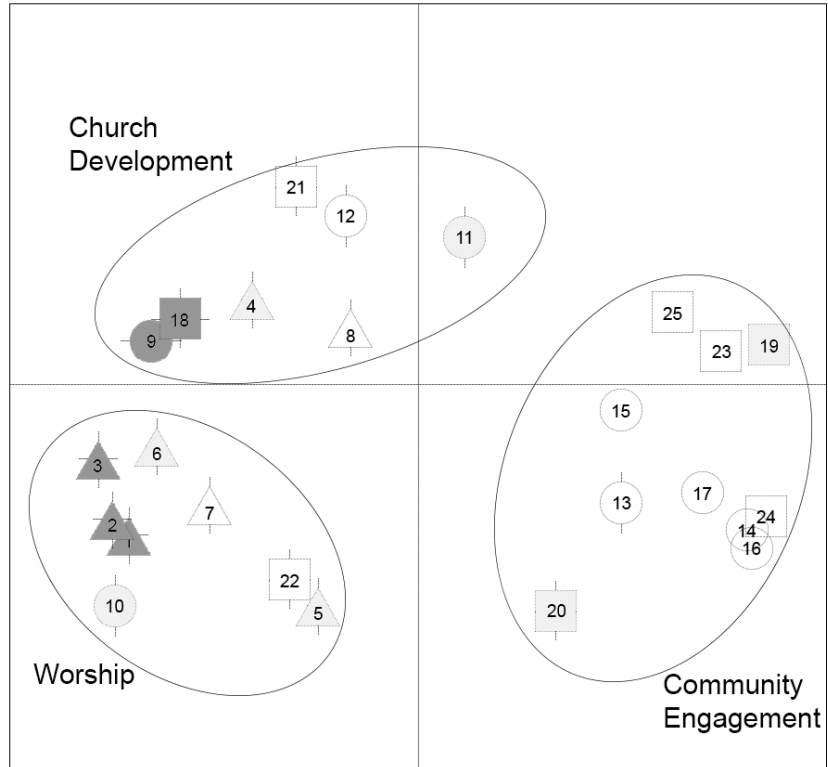
Thus far this chapter has explored architectural evangelism's claims on emphasis of worship through an analysis of emphasis importance ranking, Kruskal-Wallis test for effect of design profile characteristics and a visual analysis of image emphasis rankings. Following, a MDS analysis of emphasis judgements was carried out to further explore these relationships. Specifically the MDS analysis was completed to augment the linear mean ranking by revealing any patterns of relationships between perceptions of an individual building in relationship to all other buildings.

In preparation for the MDS analysis, a similarity matrix was constructed based on research participant responses of to which emphasis category each building was perceived to most emphasis. A matrix was created for CH and UN participants in each case study. Subsequent to the creation of the similarity matrix, an MDS analysis was carried out via SPSS PROXSCAL in two dimensional space. Results are shown in Figure VII-5 – Figure VII-8. Within the results, the numbers represent the image number. Further, each number is embedded in a symbol representing its design characteristics profile as identified in the key.



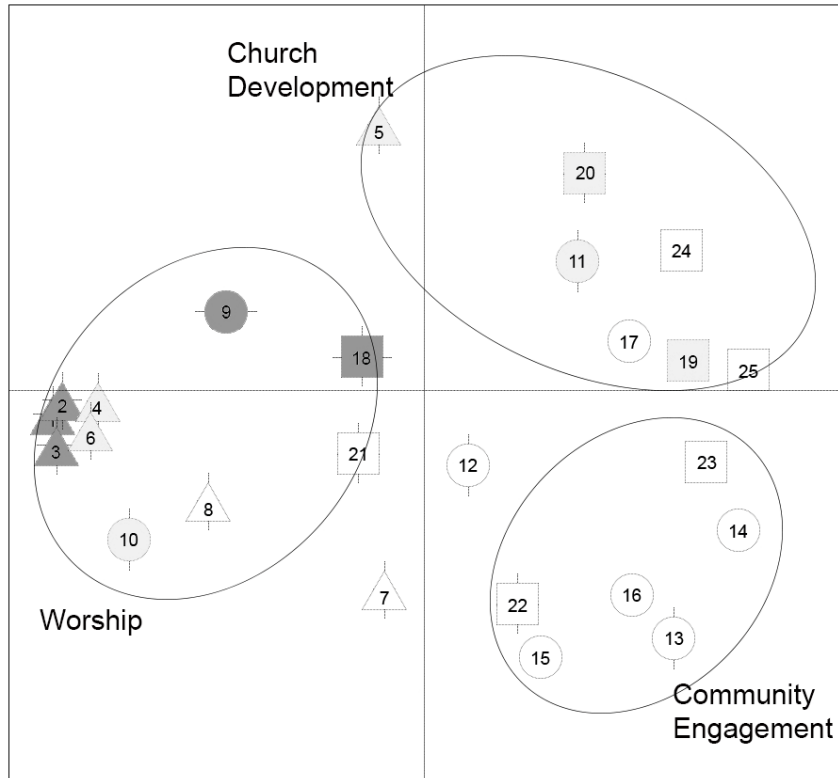
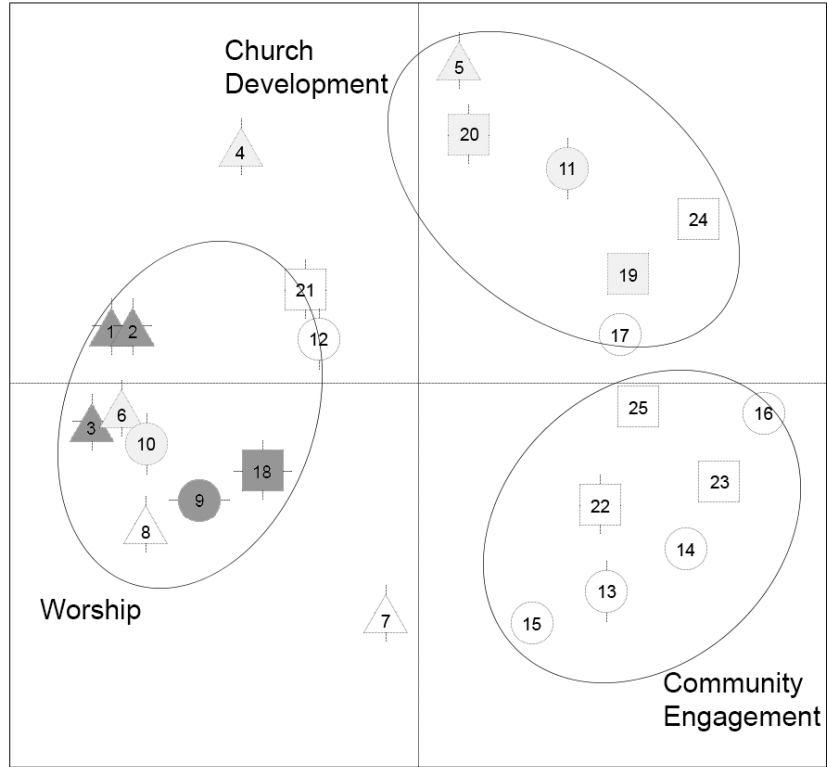
KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | - ROOF

Figure VII- 5: 242 MDS Analysis of Emphasis Judgements
 CH (top) Stress=0.1151, UN (bottom) Stress=0.1523



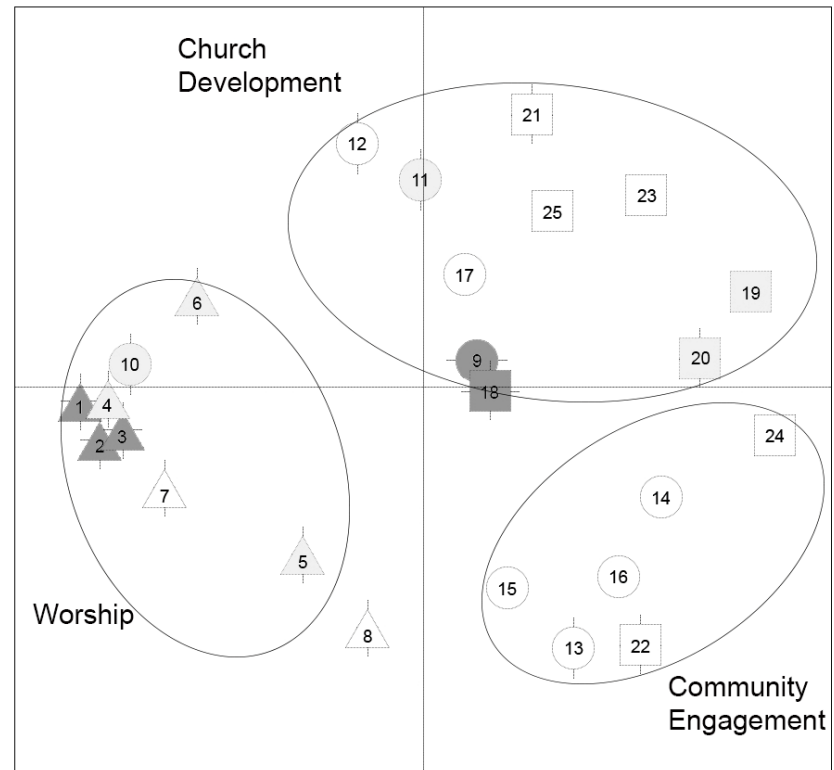
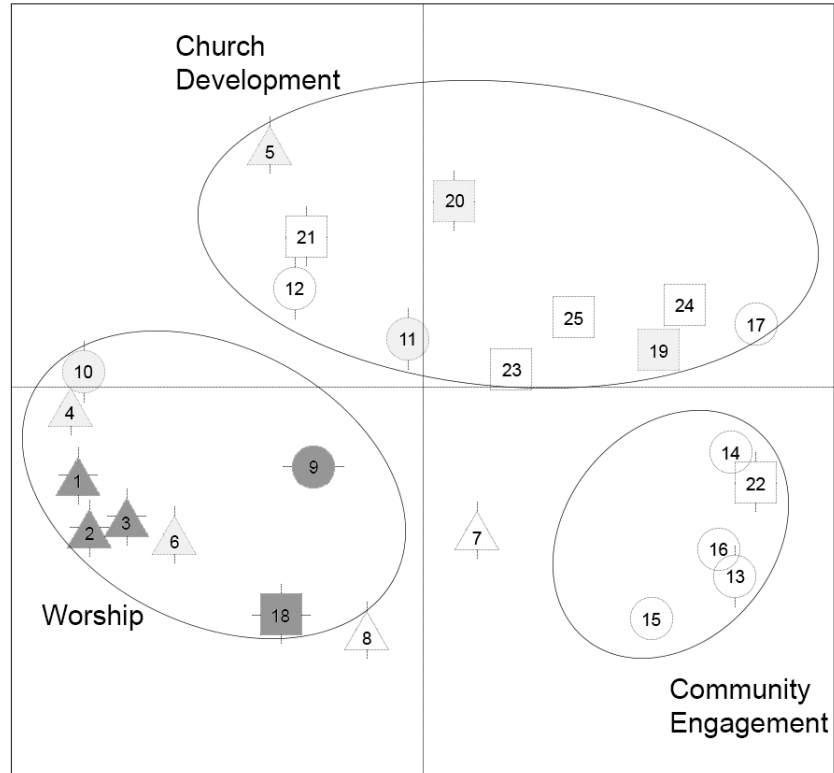
KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | - - ROOF

Figure VII- 6: DUMC MDS Analysis of Emphasis Judgements
 CH (top) Stress=0.1079, UN (bottom) Stress=0.1368



KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | - ROOF

Figure VII- 7: EHC MDS Analysis of Emphasis Judgements
 CH (top) Stress=0.1078, UN (bottom) Stress=0.1300



KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | | ROOF

Figure VII- 8: RBC MDS Analysis of Emphasis Judgements
 CH (top) Stress=0.1278, UN (bottom) Stress=0.1354

Building from previous observations in previous analysis, an analysis of the MDS plots indicate several patterns of relationship. These patterns are described below.

Respondent's judgements of emphasis are consistent and distinct. During the process of administering the research procedure, participants rarely commented on the sorting tasks except for the emphasis judgment directed sort. This directed sort often elicited request for re-affirmation of the prompt. As numerous respondents commented, there was a general concern as to whether they would be able to accurately judge the buildings in this manner. After a re-affirmation and re-reading of the prompt, respondents began their sort, but often with a verbal disclaimer frequently phrased as, "I don't know if my answers will be of any help at all." Despite these verbal objections and qualifying remarks, the MDS analysis show that there is a very distinct and consistent pattern of emphasis judgements. In each of the above MDS plots, there are three visible and distinct clusters of images. This clustering indicates a consistent and distinct pattern of judgment.

Looking closer, although there are a few notable exceptions, across the case studies, and between the CH and UN, the majority of images are consistently judged in the same pattern. For example, images 1, 2, 3, 6 are always judged to have a worship emphasis, images 13, 14, 15, 16, are always judged as emphasizing community engagement, and image 11 is always judged as emphasizing church development. In addition, there are numerous images that in the majority of cases are judged similar including images 4, 6, 8, 10 as emphasizing worship, images 21, 12 as emphasizing church development, and images 17, 23, 24 as emphasizing community engagement.

Images with variant design profile characteristics are inconsistently judged. The first pair that is inconsistently judged is images 9 and images 18. These two images are the two buildings that are designed with a PRE façade composition hierarchy but are not also designed with an S-ECC use of ECC. The MDS analysis shows that these two buildings are consistently classified the same, but inconsistently classified according to perceived emphasis. In most cases, these images are classified as having a worship emphasis, except in DUMC CH, DUMC UN, and RBC UN they are classified as having a church development emphasis. Another pattern of inconsistency is with images that have an S-ECC use of ECC but do not have a PRE design for the FAC. In the MDS, images 4, 5, 6, 7, 8 are often categorized differently, as either worship emphasis or church development emphasis, between MDS analyses. In most cases, these images are placed outside the major clusters – indicating mixed judgements by the respondents. Finally, image 19 and image 20 both have a design profile of N-ECC use of ECC yet having a MIX design for FAC also are inconsistently judged. These images are inconsistently judged as having either an emphasis of church development or community engagement. And as in the case of other images above, these images often sit outside of the most predominant clusters, further indicating mixed respondent judgments of the images.

A Consistent Importance of Perceived Worship Emphasis for Unchurched

As the above analysis demonstrates, within all the cases and all the respondents there is a consistent placing of importance on perceived emphasis of worship. In both the cases of CH and UN respondents—and particularly in the case of UN, respondents

ranked worship of first importance in their ideal conception of a church. This result stands in contrast to the claims of architectural evangelism which purport that unchurched find a worship emphasis as a barrier and would thus rank community engagement of highest importance. Further, additional results also begin to call this line of thinking into question. Not only did unchurched respondents rank worship of first importance, community engagement was ranked as third importance behind church development, which was consistently ranked second importance.

Despite the inaccuracy of architectural evangelism's predictions on what unchurch judge as important emphases, architectural evangelism does accurately identify that traditional ecclesiological design profiles affect judgements of emphasis. As the above results indicate, all four design profile characteristics –and in particular traditional ecclesiological design characteristics— affect judgements of emphasis. This is particularly true in the judgement of worship emphasis as seen in the visual analysis above. Although there is no statistical pattern in design profile characteristics between the judgement of church development emphasis and community engagement, the visual analysis showed there is a pattern based on which secular typology was utilized in the design. Those buildings with more public typologies were more often judged as community engaging and those designs based on semi-public typologies, or utilizing more austere plain designs, were judged as emphasizing church development more.

Finally, the MDS analysis showed that although highly subjective in nature, the judgements of emphasis have a distinct, detectable, and consistent pattern. Thus, for the majority of images, there was strong consensus on how it was judged. To that end, architectural evangelism accurately suggests that judgements of emphasis is an

operational construct for the unchurched—and thus can be considered for its aims.

However, to do so, its current prescriptions for a secular church design would be better aligned with the importance of worship emphasis of the unchurched.

CHAPTER VIII

Judgements of Aesthetic Quality

Chapter VI and Chapter VII explored two of the three barriers postulated by architectural evangelism to inhibit unchurched individuals: judgements of comfort and judgments of emphasis. In each of these chapters, the collected data from the four case studies demonstrated an inconsistency between the judgements of the unchurched and architectural evangelism's design prescriptions.

Beyond barriers of comfort and emphasis, architectural evangelism also postulates that there exists a barrier of perceived hypocrisy such that churches that exhibit aesthetic quality in their church architecture are less preferred by unchurched individuals. This preference, according to ML-5, stems from a perceived misalignment between the church's desire to serve the underserved and the church's practice of spending their limited funds to create a building of high aesthetic quality. Thus, according to architectural evangelism theory, churches should seek to construct buildings that are more simple and austere—which is best achieved via the use of secular typology based church architecture. Further, as the theory concludes, with a more austere, simple, secular based church architecture, unchurched individuals will see the building as more community engaged and will also prefer the building more.

Chapter VII partially explored this line of thinking found in ML-5. As seen in Table VII-2 – Table VII-3 (pg. 127– 128), and discussed in the analysis, there is a consistent trend in all four case studies for unchurched respondents to judge buildings that are more austere, simple, and built with a secular semi-private typology as emphasizing church development. This stands in contrast to ML-5 proposition that unchurched will judge austere simple buildings as emphasizing community engagement.

Building from this observation, this present chapter will explore the relationship between the design of exterior church design and judgments of aesthetic quality. As in previous chapters, this exploration will examine the statistical effect of particular design profile characteristics on aesthetic judgments, carry out a visual analysis of the mean ranking of buildings, and explore patterns of judgments via MDS analysis. Ultimately this chapter serves to provide key insights and a foundation for Chapter IX which explores preference judgements and ultimately examines the claim in ML-5 that unchurched individuals do not prefer buildings with a high aesthetic quality.

The Effect of Design Profile Characteristics on Aesthetic Judgements

Following a similar research methodology used to explore judgements of comfort, research participants' aesthetic judgements were tested via a directed sorting task. Both churched and unchurched participants were provided with the image set and then were asked to sort the images based on their perception of the buildings aesthetic quality into a 5-point Likert scale: Beautiful, Somewhat Beautiful, Neutral / Mixed, Somewhat Ugly, Ugly. After the prompt, on a number of occasions participants asked for clarification as to whether they are sorting the buildings just as buildings in general, or sorting them as

churches. After repeating the prompt, they were further advised that they were sorting the images knowing that all the buildings are Protestant churches.

Subsequent to data collection, the responses were converted into numeric ordinal scores: 5 – Beautiful; 4 – Somewhat Beautiful; 3 – Neutral / Mixed; 2 – Somewhat Comfortable; 1 – Very Uncomfortable. Following, the data was then analyzed for whether each individual design profile characteristic (ECC, HIST, ROOF, FAC) effected judgements of aesthetic quality. To do so, a Kruskal-Wallis test was completed for each respondent's judgement of each individual building. The results of the analysis are seen in Table VIII-1.

The results of the Kruskal-Wallis test indicated that in nearly all cases, design profile characteristics affect judgments of aesthetic quality. Exceptions can be found in the case studies that have embraced architectural evangelism (242, EHC). In these two cases all the design profile characteristics except for ROOF affected judgements of aesthetic quality. Or in other words, in these two cases, whether a building had a sloped or flat roof made no affect as to whether corresponding CH respondents judged the building on the gradient of beautiful or ugly. This results aligns with these CH respondents attendance at churches that do not have sloped roofs.

As discussed in previous chapters in more detail, the Kruskal-Wallis test statistically analyzes whether a design characteristic effects aesthetic judgement, but does not indicate which sub-characteristic (e.g. S-ECC, M-ECC, N-ECC within ECC) makes a statistical effect, nor in which way it affects judgements. Therefore, to explore these dimensions, post-hoc boxplots were generated for the relationship between each design

characteristics and corresponding judgments of aesthetic quality in Fig. VIII-1 – Fig. VIII-16 below.

242 Aesthetic		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	14.0	< 0.05	72.8	< 0.05
Historical Style	1	7.2	< 0.05	55.5	< 0.05
Roof Design	1	1.14	0.258	36.2	< 0.05
Façade Composition	2	54.8	< 0.05	109.7	< 0.05

DUMC Aesthetic		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	37.6	< 0.05	67.1	< 0.05
Historical Style	1	13.1	< 0.05	33.7	< 0.05
Roof Design	1	16.7	< 0.05	27.8	< 0.05
Façade Composition	2	137.1	< 0.05	118.0	< 0.05

EHC Aesthetic		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	33.1	< 0.05	36.1	< 0.05
Historical Style	1	31.6	< 0.05	31.0	< 0.05
Roof Design	1	5.9	0.02	10.9	< 0.05
Façade Composition	2	94.1	< 0.05	83.6	< 0.05

RBC Aesthetic		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	68.2	< 0.05	54.5	< 0.05
Historical Style	1	49.8	< 0.05	74.9	< 0.05
Roof Design	1	41.6	< 0.05	36.7	< 0.05
Façade Composition	2	164.9	< 0.05	145.6	< 0.05

Table VIII- 1: Kruskal-Wallis test of effect of design profile characteristics on aesthetic quality ranking

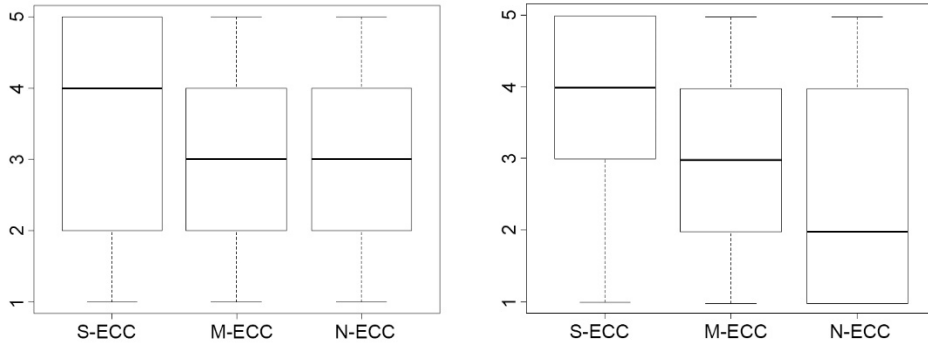


Figure VIII- 1: 242- Boxplots representing effect of ECC on aesthetic judgment CH (Left) UN (right)

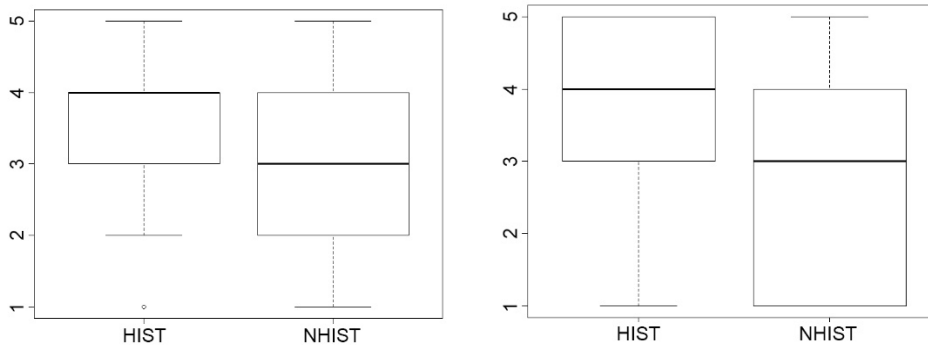


Figure VIII- 2: 242- Boxplots representing effect of HIST on aesthetic judgment CH (Left) UN (right)

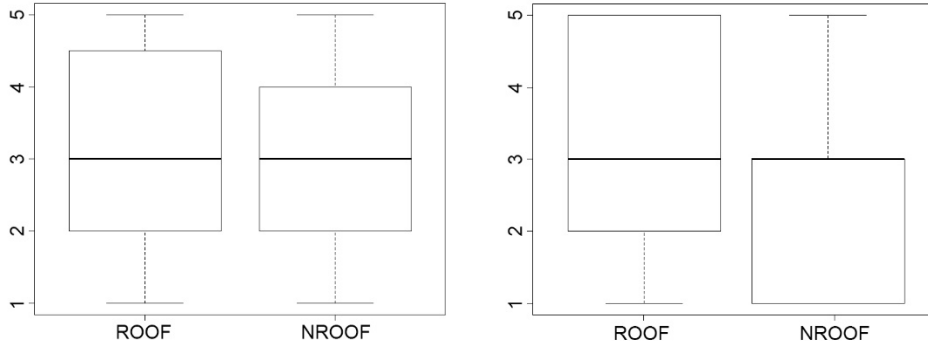


Figure VIII- 3: 242- Boxplots representing effect of ROOF on aesthetic judgment CH (Left) UN (right)

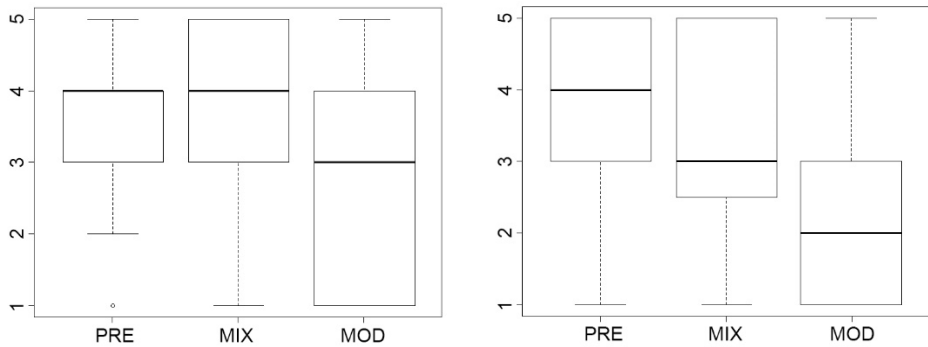


Figure VIII- 4: 242- Boxplots representing effect of FAC on aesthetic judgment CH (Left) UN (right)

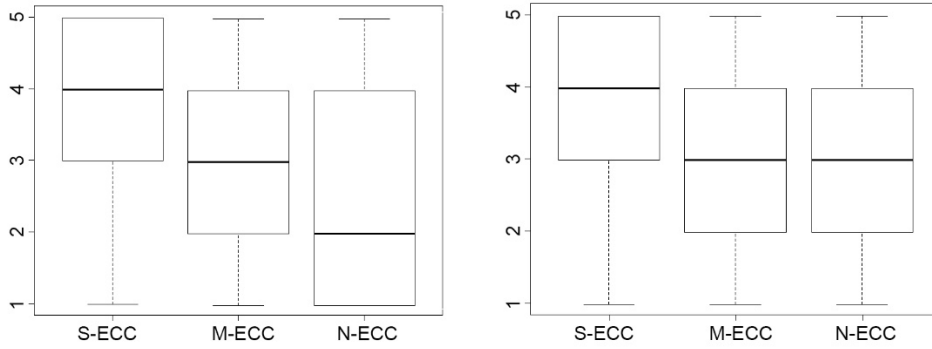


Figure VIII- 5: DUMC- Boxplots representing effect of ECC on aesthetic judgment CH (Left) UN (right)

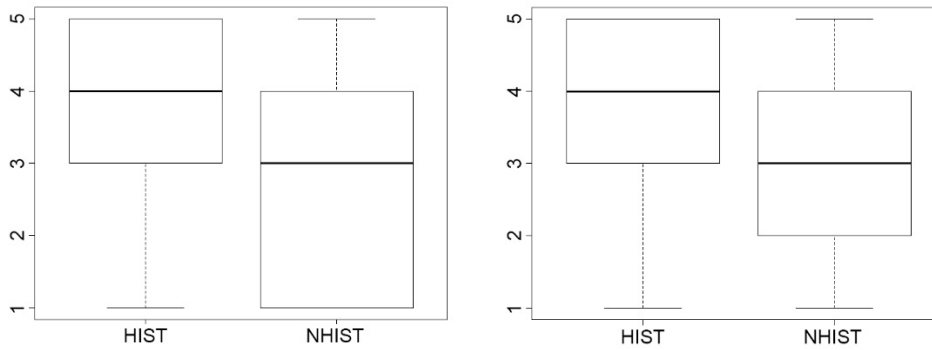


Figure VIII- 6: DUMC- Boxplots representing effect of HIST on aesthetic judgment CH (Left) UN (right)

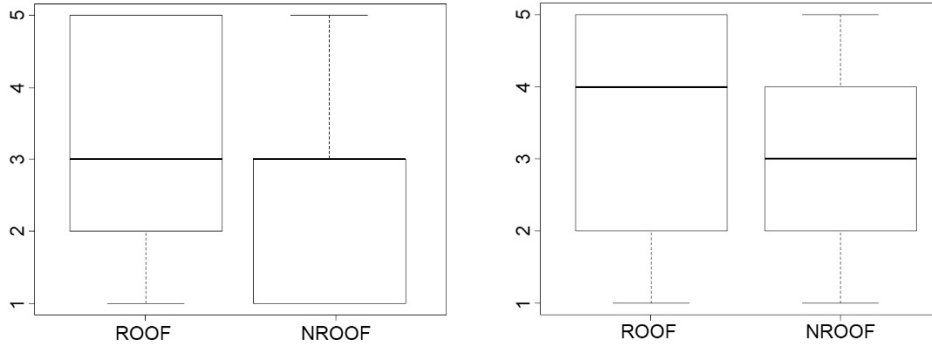


Figure VIII- 7: DUMC- Boxplots representing effect of ROOF on aesthetic judgment CH (Left) UN (right)

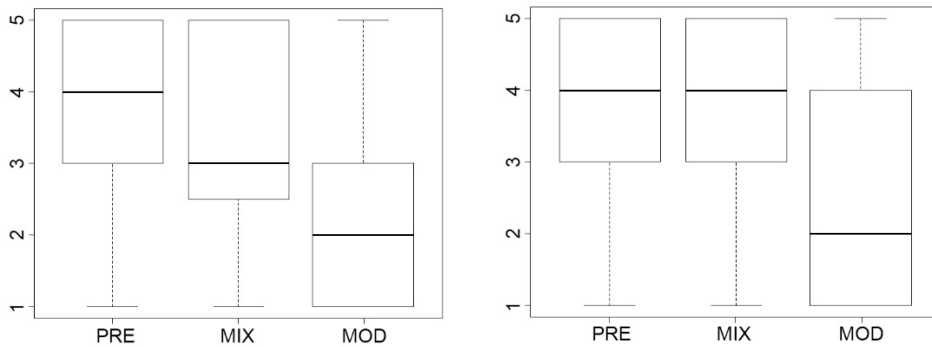


Figure VIII- 8: DUMC- Boxplots representing effect of FAC on aesthetic judgment CH (Left) UN (right)

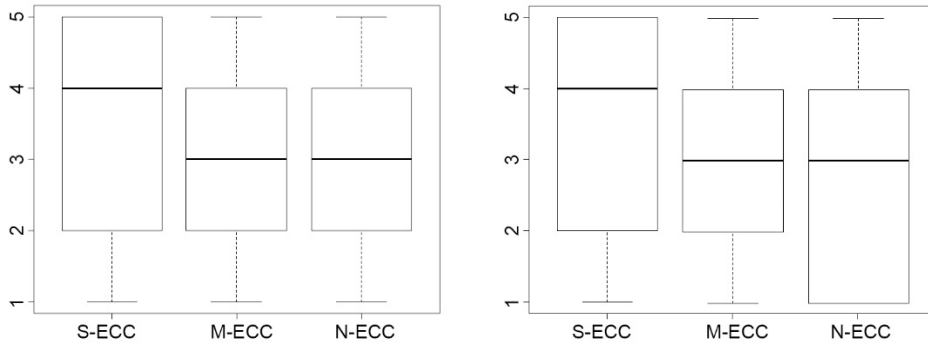


Figure VIII- 9: EHC- Boxplots representing effect of ECC on aesthetic judgment CH (Left) UN (right)

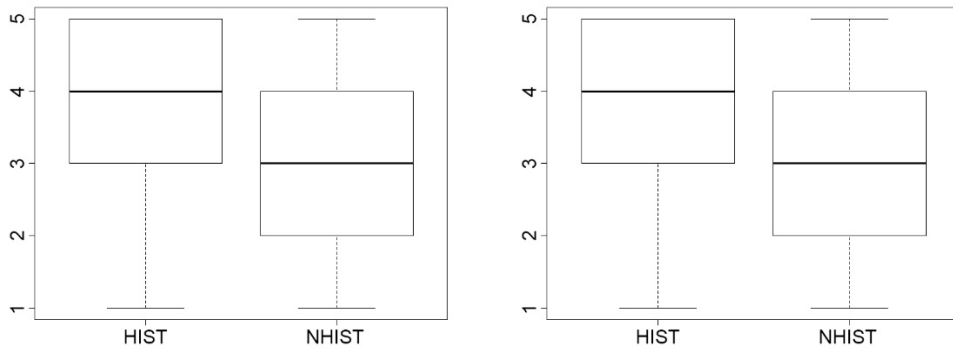


Figure VIII- 10: EHC- Boxplots representing effect of HIST on aesthetic judgment CH (Left) UN (right)

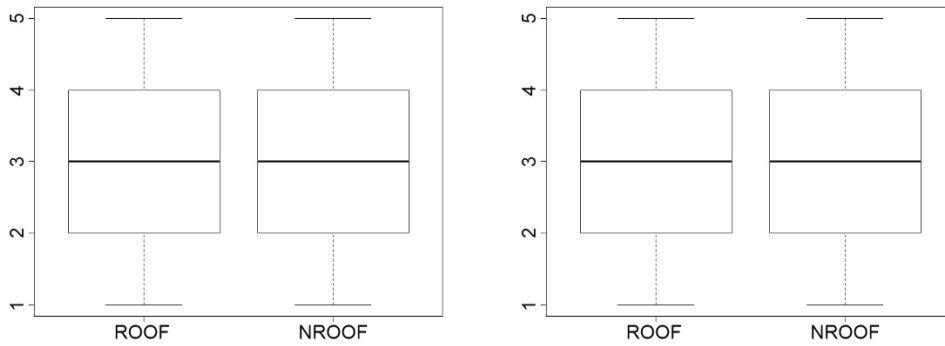


Figure VIII- 11: EHC- Boxplots representing effect of ROOF on aesthetic judgment CH (Left) UN (right)

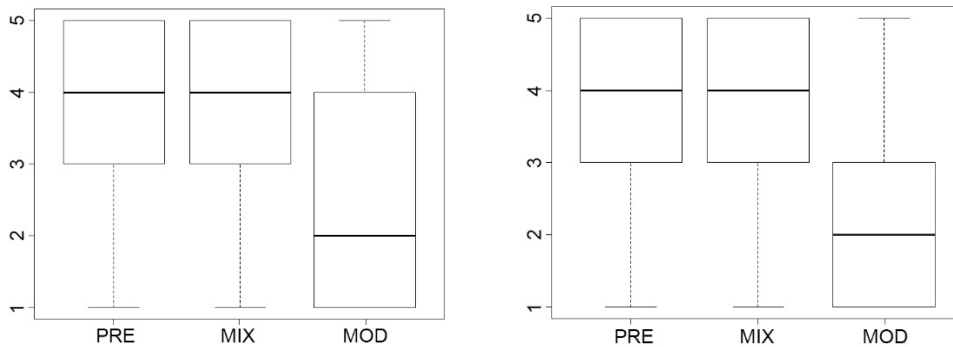


Figure VIII- 12: EHC- Boxplots representing effect of FAC on aesthetic judgment CH (Left) UN (right)

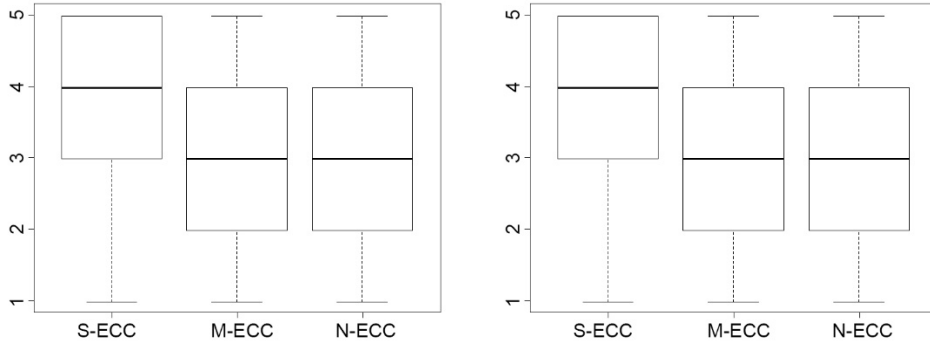


Figure VIII- 13: RBC- Boxplots representing effect of ECC on aesthetic judgment CH (Left) UN (right)

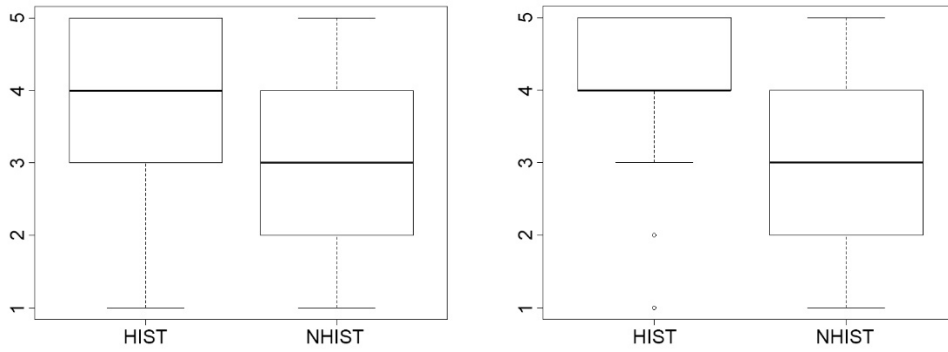


Figure VIII- 14: RBC- Boxplots representing effect of HIST on aesthetic judgment CH (Left) UN (right)

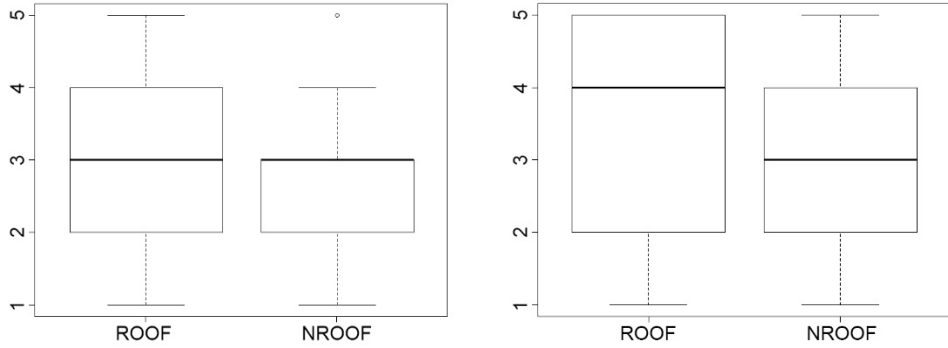


Figure VIII- 15: RBC- Boxplots representing effect of ROOF on aesthetic judgment CH (Left) UN (right)

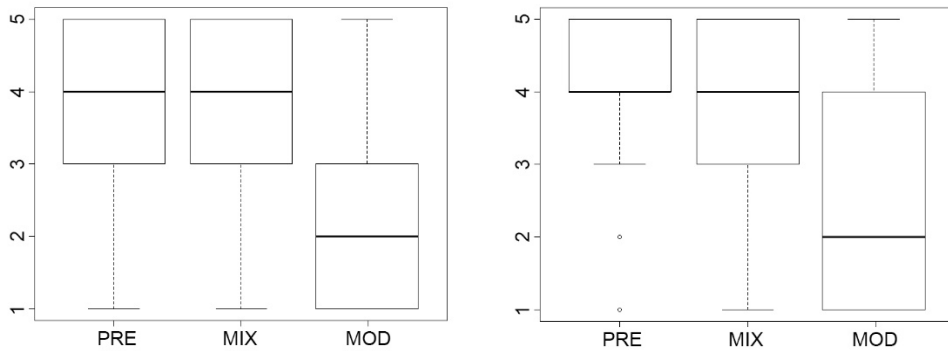


Figure VIII- 16: RBC- Boxplots representing effect of FAC on aesthetic judgment CH (Left) UN (right)

Further, as also discussed in previous chapters, a boxplot is an exploratory graphic utilized to examine significance of subcategories of variables (See Chapter VI, pg. 101 for further explanation). In the graphs above, the x-axis indicates the design characteristic sub-level, and the y-axis indicates the aesthetic quality judgment ranking (i.e., 5 – Beautiful, 1 – Ugly). Accordingly, a sublevel box with a median line and interquartile box that is graphed higher in the chart, the more beautiful that particular sublevel is perceived as.

An analysis of Figure VIII-1 – Figure VIII-16 reveals several key observations. The following section highlights these observations of similarity and differences found between churched and unchurched judgments of comfort in relation to design profile characteristics and the theoretical replication of case studies that have embraced architectural evangelism (242, EHC) the case studies that have not (DUMC, RBC).

Buildings with a strong use of ecclesiological design features is perceived as more beautiful than a moderate use or no use. A review of the figures above show that in all cases for the CH and UN, the S-ECC sub-category of ECC had a median score of 4 – Somewhat Beautiful. This median score is higher than M-ECC or N-ECC which received lower median ranking scores of 3 – Neutral / Mixed or 2 – Somewhat Ugly by all participants in all cases. Further, a secondary trend is visible, although not as consistent. In several of the cases, a building with an M-ECC level of ECC is judged more beautiful than buildings with an N-ECC level of ECC. For example, in the case of 242 UN and DUMC CH, the median rank for the buildings with an N-ECC level of ECC was 2 – Somewhat Ugly compared to a rank of 3 – Neutral / Mixed for M-ECC. Further, this trend is also seen in the case of EHC UN. In this case, although the median rank for

N is the same as M, the lower inter-quartile range extends down to 1 – Ugly, indicating an aesthetic preference for M buildings whose interquartile range only extends to 2 – Somewhat Ugly.

Buildings with historic styling are generally perceived as more beautiful than buildings without historic styling. Similar to the trend for ECC, in all cases for both the CH and UN, buildings that exhibit historic styling have a median rank of 4 – Somewhat Beautiful over buildings without historic styling which have a median rank of 3 – Neutral / Mixed. A few nuances to this general trend are also observed. First, DUMC CH participants did rank HIST higher than NHIST; however, not as strongly as other CH cases. The case of DUMC CH shows a median rank of 4, yet there is no upper interquartile range above four. Compared to other CH cases whose upper interquartile range extends to 5 – Beautiful, the lack of an upper interquartile range indicates less of an intensity of aesthetic preference for historic styled buildings. Further nuances to the general rule are observed in the judgements of the lack of aesthetic quality found for NHIST buildings by 242 UN and DUMC CH. In each of these cases the median rank score was 3 for NHIST, but the lower interquartile range extends to 1 – Ugly. This extension reveals a stronger intensity of lack of aesthetic preference for NH buildings than the cases where the lower interquartile range extends to 2 – Somewhat Ugly. Ultimately this increased intensity for lack of aesthetic preference for NHIST further supports the general trend of buildings with HIST styling are aesthetically preferred.

Buildings with sloped roofs are generally judged as having higher aesthetic quality than buildings have flat roofs. Although the ROOF design characteristic has no statistical significance for the 242 CH and EHC CH cases, the other cases show a general

aesthetic preference trend for buildings with sloped roofs. This trend is evidenced in two ways. First, as seen in the case of DUMC UN, and RBC UN, ROOF has a higher median rank score of 4 – Somewhat Beautiful vs NROOF which has a median rank score of 3 – Neutral / Mixed. Secondly, this trend is evidenced through the interquartile extensions. As seen in 242 UN, DUMC CH, the interquartile rank of ROOF extends to 5 – Beautiful indicating a higher level of intensity of aesthetic preference for ROOF buildings.

Buildings designed with a pre-modern or mixed façade composition hierarchy are judged more beautiful than buildings with a modern façade composition hierarchy. In general both CH and UN respondents ranked buildings with a PRE or MIX façade composition hierarchy two points higher than buildings with buildings with MOD FAC. In all cases except for 242 CH, MOD buildings were ranked with the aesthetic quality category of 2 – Somewhat Ugly. In contrast, although nuanced between cases, the ranking of PRE or MIX was at the level of 4 – Somewhat Beautiful. Even in the case of 242 CH there is still a preference for PRE and MIX, ranked 4, but the MOD received a relatively higher score of 3 – Neutral / Mixed. Slight variances are visible within the case studies – although no secondary trend is present. In the case of 242 UN and DUMC CH, PRE FAC buildings have a median rank of 4 – Somewhat Beautiful, and MIX buildings have a median rank of 3 – Neutral Mixed, demonstrating a higher aesthetic preference for PRE buildings. Lastly, in the case of RBC UN, there is also a higher preference for PRE over MIX as evidenced by the lack of a lower interquartile range for PRE below the rank of 4.

Overall, buildings design with traditional ecclesiological design profile characteristics are found to be more beautiful by all participants. The Kruskal-Wallis

analysis and post-hoc analysis indicate an aesthetic preference for buildings with a strong use of ecclesiological elements, historic styling, sloped roof, and pre-modern or mixed façade composition hierarchy. Further, these aesthetic judgements are generally consistent between churched and unchurched respondents. In all cases above, the CH and UN sample generally judged buildings based on secular typologies to be of less aesthetic quality than buildings based on traditional ecclesiological typologies. Chapter IX will further explore the next level in ML-5 logic that says that more austere buildings are more preferred than buildings of high aesthetic quality.

Aesthetic Judgements - Visual Analysis

The previous analysis statistically analyzed the effect of each individual design characteristics on judgements of aesthetic quality. However, as discussed in Chapter VI, these statistical test have a limitation in that they only consider the isolated effect of a singular design profile characteristic (see Chapter VI, p. 109-110 for further details). To attend to this limitation, following is a visual analysis of the mean ranked scores for judgements of aesthetic quality. Table VIII-2 – Table VIII-3 provide a visual ranking of images according to their mean rank scores, by case and by CH or UN sample (See Appendix D for full results).

Further, the following section describes several observations of the visual mean ranking relating to similarities and difference between buildings ranked more beautiful and buildings ranked as uglier, as well as similarities and differences found between cases.









Rank	242 CHURCHED	242 UNCHURCHED	DUMC CHURCHED	DUMC UNCHURCHED
1	 5	 1	 5	 5
2	 20	 2	 20	 3
3	 24	 4	 10	 20
4	 3	 5	 3	 2
5	 2	 5	 1	 10
21	 25	 25	 25	 25
22	 23	 25	 25	 25
23	 21	 12	 23	 23
24	 21	 21	 12	 21
25	 12	 23	 21	 12

Table VIII- 2: 242 & DUMC Ranking of Mean Value Aesthetic Quality Judgements
(Numbers added for reference)









































Rank	EHC CHURCHED	EHC UNCHURCHED	RBC CHURCHED	RBC UNCHURCHED
1	 5	 5	 5	 5
2	 1	 4	 2	 1
3	 4	 1	 1	 3
4	 3	 2	 4	 2
5	 20	 3	 10	 10
21	 25	 25	 25	 14
22	 21	 21	 21	 21
23	 23	 12	 12	 25
24	 21	 21	 12	 12
25	 12	 23	 23	 23

Table VIII- 3: EHC & RBC Ranking of Mean Value Aesthetic Quality Judgements
(Numbers added for reference)

Mean ranking of aesthetic quality is consistent across cases and churched and unchurched. A review of the ranked images in the above tables reveal a strikingly consistent mean ranking across all cases and sample sub-groups. Out of the 25 building image set, only eight buildings appear on the top five ranking of most aesthetically beautiful buildings—and of those eight, seven buildings consistently appear across all cases: images 1, 2, 3, 4, 5, 10, 20 each appear on the top five ranking; image 24 appears once. In a similar fashion, there is a strong consistency between all cases and sample groups on which buildings are perceived to have low aesthetic quality. In the case of the lowest ranked five images, only six images were chosen across all four cases. Images 7, 12, 21, 23, 25 are the most predominant images, populating the lowest ranked buildings in all cases except for RBC UN, which include image 14. Although each case ranked these images as having the lowest aesthetic quality, the fact that in every case the same images were chosen as the bottom five demonstrates a consistent pattern of aesthetic judgement between theoretical replication of location and of sample group.

Church buildings that exhibit multiple design characteristics typically found in traditional ecclesiological typologies are found to be more beautiful by unchurched respondents. Reviewing the five buildings with the highest mean rank as judged by unchurched, there is a consistent pattern of buildings designed with multiple traditional ecclesiological building characteristics. These buildings often contain features such as steeples (image 1, 4), bell towers (image 1, 3, 5), vertical emphasis (images 1, 2, 3, 4, 10), axial arrangement (images 1, 2, 3, 4, 5, 10). There is one notable exception with DUMC UN rating image 20 in the top five ranked buildings. This is the only instance of UN respondent ranking a building without strong traditional ecclesiological features;

however, this building was also ranked of high aesthetic quality by three of the CH case studies (242, DUMC, EHC).

Church buildings that are of a more simple, austere design are rated of lowest aesthetic quality despite the use of traditional ecclesiological design characteristics.

Contrary to judgements of aesthetic quality which highlights use of ecclesiological elements, judgements of the lack of aesthetic quality are reserved for the buildings in the image set that are the most austere and simple designs. Despite the consistent choice of low aesthetic quality buildings, there is an inconsistency in their design profiles.

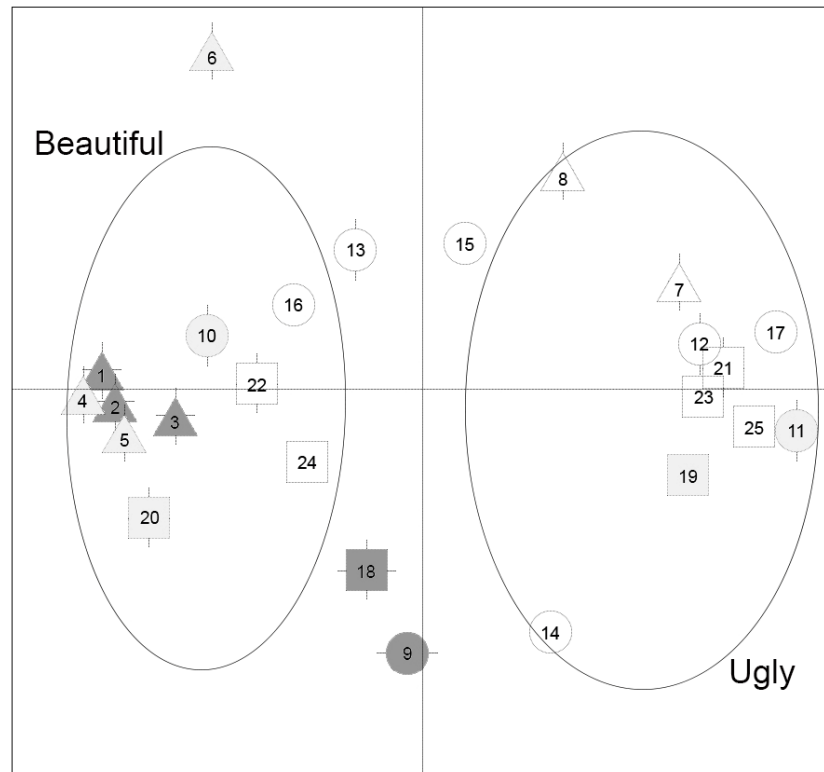
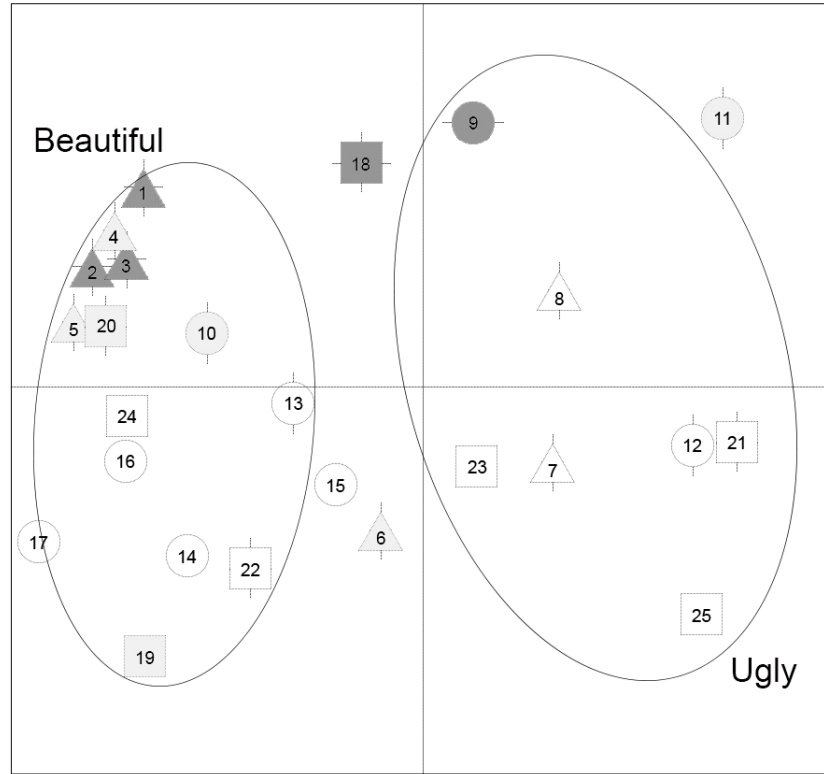
Although each of the six buildings each have a non-historic styling and have a MOD façade composition hierarchy, these elements are combined with a diverse pattern of ECC and ROOF. For example, image 7 has an S-ECC use of ECC displaying a prominent bell tower and archetypal massing; image 12, 14, and 23 have a moderate use of ECC with image 12 having a prominent steeple atop the building, and image 14 and 23 displaying subtle crosses; and image 21 and 25 employing no ecclesiological elements in the design. Further there is also diversity in the use of roof slopes with images 7, 12, 21 having a sloped roof, and images 14, 23, 25 having a flat roof. Yet despite the diversity in design profile, there are consistent architectural traits with the low aesthetic quality buildings. Each building has simple primary massing and emphasize a horizontal orientation, except for image 7. Further each building could arguably be categorized as more austere, simple, and low-cost, again except for perhaps image 7 and image 14. In summary, despite varying design profiles, in general buildings with a MOD façade design profile, which emphasize horizontality and are built in an austere manner are judged as lacking aesthetic quality.

Aesthetic Judgements - MDS Analysis

Chapter VIII, up to this point, has explored the relationship between the exterior design of Protestant churches and judgements of aesthetic quality via statistical analysis of the effect of design profile characteristic and via visual analysis. Following, the analysis will utilize MDS analysis to explore patterns of relationships between all judgements of all images as a means to address limitations of non-parametric statistical analysis (see Chapter VI, pg. 117 for further details).

In preparation for the MDS analysis, a similarity matrix was constructed based on research participant judgements. First, participant judgements were first categorized into a binary set of “Beautiful” or “Ugly”. To construct this binary score, judgements of 5 – Beautiful and 4 – Somewhat Beautiful were classified as “Beautiful”; and judgements of 2 – Somewhat Ugly and 1-Ugly were reclassified as “Ugly”. Next, a similarity matrix was created for CH and UN participant responses in each case study. Following, the similarity matrices were analyzed via MDS analysis in SPSS PROXSCAL procedures, mapping responses in a two dimensional space. Further, each plotted number was then embedded in a symbol representing the building’s individual design profile.

In addition to observations of aesthetic quality judgements from previous analyses, a review of the MDS plots demonstrate several patterns of relationships within judgements of aesthetic quality. Following, the patterns are described.



KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX ◻ - MOD | | ROOF

Figure VIII- 17: 242 MDS Analysis of Aesthetic Quality Judgements
 CH (top) Stress=0.1210, UN (bottom) Stress=0.1414

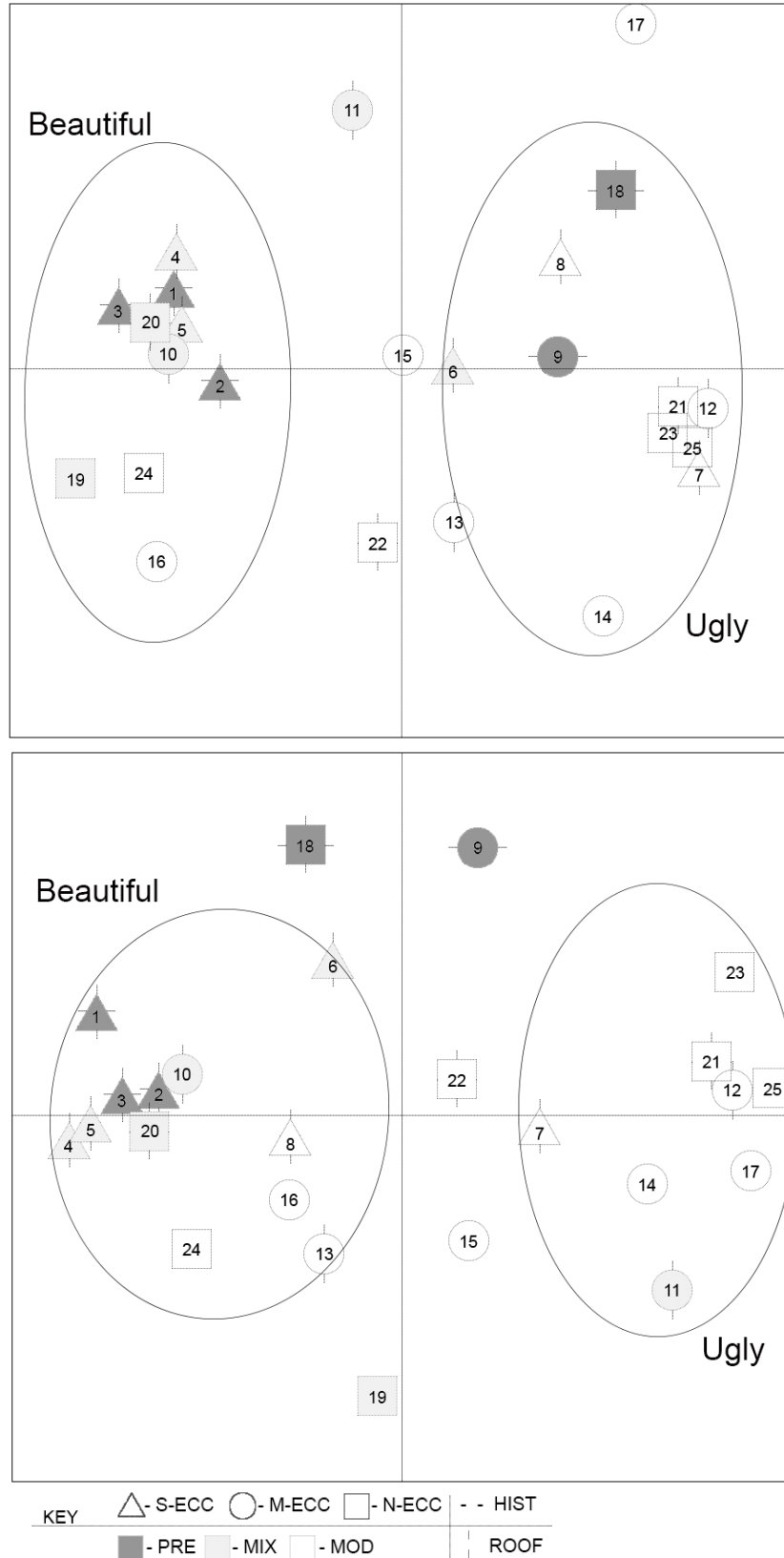
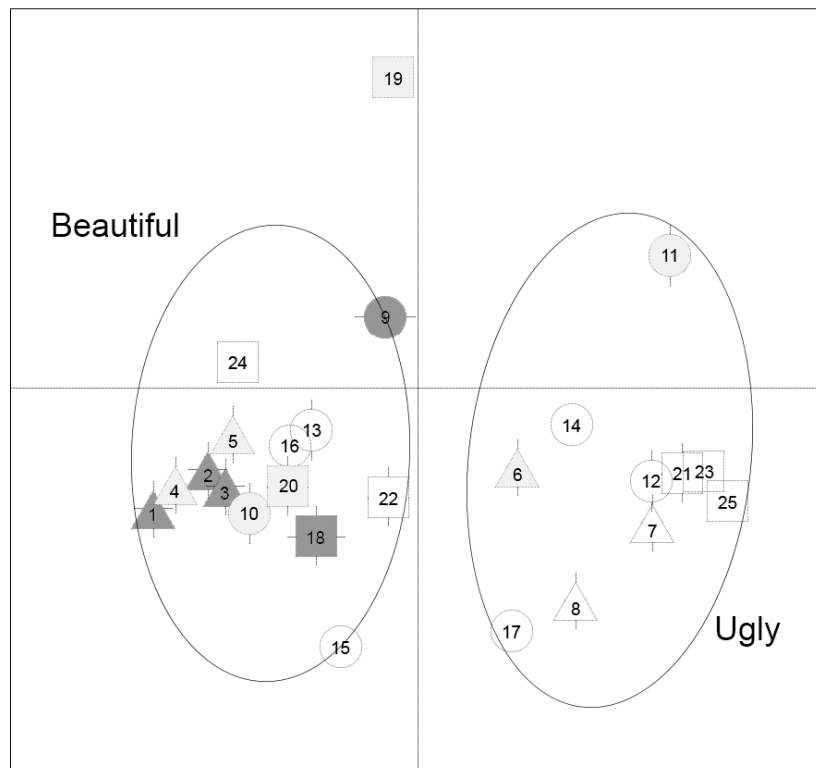
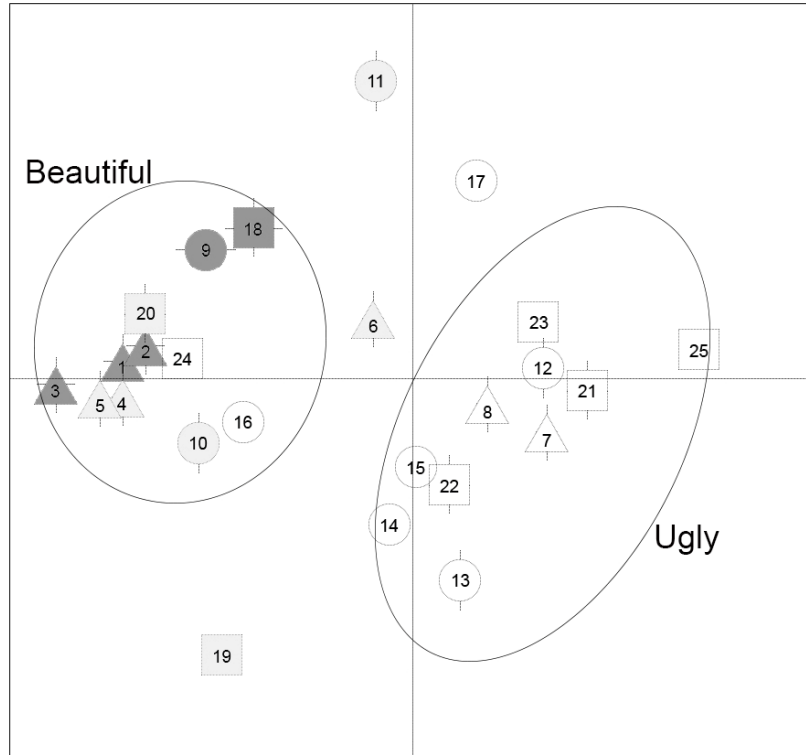


Figure VIII- 18: DUMC MDS Analysis of Aesthetic Quality Judgements
 CH (top) Stress=0.1341, UN (bottom) Stress=0.1423



KEY △ - S-ECC ○ - M-ECC □ - N-ECC - - HIST
 ■ - PRE ▒ - MIX □ - MOD | - ROOF

Figure VIII- 19: EHC MDS Analysis of Aesthetic Quality Judgements
 CH (top) Stress=0.1400, UN (bottom) Stress=0.1260

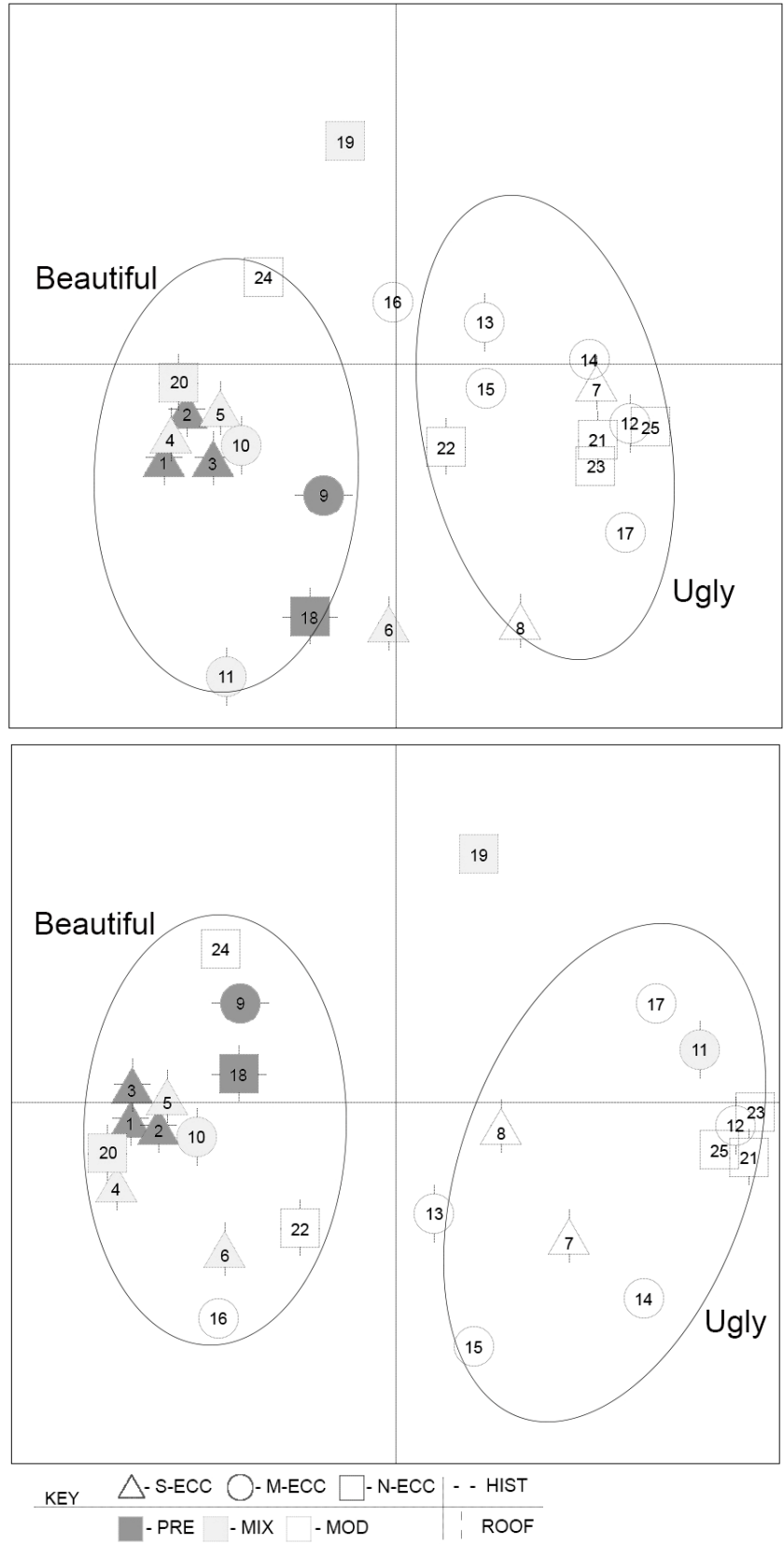


Figure VIII- 20: RBC MDS Analysis of Aesthetic Quality Judgements
 CH (top) Stress=0.1329, UN (bottom) Stress=0.1111

For Churched and unchurched there is a small number of very distinct buildings that are classified as beautiful or ugly, and the judgements for the remainder of the buildings are more diverse. The strongest observable pattern within the MDS graphs occurs within the density of clustering. Arguably in nearly all cases, the MDS graph contains two distinct dense clusters—a cluster of high aesthetic quality and a cluster of low aesthetic quality. These clusters contain a small number of buildings. For high aesthetic quality, the number of images in the cluster range from five for 242 UN to nine with EHC UN, and average six or seven in the other cases. For low aesthetic quality judgement, the highest density clusters contain between four and six images. This density of clustering indicates a high level of consistency and distinction in the aesthetic quality of the judgements at the extreme ends of the spectrum. The only notable exception to this observation is in the CH sample that attend churches that have embraced architectural evangelism. In the case of 242 CH and EHC CH, the density of the low aesthetic quality clusters is much looser.

In contrast to the distinction of clustering for the extreme ends of the rating scale, the images that do not fall within the clusters are much more loose and inconsistent in their placement. However, there are still identifiable regions in the MDS graphs between beautiful and ugly. For these images, their loose and inconsistent regional placement on the MDS graph indicate that there is much more debate as to their aesthetic quality. For several image numbers, this debate to their aesthetic quality even pulls them out of distinct general region, and they are mapped on or very near the vertical center line of the graph.

Unchurched judgements of high aesthetic quality, as previously observed, are applied to buildings that are designed with traditional ecclesiological design profile characteristics—with the consistent exception of image 16 and image 24, and general exception for image 22 and image 13. A review of the beautiful region reveals that the dense cluster is only populated with buildings with a PRE or MIX FAC, and most often with an S-ECC use of ECC. However, still within the area of beautiful but outside the dense cluster, consistently there are several images not matching these characteristics. Most notably image 16 and 24 appear in every UN area of beautiful. These buildings both have a MOD façade composition hierarchy and an N-ECC or M-ECC use of ecclesiological features, and are designed without historic stylings and flat roofs. A visual review of these buildings show that both buildings have a high use of curtain wall glass, a stronger use of secondary massing in its composition, and were both constructed within the last five years. Further, image 22, although not present in every case, is judged as beautiful by three of the four UN MDS graphs. This building’s design, similar to image 16 and 24, also utilizes a large curtain wall, but is framed with a sculptural roof. Finally, image 13 also is a building outside of traditional ecclesiological design profiles that is judged by UN as beautiful in three of the four UN cases. Image 13, too has a sculptural quality in its massing create through the use of large scale curtain walls.

Unchurched Description of Beauty in Church Architecture

The above analysis of the four case studies perception of aesthetic quality in the 25 image set suggests several key criteria in an unchurched description of beauty in church architecture. First, as seen in the MDS analysis and visual analysis, there is a strong consistency within judgements of aesthetic quality and lack of aesthetic quality. At these two ends of the perception scale, the unchurched consistently identified the same small number of churches. Buildings that were judged with high aesthetic quality were buildings that had a strong use of ecclesiological elements in its design, tended to use historic styling, sloped roofs, and a PRE or MIX façade composition hierarchy. Contrary to this, buildings that were judged by the unchurched to have low aesthetic quality were the buildings that were more austere in their design, and tended to have a MOD composition hierarchy. Although there are a few notable exceptions to these standard trends above, the judgement of these exceptions tend to be less consistent or distinct, according to the MDS analysis.

The results and observations above seek to inform the following chapter. Chapter IX will explore the relationship between exterior church design and preference judgements. The observations of both chapters will test the ML-5 claim that unchurched individuals prefer buildings with a design that is more austere, simple, and based on a secular-typology.

CHAPTER IX

Preference Judgments and Prototypicality

At its core, architectural evangelism seeks to change unchurched individuals overall judgements of church by creating a church architecture that is maximally preferred by the unchurched. Previous to Chapter IX, Chapters V – Chapters VIII explored particular judgements that may affect preference judgment. These chapters tested the aptness and effectiveness of these distinct aspects of architectural evangelism theory including base pre-suppositions, ideas about unchurched barriers, and the role that secular based church design played in relation to those proposed barriers. Yet to this point, the research has not directly explored preference judgements. To that end, this chapter examines the research question:

What is the relationship between the design characteristics of Protestant church exteriors and preference judgements of church and unchurched individuals?

To do so, this chapter first will explore the direct relationship between church design profile characteristics and preference judgments via a Kruskal-Wallis analysis, a visual analysis, and an MDS analysis. Following, this chapter then draws from previous empirical aesthetics research on the role of proto-typicality in preference judgements to explore whether judgements of prototypicality are correlated with judgements of preference in the present study. The analysis will utilize two measures: judgements of prototypicality and past experience.

Finally, this chapter asks which of all the judgements tested in the study (comfort, emphasis, aesthetic quality, prototypicality, past experience) is the most highly correlated with preference judgments—providing further insight into unchurched preference judgments.

The Effect of Design Profile Characteristics on Preference Judgements

During the image-based sorting task interview, data was collected on overall preference for the buildings prior to the directed sorting tasks for comfort, emphasis, aesthetic quality, prototypicality and past experience. Churched and unchurched participants were provided with the image set and were asked to sort the images according to their preference into five categories provided to them: Like Very Much; Like Somewhat; Neutral / Mixed; Dislike Somewhat; Dislike Very Much. Subsequent to this sort, participants were then asked to rank their preferences from 1 being most liked and 25 being least liked, using the previous preference sorting piles as a start. The rank order of the images was then recorded using numeric ordinal scale of 1 – 25.

To explore the relationship between specific design profile characteristics and respondent's preference ranking, a Kruskal-Wallis test was conducted. Through the Kruskal-Wallis test, the statistical effect of each design profile characteristic (ECC, HIST, ROOF, FAC) was determined. Results of the analysis are seen in Table IX-1.

The results of the analysis indicate that in nearly every case each design profile characteristic statistically influenced preference judgments. In two instances for 242 CH participants, this was not the case however. For 242 CH participants, the use of historical style and the variation of roof design did not statistically affect preference judgements.

242 Preference		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	16.5	< 0.05	83.3	< 0.05
Historical Style	1	4.7	0.03	55.6	< 0.05
Roof Design	1	0.9	0.34	39.6	< 0.05
Façade Composition	2	58.2	< 0.05	117.0	< 0.05

DUMC Preference		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	39.1	< 0.05	57.0	< 0.05
Historical Style	1	10.7	< 0.05	41.5	< 0.05
Roof Design	1	19.0	< 0.05	28.4	< 0.05
Façade Composition	2	147.5	< 0.05	127.2	< 0.05

EHC Preference		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	42.7	< 0.05	37.7	< 0.05
Historical Style	1	32.9	< 0.05	33.8	< 0.05
Roof Design	1	10.1	< 0.05	17.6	< 0.05
Façade Composition	2	115.1	< 0.05	142.5	< 0.05

RBC Preference		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	52.7	< 0.05	87.3	< 0.05
Historical Style	1	35.9	< 0.05	61.9	< 0.05
Roof Design	1	38.6	< 0.05	54.2	< 0.05
Façade Composition	2	126.3	< 0.05	142.5	< 0.05

Table IX- 1: Kruskal-Wallis Test of effect of design profile characteristics on preference ranking

As discussed in previous chapters in more detail, a post-hoc test is needed to fully understand just how these design profile characteristics affect judgements of preference. Thus, following, boxplots were generated for the relationship between each design characteristic and corresponding judgments of preference (see Figure IX-1 – Figure IX-16). In the boxplot graphs below, the x-axis indicates the design characteristic sub-level, and the y-axis indicates preference ranking (1 – Most preferred, 25 – Least preferred). Therefore, a sublevel box plot lower in the chart indicates that the particular design characteristic sub-level is more preferred.

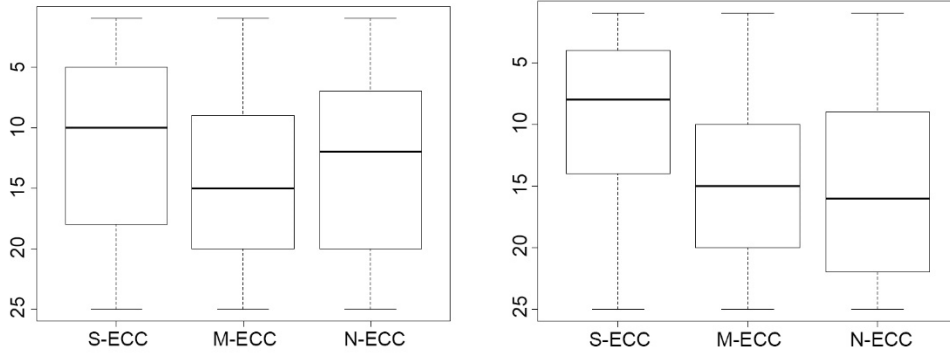


Figure IX- 1: 242- Boxplots representing effect of ECC on preference CH (Left) UN (right)

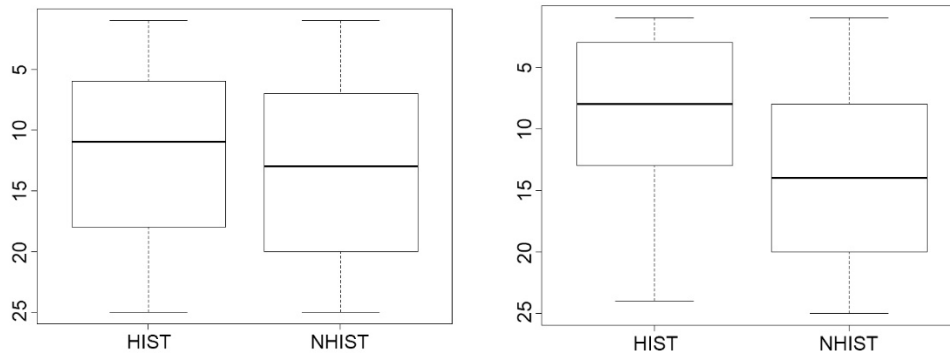


Figure IX- 2: 242- Boxplots representing effect of HIST on preference CH (Left) UN (right)

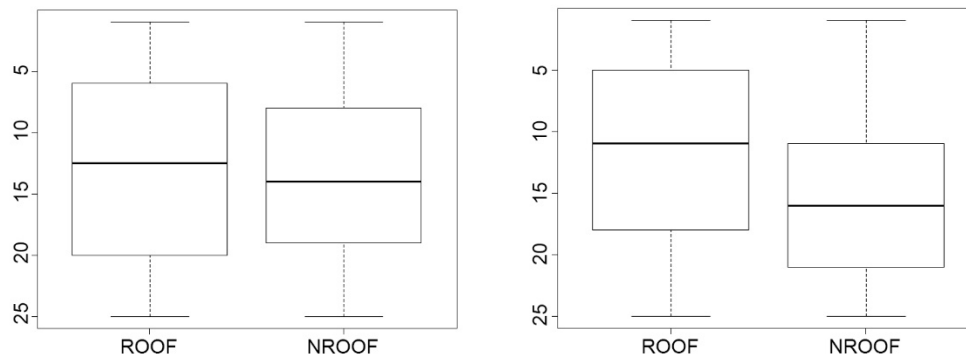


Figure IX- 3: 242- Boxplots representing effect of ROOF on preference CH (Left) UN (right)

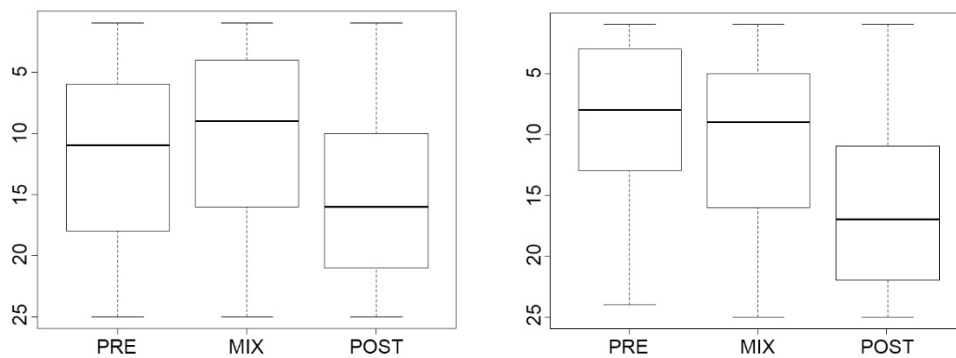


Figure IX- 4: 242- Boxplots representing effect of FAC on preference CH (Left) UN (right)

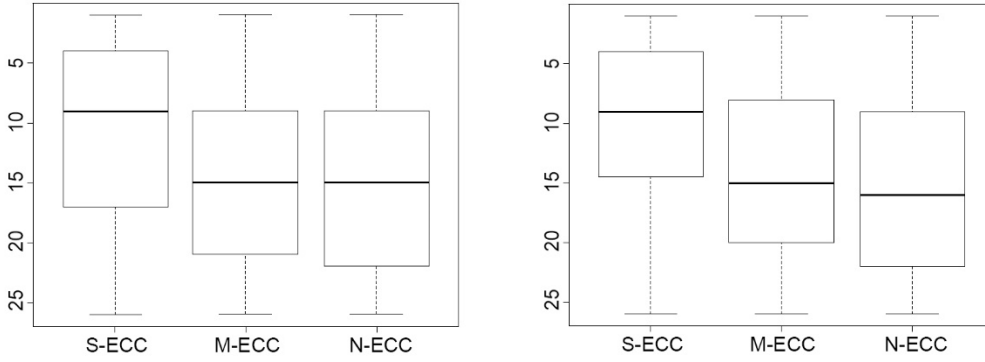


Figure IX- 5: DUMC- Boxplots representing effect of ECC on preference CH (Left) UN (right)

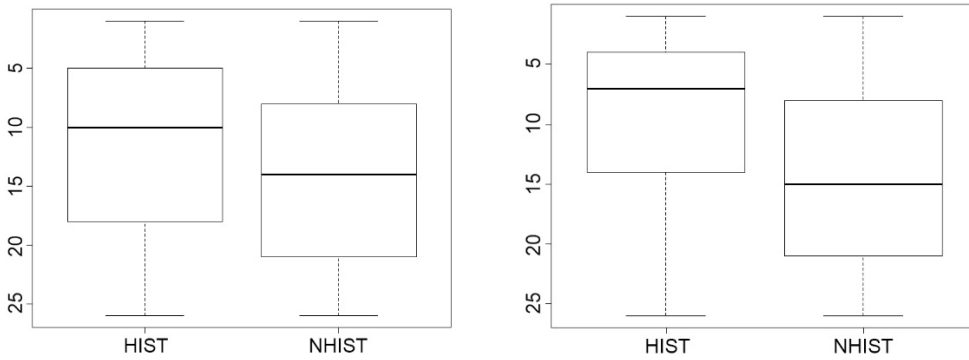


Figure IX- 6: DUMC- Boxplots representing effect of HIST on preference CH (Left) UN (right)

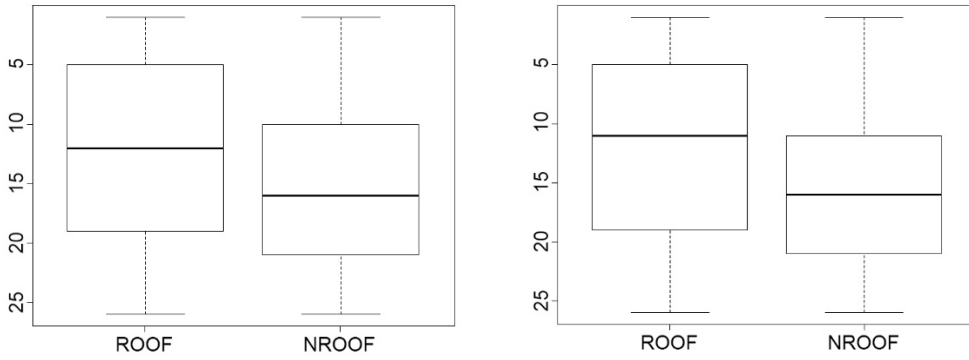


Figure IX- 7: DUMC- Boxplots representing effect of ROOF on preference CH (Left) UN (right)

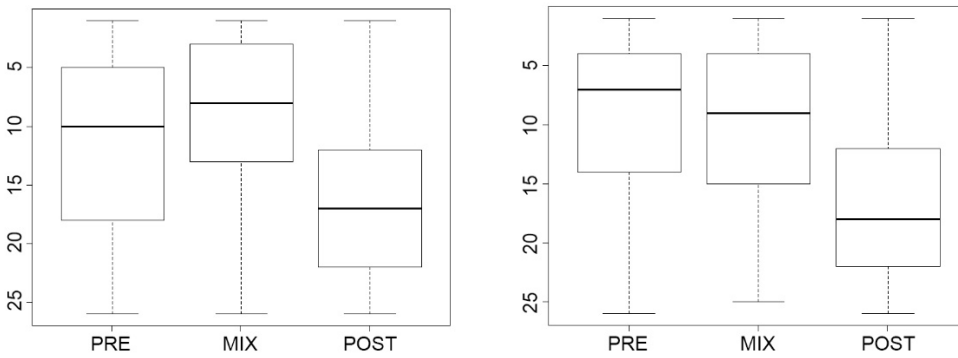


Figure IX- 8: DUMC- Boxplots representing effect of FAC on preference CH (Left) UN (right)

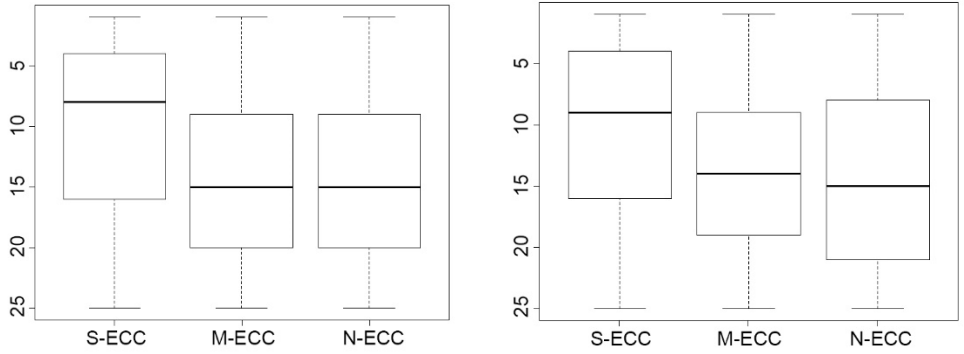


Figure IX- 9: EHC- Boxplots representing effect of ECC on preference CH (Left) UN (right)

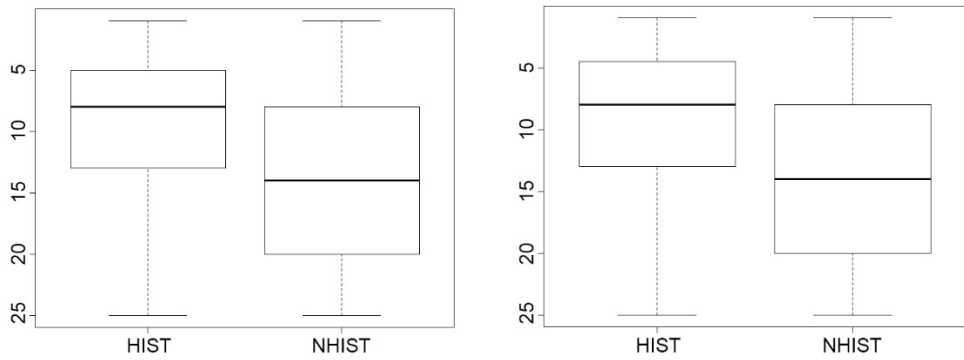


Figure IX- 10: EHC- Boxplots representing effect of HIST on preference CH (Left) UN (right)

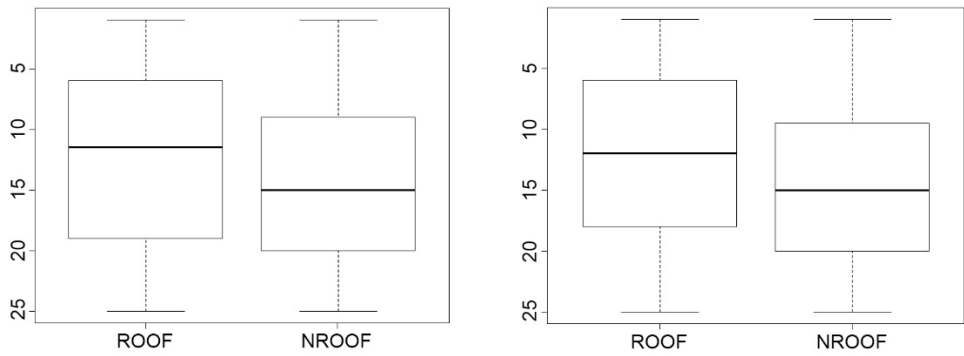


Figure IX- 11: EHC- Boxplots representing effect of ROOF on preference CH (Left) UN (right)

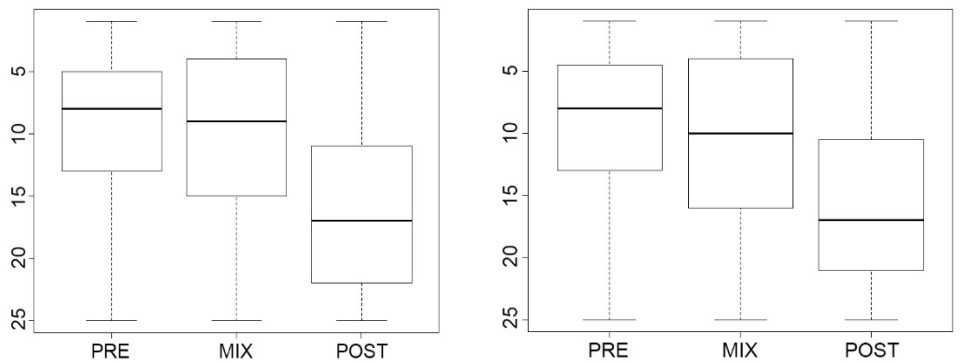


Figure IX- 12: EHC- Boxplots representing effect of FAC on preference CH (Left) UN (right)

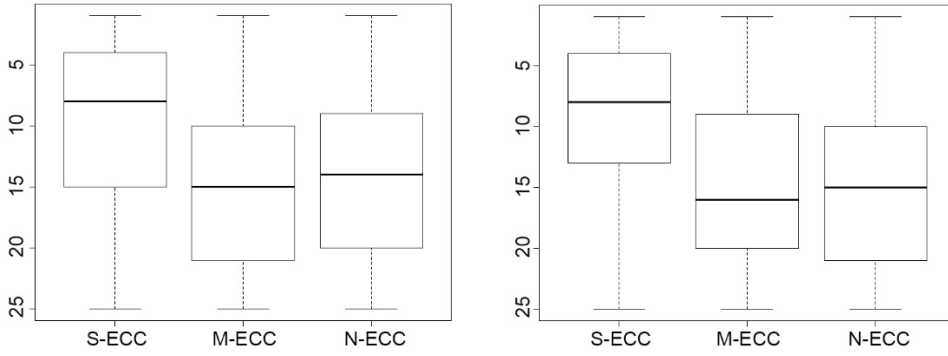


Figure IX- 13: RBC- Boxplots representing effect of ECC on preference CH (Left) UN (right)

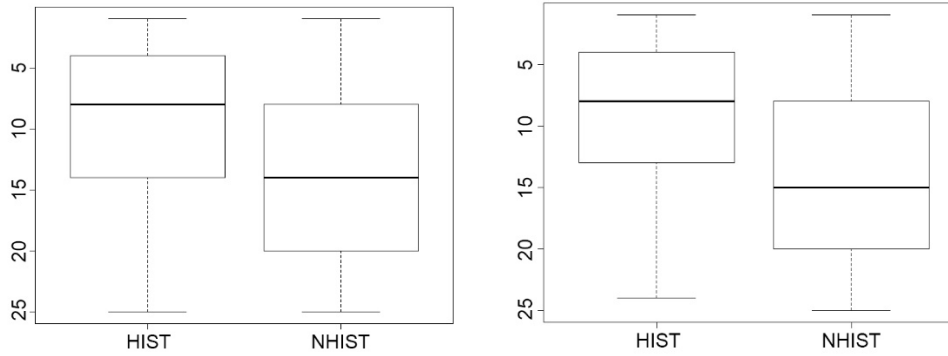


Figure IX- 14: RBC- Boxplots representing effect of HIST on preference CH (Left) UN (right)

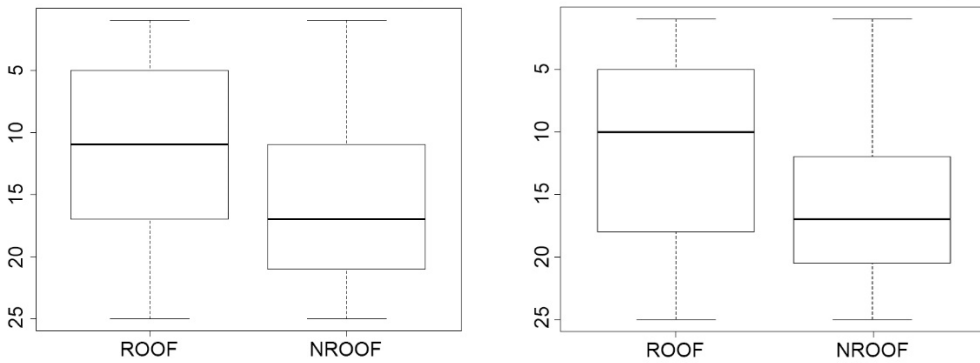


Figure IX- 15: RBC- Boxplots representing effect of ROOF on preference CH (Left) UN (right)

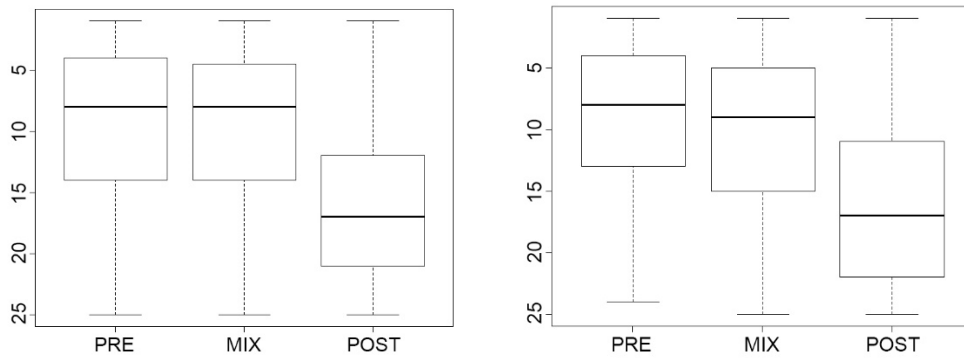


Figure IX- 16: RBC- Boxplots representing effect of FAC on preference CH (Left) UN (right)

An analysis of Figure IX-1 – Figure IX-16 reveals several key observations. The following section highlights these observations of similarity and differences found between churched and unchurched judgments of comfort in relation to design profile characteristics and the theoretical replication of case studies that have embraced architectural evangelism (242, EHC) the case studies that have not (DUMC, RBC).

Unchurched respondents strongly prefer church buildings with a strong use of ecclesiological design elements, followed by a moderate use, and least prefer buildings with no use of ecclesiological design elements. There is an observable consistency in the ECC boxplots for the unchurched responses in all cases. In every case, buildings with an S-ECC use of ECC are more preferred, with a median line consistently below 10 and a lower interquartile range box that ends prior to reaching the next median score. This placement of the S-ECC box indicates a strong preference for S-ECC sub-level characteristic. The next preferred sub-level is M-ECC in three of the four cases, with a median rank of 15 out of 25. In the case of RBC, N-ECC sublevel is slightly preferred over M-ECC sublevel with a median rank just below 15. Finally, in three of the four cases, N-ECC sublevel of ECC is least preferred with a median ranking above 15 out of 25.

Churched respondents prefer church buildings with a strong use of ecclesiological design elements, and vary on secondary preference for moderate or no use of ecclesiological elements. Similar to the pattern seen in the unchurched response, in all four cases, churched respondents rate buildings with a strong use of ecclesiological design as most preferred, with a median rank at or below 10. This preference, however, is slightly less strong compared to the unchurched, noting the lower interquartile box for

S-ECC sublevel graphs higher than the unchurched. Beyond the general preference for an S-ECC sublevel, there is a mixed preference rating for N-ECC vs M-ECC. In the case of 242 CH and RBC CH, there is a slight preference for N-ECC over M-ECC, and in the case of DUMC and ECH the rating of buildings with an M-ECC or N-ECC sublevel are equal.

Unchurched and churched respondents prefer the use of historic styling in church architecture over church buildings that do not utilize historic styling. Consistent across all four cases, the median rank for buildings with historic styling is between 5 and 10. Further, the lower interquartile range of the ranking of HIST ends prior to 15. This is compared to the rating for NHIST buildings which have a higher median rank score. In these cases, unchurched respondents consistently had a median ranking of 15. A similar pattern is observed for the churched respondents. Except in the case of 242 CH, which is statistically insignificant, CH participants' median ranking for buildings with a historic styling between 5 and 10. Further, CH participants' median ranking of NHIST buildings is slightly lower, thus more preferred, than unchurched participants ranking of NHIST buildings—albeit by only one point. Ultimately, the boxplots indicate a general preference for sublevel HIST over sublevel NHIST.

Unchurched and churched respondents prefer buildings with sloped roofs over churched designed with a flat roof. The general preference for sloped roofs is observed in all cases, except for 242 CH which is statistically insignificant. Within the unchurched sample, the median rank for buildings with sloped roofs is 11, and slightly more preferred in RBC with a median rank of 9. This stands in comparison to the median rank of flat roof designs with rank between 15 and 17. Similarly in the churched sample of DUMC,

EHC, RBC, buildings with designed with a sloped roof have a median rank of 11 or 12. This rank indicates a stronger preference for these buildings over churches designed with a sloped roof which have a median rank score of 15-17.

Unchurched and churched respondents do not prefer churched designed with a modern compositional hierarchy, and vary in preference between designs that have pre-modern and mixed façade composition hierarchies. In contrast to the previous design profile characteristics where the largest difference was observed in a higher preference for a sublevel, within FAC, the largest observable difference is in the lack of preference for buildings with a particular sublevel. In all cases for all samples, the median rank score for churches with a MOD FAC is significantly least preferred than PRE or MIX, scoring either a 16 or 17 rank out of 25. This stands in comparison to the median rank score of PRE or MIX, which most often is ranked as an 8 or below. Variation does exist in whether PRE or MIX is most preferred. The boxplots indicate that the unchurched sample slightly prefers PRE over MIX. Within the CH sample, there is a variance between locations. In the Michigan case studies, 242 CH and DUMC CH, MIX is preferred slightly over PRE, and in the California case studies, EHC slightly prefers PRE over MIX and RBC ranks them equal. Overall, the strongest trend is for a significant lack of preference for churches designed with a modern façade compositional hierarchy.

Overall, the use of traditional ecclesiological design profile characteristics effect preference ratings positively. These results stand in stark contrast to ideas found within architectural evangelism theory. The Kruskal-Wallis analysis and post-hoc boxplot analysis demonstrate a statistically significant and observable trend for respondents to prefer church buildings designed with traditional ecclesiological design profile

characteristics. In particular, one of the base design prescriptions put forth by architectural evangelism is the use of a secular-based church designs. This church design approach, as explored in previous chapters, intends to adjust judgments of comfort, aesthetic preference, and emphasis such that the buildings would be more preferred by unchurched individuals. In each previous analysis of specific judgements, this proposal did not correlate with the data collected from the four case studies. Similarly, the idea that unchurched individuals prefer secular based church architecture more than traditional ecclesiological architecture does not correlate with the data collected from the four case studies.

With that said, it should be noted at this point that church members verbalized that they were attracted to church activities and member connections over their church's architecture. During the collection of demographic questions, church members were asked to reflect on what they were initially attracted to at their church. Verbal reflection showed a strong, if not generally universal trend, that initial attraction was focused on ministry style, church activities, or church member connections / family connections. In no instance did this initial question elicit reflection on church architecture. A follow-up question was then asked to all church members inquiring whether they liked their church's architecture. Responses varied significantly. With no discernable trend, some respondents in each case study liked their church building while other respondents in the same case study did not. When asked what they liked or disliked, again responses ranged in focus, scope and scale from focus on detailed functionality or acoustics of the building, to the comments focusing on an appropriate use of style, to comments appreciating and reinforcing the architectural approach of their

church. In sum, churched respondents appeared to have a varied set of preferences for their church architecture, but those stated preferences were of lower priority to them than other aspects of the church.

Preference Judgments – MDS Analysis

The previous analysis explored the effect of individual design profile characteristics on preference judgements for the churched and unchurched—observing that traditional ecclesiological design profile characteristics were more preferred. In the following analysis, the sum of preference judgments are analyzed in relation to each other via an MDS analysis. Through the MDS analysis patterns of judgment relationships are explored.

In preparation for the MDS analysis, a similarity matrix was constructed for each participant's judgment of each building based on a binary ranking of 'Preferred' and 'Not Preferred'. This binary ranking was constructed from the directed preference sorting task where by participants sorted the images into a 5-point Likert scale based on the semantic differential pair of Like / Dislike. Specifically, judgments of "Live Very Much" and "Like Somewhat" were classified as "Preferred"; and judgments of "Dislike Very Much" and "Dislike Somewhat" were classified as "Not Preferred." A matrix was constructed for each the CH responses and UN responses within each case study. Utilizing SPSS PROXSCAL procedure, the matrix results were mapped in two-dimensional space. The results of the MDS analysis can be seen in Figure IX-17 – Figure IX-20 above.

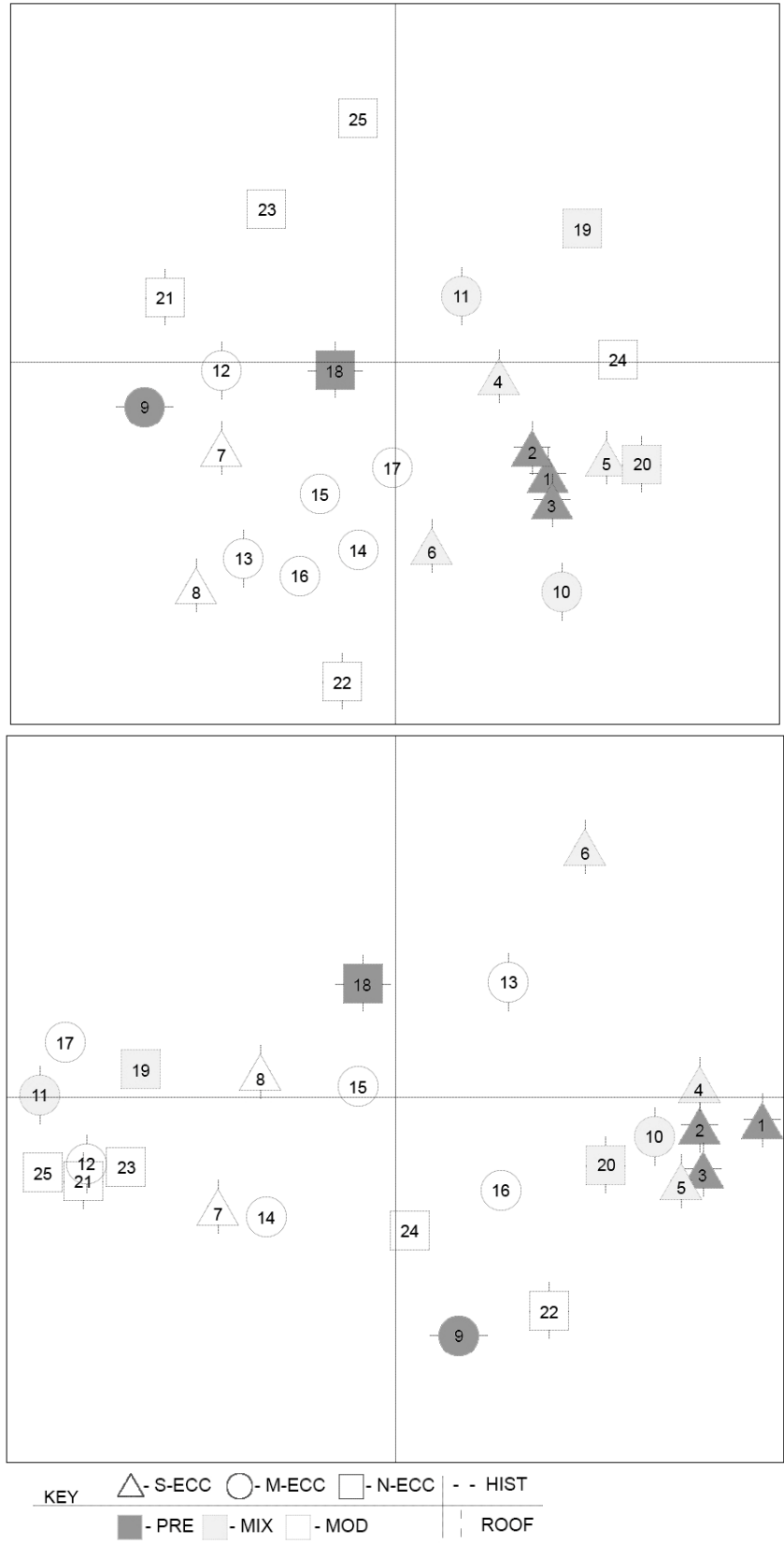


Figure IX- 17: 242 MDS Analysis of Preference Judgements
 CH (top) Stress=0.13765, UN (bottom) Stress=0.06166

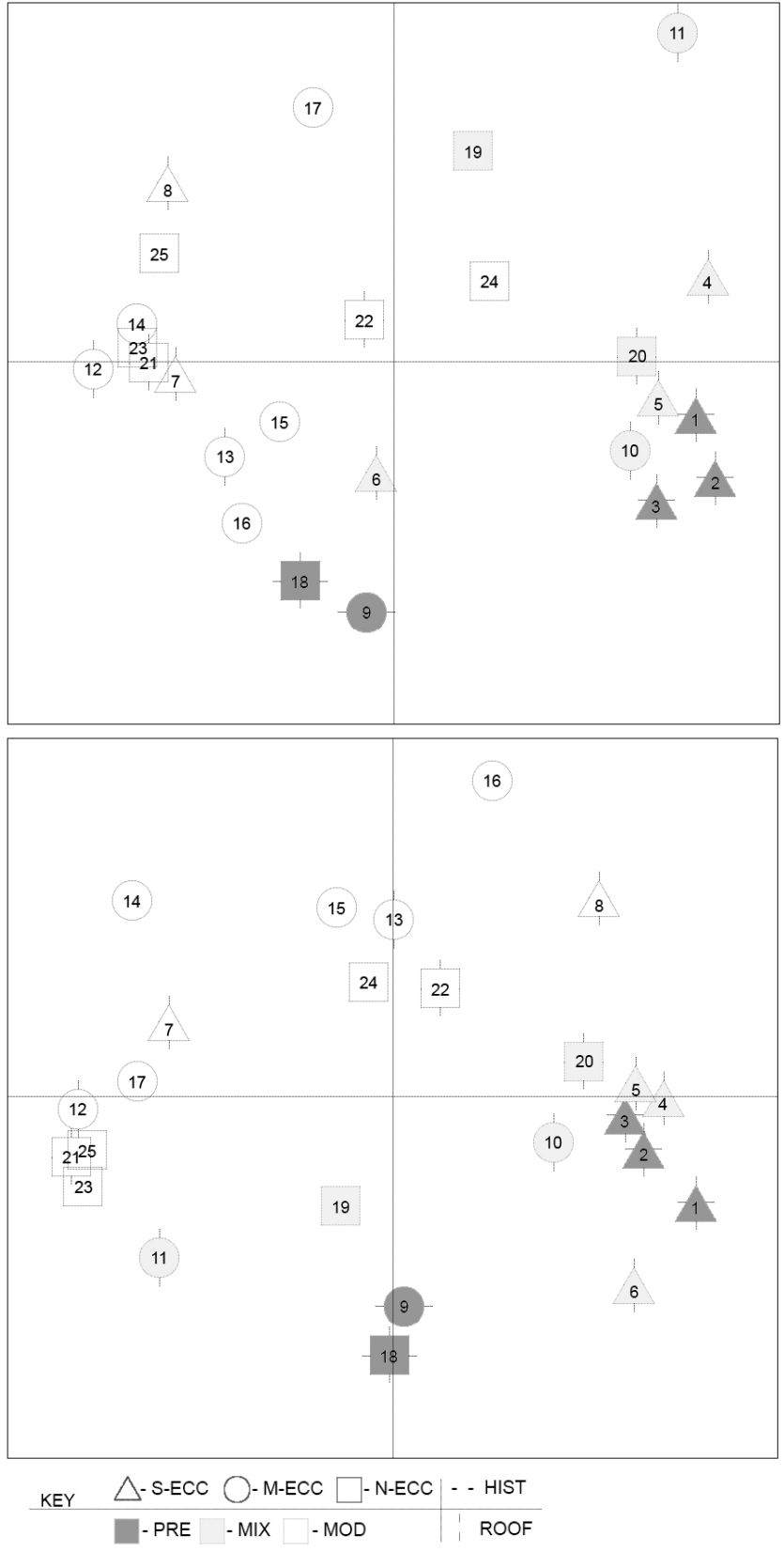


Figure IX- 18: DUMC MDS Analysis of Preference Judgements
 CH (top) Stress=0.07457, UN (bottom) Stress=0.06012

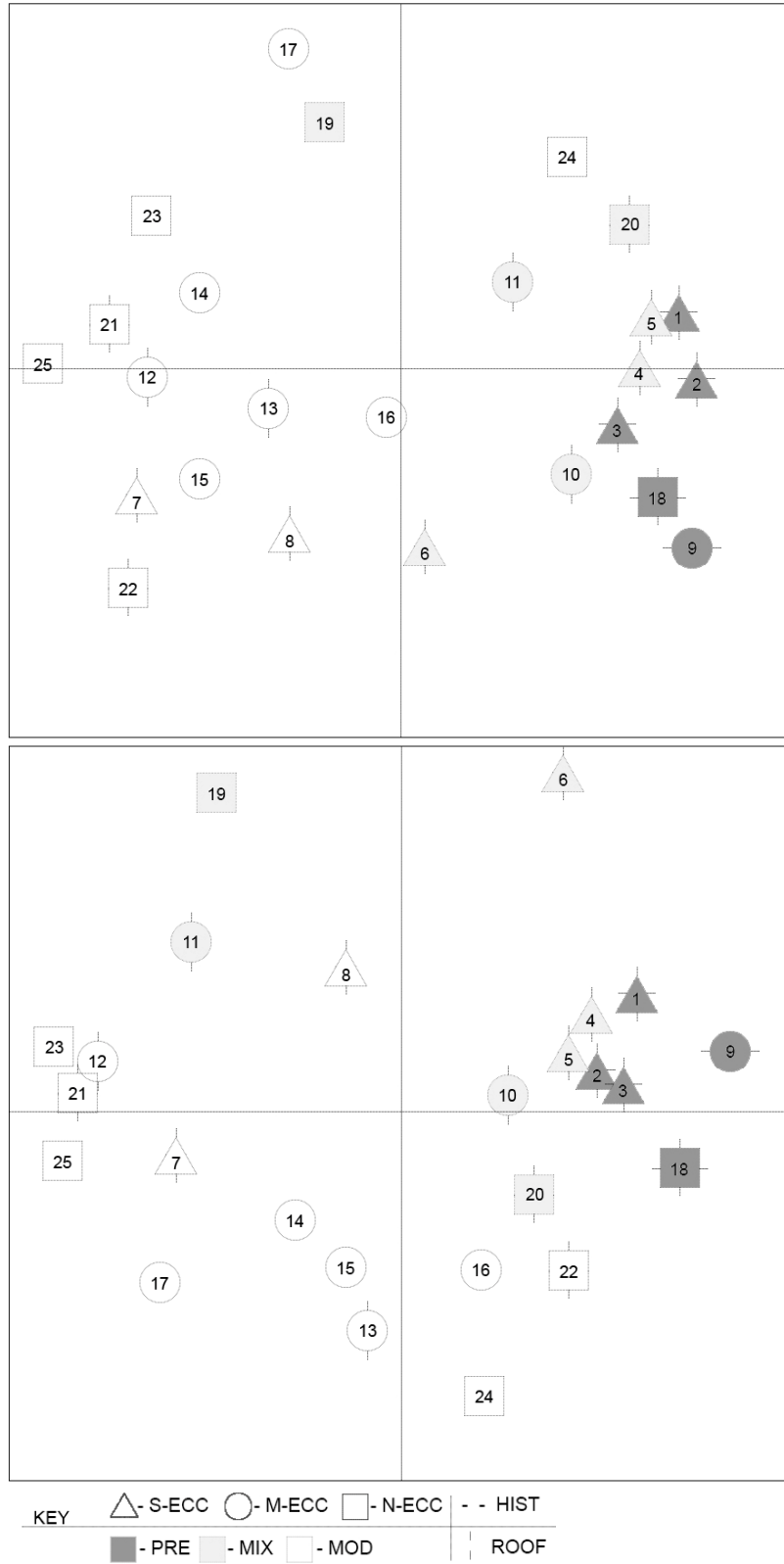


Figure IX- 19: EHC MDS Analysis of Preference Judgements
 CH (top) Stress=0.10304, UN (bottom) Stress=0.11511

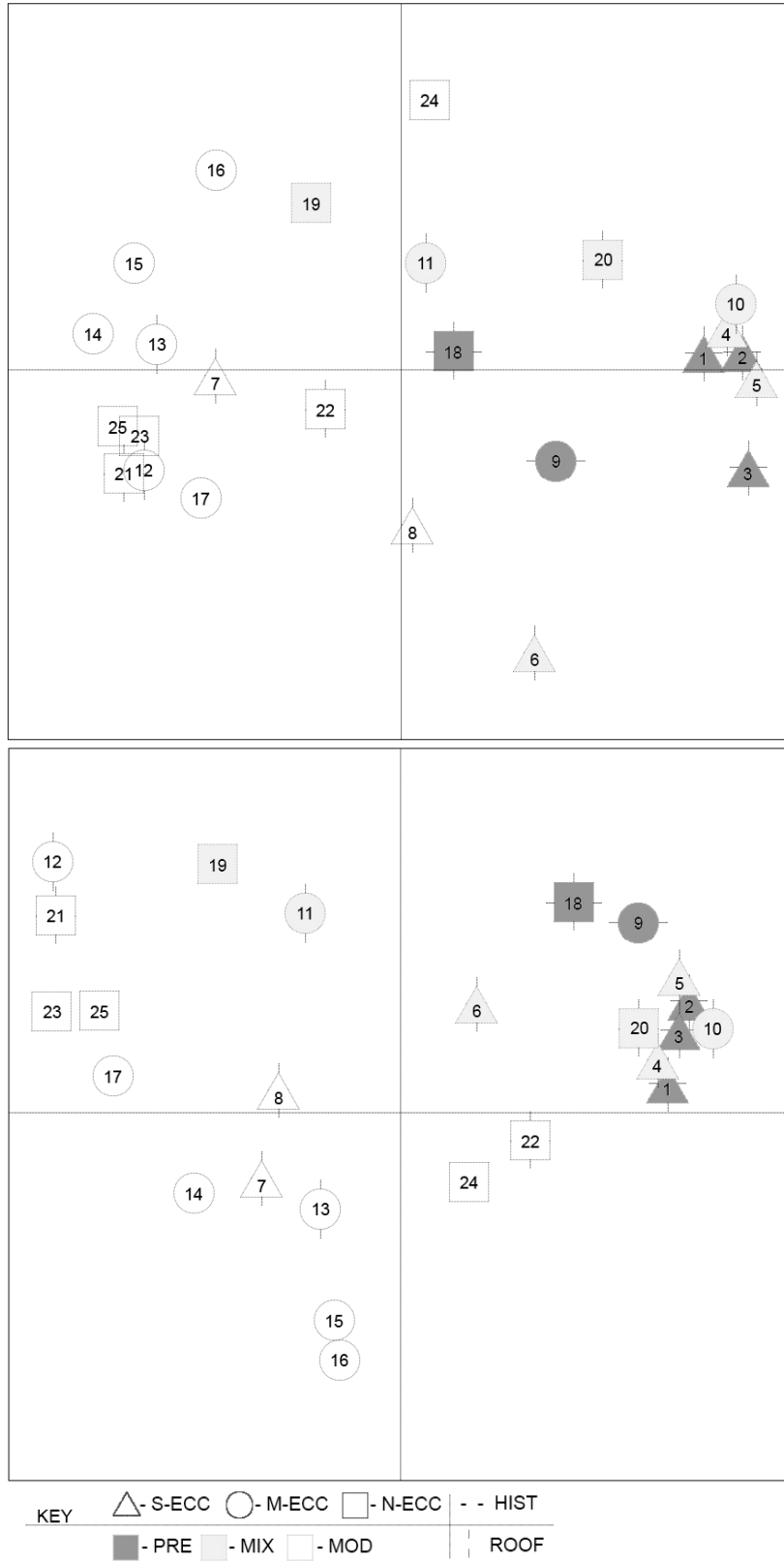


Figure IX- 20: RBC MDS Analysis of Preference Judgements
 CH (top) Stress=0.04676, UN (bottom) Stress=0.03808

In addition to observations of the role of individual design profile characteristics, a review of the MDS plots demonstrate several patterns of relationships within preference judgements. Following, the patterns are described.

At both ends of the judgment scale there are a small number of buildings that are consistently and distinctly judged; all other buildings are judged in a less consistent pattern of judgement. Unlike previous MDS analysis, generally speaking, there is not distinct legible regions to the plot. The images in these plots are organized in more of a continuous spectrum across the 2d space. However, there is an identifiable small group of images mapped in a dense cluster both the right and left edges of the graph. Understanding that in these MDS graphs, buildings generally mapped on the right are more preferred and images on the left least preferred, these distinct dense clusters indicate a distinct consistency in a small number of images. In all cases, there is a distinct dense cluster made up of images 1, 2, 3, 4, 5, 10, 20. These images thus are consistently preferred over all images. These images, as supported by the Kruskal Wallis test, are the buildings that are designed with more traditional ecclesiological design features.

The notable exception to this is Image 10 and Image 20. Image 10, although does not carry the formal traits of ecclesiological design, as discussed in previous chapters, has a very traditional orientation, massing, and vertical emphasis shared by cathedral design. Image 20 is the true notable exception. Image 20 has no use of ecclesiological design elements and is not designed with a historical style, but does have MIX façade composition hierarchy, and a sloped roof. Respondents often noted that they were drawn

to this building due to the serenity of its setting and its mix of traditional vernacular architecture and modern architectural elements.

Similar to the tight cluster of preferred buildings, there is also a tight cluster of buildings which participants did not prefer. This cluster is observed in all cases, except for the case of 242 CH and EHC CH, is consistently made up of Images 12, 21, 23, and 25. Verbal responses to these buildings often noted their low cost of construction, lack of detailing, austere design, and correlation with other building typologies. In response to Image 12, respondents frequently noted that it looked like an industrial warehouse with a steeple dropped on top. Similarly pointing out its base typology, respondents often commented that Image 23 looked like a strip mall and Image 25 looked like either a school or a jail. Additionally, participants also noted of Image 12 and 21 an uncertainty of what would be going on in these buildings, questioning if religious services could be of a cult-ish nature.

Beyond these two dense clusters of consistent judgements in each MDS, the rest of the images are graphed without distinctive regional clustering and with far less density overall. The contrast between the dense nucleus of preferred and not preferred images with the remaining images present an inconsistent pattern of distinct judgments. With that said, there is an observable general pattern of a higher preference for more traditionally designed churches—noting their general presence on the right of the graphs. Noting the images on the left side of the graphs, the second general and related trend is that buildings with a MOD façade composition hierarchy are consistently not preferred.

Churched participant judgments from architectural evangelism churches (242, EHC) have a less distinct pattern of judgements for non-preferred buildings that

churched participant judgments from more traditional churches (DUMC, RBC). Briefly mentioned in the previous observation, the left portion of the graph for 242 and ECH graph does not contain a dense cluster like the other graphs. Furthermore, the spatial dispersion of the images not included in the preference cluster is much more evenly distributed. This spatial distribution indicates that churched respondents who attend churches that have embraced architectural evangelism have a much less consistent and less distinct pattern of non-preference. In contrast, there is an established idea of non-preference for church architecture found within respondents that regularly attend a more traditional church. Such a pattern could be explained by 242 and EHC church members increased level of exposure to alternative types of church design and thus holding less distinctive patterns of non-preference. This observation raises the question of, ‘what is the effect of prototypical judgments on preference judgments, which the following section will explore?’

The Effect of Prototypicality on Preference Judgements

The above observation that individuals prefer churches designed with traditional ecclesiological design profiles aligns with previous research findings in empirical aesthetics. As discussed in Chapter III, one leading theory for the basis of preference judgements is prototype-preference theory (see pg. 39). Exemplified by the research of Martindale, prototype-preference theory postulates that due to the role of cognition within emotional responses, pleasingness is derived from the judgment of typicality (Martindale & Moore, 1988; Martindale et al., 1990, 1988). In such judgement of typicality there exists a stronger activation of salient cognitive categories, leading to more pleasantness,

and ultimate preference. According to this theory, there should be an expected correlation between judgments of prototypicality and preference. Additionally, previous research has also observed that the correlation between prototypicality and preference is not perfectly correlated. Rather, as studies have shown (Groat, 1984; A. Purcell, 1986a, 1986b; Whitfield & Wiltshire, 1982), there is an observable pattern that non-experts most prefer a slight variation from prototypical while experts (architects) prefer a higher level of prototype discrepancy.

To explore this further, the following section explores the relationship between design characteristics, prototypicality, and preference. Two measures of prototypicality were collected during the image-based sorting task interview: judgements of prototypicality and past experience.

First, in order to measure judgements of formal prototypical forms, church and unchurched respondents were provided with the image set and then asked to sort the images according to the level that they felt the building looked like a church (See Appendix F). Five categories were provided to the participant: Looks Very Much Like a Church; Somewhat Looks Like a Church; Neutral / Mixed; Somewhat Does not Look Like a Church; Does Not Look Like a Church. Subsequent to data collection, the data from the 5-point Likert sorting task was transposed into ordinal data for analysis: 5 – Very Much Looks Like a Church; 4 – Somewhat Looks Like a Church; 3 – Neutral / Mixed; 2 – Somewhat Does Not Look Like a Church; 1 – Does Not Look Like a Church.

Following, participants were asked to select the two images that looked most like a church to them, and the two images that looked least like a church to them. After

participants had made their selection, they were asked the qualitative question, “What about this building makes you feel this way.” Participant verbal answers were recorded.

In addition to judgements of prototypicality, a second measure of prototypicality was tested: past experience. While the judgment of prototypicality measure takes into account formal perception of prototypical forms, this second measure sought to take into account personal experience with churches. As discussed in Chapter III, research in environmental aesthetics have concluded that environmental roles can affect preference judgements—particularly between experts and non-experts (see pg. 42). Further, this research has suggested that these environmental roles affect preference judgments due to the difference in experiences which have created differences in cognitive schemas (Gifford et al., 2002). Therefore, when two respondents, expert and non-expert, are exposed to the same stimulus, the expert will tend to judge it differently because their understanding of prototypical is different than the non-expert. In the case of the present research, there are two distinct environmental roles: churched and unchurched individuals. Churched individuals have much more experience with church architecture, thus according to the theory of environmental roles, would have a different cognitive schema and consequently judge prototypical differently.

Therefore, to account for the effect of environmental roles, participants were then provided with the image set again and were then asked to recall any past experience they have had with a church (see Appendix G). Then, participants were asked to sort the images into the following categories: Looks Very Much Like a Church I’ve had Experience With; Looks Somewhat Like a Church I’ve Had Experience With; Neutral / Mixed; Somewhat Does Not Look Like a Church I’ve Had Experience With; Very Much

Does Not Look Like a Church I've had Experience With. Following, the data collected for each sorting instance was transposed into ordinal data for analysis: 5 – Looks Very Much Like a Church I've had Experience With; 4 - Looks Somewhat Like a Church I've Had Experience With; 3 – Neutral / Mixed; 2 – Somewhat Does Not Look Like a Church I've had Experience With; 5 – Very Much Does Not Look Like a Church I've had Experience With.

To begin analysis of the relationship between design profile characteristics, prototypicality and preference, a Kruskal-Wallis test was completed to determine whether the design profile characteristics had a statistical effect on judgements of prototypicality and ranking of past experience (see Table IX-2 – Table IX-3). As the tables show, in every case, each of the design profile characteristic statistically effected judgements of prototypicality. Post-hoc tests reveal that the more traditional church design profile sub-characteristics were statistically significant: strong use of ecclesiology, historical styling, sloped roofs, and PRE or MIX façade composition. These results are expected noting that design profile characteristics where chosen to represent gradients of use in traditional ecclesiological design. Thus, one would expect that the more traditional design profile characteristics would have a statistical significance on judgments of formal prototypicality.

Additionally, the qualitative data collected through the selection and description of the two most prototypical and two least prototypical buildings was reviewed. For the most prototypical buildings, although there was a small range of buildings selected, verbal responses were consistent in all cases.

242 Prototypicality		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	210.3	< 0.05	243.1	< 0.05
Historical Style	1	59.4	< 0.05	69.9	< 0.05
Roof Design	1	88.4	< 0.05	115.2	< 0.05
Façade Composition	2	106.9	< 0.05	128.0	< 0.05

DUMC Prototypicality		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	281.8	< 0.05	294.5	< 0.05
Historical Style	1	53.6	< 0.05	61.4	< 0.05
Roof Design	1	140.1	< 0.05	116.5	< 0.05
Façade Composition	2	139.7	< 0.05	133.6	< 0.05

EHC Prototypicality		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	212.9	< 0.05	217.11	< 0.05
Historical Style	1	44.3	< 0.05	53.8	< 0.05
Roof Design	1	84.6	< 0.05	63.2	< 0.05
Façade Composition	2	121.4	< 0.05	110.8	< 0.05

RBC Prototypicality		CHURCHED		UNCHURCHED	
VARIABLE	df	H	p-value	H	p-value
Ecclesiological Elements	2	208.2	< 0.05	226.4	< 0.05
Historical Style	1	85.6	< 0.05	64.1	< 0.05
Roof Design	1	91.8	< 0.05	95.7	< 0.05
Façade Composition	2	168.9	< 0.05	127.7	< 0.05

Table IX- 2: Kruskal-Wallis test of effect of design profile characteristics on judgements of prototypicality

Participants were asked the question, “What makes you feel that this buildings looks like a church?” Consistently, participants would answer by listing typical ecclesiological design elements. Frequent features listed were: steeple; bell tower; crosses; pointed arches; stained glass; pitched roof; verticality; prominent front entrance. Never did any respondents mention personal experience or past attendance. All answers addressed formal attributes.

Further, after participants had selected the two buildings that looked least like a church to them, they were asked the same question. Verbal responses to this question

where consistently shorter, and typically contained only one statement. In the vast majority of responses, participants formulated their response, “Because it looks like a [non-church typology].” Depending on the building, the blank was always filled in with a name of another typology: shopping mall, strip mall, government building, school, jail, stadium, etc.

Continuing, in order to test the relationship between prototypicality and preference, the data was next examined for correlation between preference judgements and 1) judgements of prototypicality and 2) past experience. To do so, a Spearman’s Rho Test was conducted on the data from the preference judgement directed sorting task in relation to the data from the prototypicality directed sorting task. Further, a separate Spearman’s Rho Test was conducted between the preference judgement directed sort and past experience directed sort. Table IX-3 documents the results.

<i>242 CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Prototypicality	0.27	< 0.05	0.45	< 0.05
Preference	Past Experience	0.26	< 0.05	0.26	< 0.05

<i>DUMC CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Prototypicality	0.44	< 0.05	0.42	< 0.05
Preference	Past Experience	0.32	< 0.05	0.22	< 0.05

<i>EHC CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Prototypicality	0.47	< 0.05	0.40	< 0.05
Preference	Past Experience	0.26	< 0.05	0.26	< 0.05

<i>RBC CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Prototypicality	0.47	< 0.05	0.41	< 0.05
Preference	Past Experience	0.35	< 0.05	0.26	< 0.05

Table IX- 3: Spearman’s Rho Test for correlation

The Spearman rank-order correlation coefficient (r_s) is a nonparametric statistical test for the strength and direction of association between ordinal scale variables. The direction of association between variables is determined depending on whether the r_s value is positive or negative. A positive value indicates a positive correlation. Or in other words, in the case of the present research, a positive r_s would indicate that a judgement of higher preference is correlated with a judgements of higher levels of prototypicality. A negative rho value would indicate an inverse relationship such that if a building was judged to be more preferred it would then be judged as less prototypical. The strength of the correlation is determined by the numerical value of rho. Rho is measured between -1.0 and 1.0. A rho value of 0 would indicate that there is no correlation at all. A rho value of 1 or -1 would indicate a perfect 1 to 1 correlation between variables. Therefore, for example, when comparing two rho values of 0.25 and 0.55, the 0.25 would indicate a weaker correlation than 0.55. Lastly, the p-value indicates statistical significance. A p-value < 0.05 indicates that the reported correlation is statistically significant; a p-value greater than 0.05 indicates that the rho value is not statistically significant.

In the case of the present research, and findings recorded in Table XI-3, the results indicate that in all cases there is a positive correlation between preference and prototypicality and positive correlation between preference and past experience. In relation to prototypicality, there is a consistent rho value for the churched and unchurchd between 0.41 and 0.47, except for the case of 242 CH. In the case of 242 CH, the calculated rho value is 0.27, indicated a weaker correlation between preference and prototypicality than the other cases. Although the correlation for preference and

prototypicality is relatively consistent, the CH cases from California have a stronger correlation between preference and prototypicality than the cases from Michigan. In general, preference and prototypicality are positively correlated in a statistically significant way.

Considering the correlation between preference and past experience, these two variables are similarly positively correlated in a statistically significant way. However, the correlation between preference and past experience is less correlated than preference and prototypicality. The rho scores for past experience range from 0.26 to 0.35, which is less than the general range of 0.41 to 0.47 for prototypicality. This indicates that judgements of formal prototypicality play more of an effect on preference judgments than on past experience.

Looking further into the correlation between past experience and preference, a few predictable trends emerge. First, there is a difference between churches that have embraced architectural evangelism and those that have not. 242 CH and EHC CH correlations are 0.26 for past experience. This degree of correlation is similar to the correlation found within the unchurched sample. The lower strength of correlation is expected in that these two cases are the churches that have embraced architectural evangelism, and thus their past experience would be with less prototypical churches than CH participants from DUMC and RBC. A second predictable trend is that UN respondents have a lower correlation in general than CH respondents. This is to be expected due to the fact that unchurched individuals typically have a more limited range of past experiences with churches.

The Spearman Rho test shows that both prototypicality and past experience are positively correlated with preference –as proto-type theory would suggest. However, the correlation strengths are low, each below 0.5. Therefore, to explore the relationship further, the mean ranks prototypicality and preference scores were calculated for each image and subsequently ranked. Table IX-4 – Table IX-5 provide an image ranking of the mean prototypical judgement scores (see Appendix F). Table IX-6 – Table IX-7 provide an image ranking of the mean preference ranking scores (see Appendix E). A comparative review of these tables reveal a level of correlation between prototypicality, yet as seen in the Spearman Rho test a lower level of correlation.

The ranking of the mean prototypical judgements produce a consistent set of buildings for the top five ranked prototypical churches. In nearly all cases, the top five images rated as prototypical are five consistent images: Image 1, 2, 3, 4, and 6. Only in two instances is an additional building chosen: EHC CH – Image 5, RBC UN – Image 8. A similar consistency is seen in the five least prototypical images. Yet a cross examination of the top five preferred churches reveals several key differences. First, within the ranking of most preferred buildings, Image 5 is ranked as the most preferred church in six of the eight instances, although it only is on the top five most prototypical ranking once. Further, there are several other images that are in the top five most preferred buildings, but are not in the top five most prototypical. These images include Image 10, 20, and 24.









































Rank	242 CHURCHED	242 UNCHURCHED	DUMC CHURCHED	DUMC UNCHURCHED
1	 4	 4	 1	 1
2	 1	 1	 2	 2
3	 2	 2	 3	 4
4	 3	 3	 4	 3
5	 6	 6	 6	 6
21	 13	 25	 21	 21
22	 20	 14	 25	 14
23	 14	 24	 19	 25
24	 24	 19	 24	 24
25	 23	 23	 23	 23

Table IX- 4: 242 & DUMC Ranking of Mean Value Prototypicality Judgements
(Numbers added for reference)








Rank	EHC CHURCHED	EHC UNCHURCHED		RBC CHURCHED	RBC UNCHURCHED
1	 1	 1		 1	 1
2	 2	 2		 2	 4
3	 4	 4		 4	 2
4	 5	 3		 3	 3
5	 6	 6		 6	 8
21	 14	 21		 13	 25
22	 20	 14		 22	 24
23	 25	 24		 14	 13
24	 23	 25		 24	 14
25	 24	 23		 23	 23

Table IX- 5: EHC & RBC Ranking of Mean Value Prototypicality Judgements
(Numbers added for reference)



Rank	242 CHURCHED	242 UNCHURCHED	DUMC CHURCHED	DUMC UNCHURCHED
1	 5	 2	 5	 5
2	 20	 1	 20	 3
3	 3	 5	 10	 2
4	 24	 4	 3	 10
5	 2	 5	 1	 20
21	 8	 17	 25	 25
22	 21	 25	 23	 23
23	 12	 21	 12	 21
24	 13	 23	 21	 23
25	 7	 12	 7	 12

Table IX- 6: 242 & DUMC Ranking of Mean Value Preference Ranks
(Numbers added for reference)









































Rank	EHC CHURCHED	EHC UNCHURCHED	RBC CHURCHED	RBC UNCHURCHED
1	 5	 5	 5	 3
2	 2	 3	 1	 4
3	 3	 1	 4	 10
4	 1	 4	 2	 5
5	 20	 2	 10	 2
21	 22	 7	 15	 17
22	 23	 25	 23	 21
23	 21	 23	 14	 25
24	 21	 21	 21	 12
25	 12	 12	 13	 23

Table IX- 7: EHC & RBC Ranking of Mean Value Preference Ranks
(Numbers added for reference)

A similar inconsistency is observed between the bottom five ranked prototypical churches and the five least preferred churches. A review of the least preferred churches show a strong consistency in judgment—particularly in the least four ranking buildings. Across all instances, there is a consistent selection of Image 7, 12, 21, 23, and 25 as the least preferred buildings. In addition, with more variation, Image 13 and Image 17 are chosen within the five least preferred in multiple instances. However a cross review of the buildings judged as least prototypical shows some correlation but not a high correlation. Although Images 13, 21, 23, 25 appear in several instances as the least prototypical, Images 7, 12, 17 are never in the lowest five. Further, several images judged as least prototypical in several instances, such as Image 20 and Image 24, appear on the top five preferred building ranking. These results are consistent with previous environmental aesthetics research which found that a slight variation from prototypical correlates with overall preference.

Despite the variable inconsistencies between preference and prototypicality, there is a strong consistency between CH and UN judgements of prototypicality. Previous research in environmental roles would suggest that an expert would have a different definition of prototypical due to differently developed cognitive schema. However, of all the judgments measured, prototypicality is most consistent between the churched and unchurched. This consistency is even observed between the theoretical replication of cases. One might hypothesize that respondents who regularly attend a church that has embraced architectural evangelism might have developed a different understanding of prototypicality. However, no variation is observed in prototypicality judgments of

churched individuals from architectural evangelism churches, churched individuals from more traditionally designed churches, and the unchurched.

The above Spearman Rho test and subsequent visual analysis confirm a positive correlation between prototypicality and preference. This result stands in contrast to the general position of architectural evangelism which claims that a secular-based church typology would be more preferred by unchurched individuals. The data from all four cases indicate that unchurched preference correlates with judgements of prototypicality—or traditional ecclesiological design.

Correlated Judgements to Preference

In the previous section, the relationship between prototypicality—as defined formally and experientially by research participants—is correlated with preference at varying levels. The observations of weak correlation highlighted in the cross visual analysis between mean preference ranking scores and mean prototypicality judgment scores brings forth the question of whether any other tested judgements are more strongly correlated with preference rankings. Architectural evangelism postulates that the removal of comfort and aesthetic barriers will increase preference. To test this, and explore which of these variables, including prototypicality, are most correlated with preference ranking, a Spearman's Rho Test was completed for each variable pair, in each case and for each sample group. The results of the tests are seen in Table IX-8.

The following section describes several observations of Table IX-8, identifying the similarities and difference between judgment relationships, as well as identifying similarities and differences found between cases and sample groups.

<i>242 CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Aesthetic	0.62	< 0.05	0.77	< 0.05
Comfort	Aesthetic	0.56	< 0.05	0.66	< 0.05
Preference	Comfort	0.53	< 0.05	0.62	< 0.05
Aesthetic	Prototypicality	0.27	< 0.05	0.48	< 0.05
Preference	Prototypicality	0.27	< 0.05	0.45	< 0.05
Comfort	Past Experience	0.34	< 0.05	0.40	< 0.05
Preference	Past Experience	0.26	< 0.05	0.26	< 0.05
Comfort	Prototypicality	0.08	< 0.05	0.49	< 0.05

<i>DUMC CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Aesthetic	0.77	< 0.05	0.76	< 0.05
Comfort	Aesthetic	0.54	< 0.05	0.64	< 0.05
Preference	Comfort	0.59	< 0.05	0.57	< 0.05
Preference	Prototypicality	0.44	< 0.05	0.42	< 0.05
Aesthetic	Prototypicality	0.39	< 0.05	0.43	< 0.05
Comfort	Prototypicality	0.36	< 0.05	0.40	< 0.05
Comfort	Past Experience	0.37	< 0.05	0.23	< 0.05
Preference	Past Experience	0.32	< 0.05	0.22	< 0.05

<i>EHC CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Aesthetic	0.72	< 0.05	0.72	< 0.05
Comfort	Aesthetic	0.57	< 0.05	0.68	< 0.05
Preference	Comfort	0.53	< 0.05	0.55	< 0.05
Preference	Prototypicality	0.47	< 0.05	0.40	< 0.05
Aesthetic	Prototypicality	0.46	< 0.05	0.50	< 0.05
Comfort	Prototypicality	0.39	< 0.05	0.47	< 0.05
Comfort	Past Experience	0.43	< 0.05	0.40	< 0.05
Preference	Past Experience	0.26	< 0.05	0.26	< 0.05

<i>RBC CORRELATIONS</i>		CHURCHED		UNCHURCHED	
VARIABLE 1	VARIABLE 2	r_s	p-value	r_s	p-value
Preference	Aesthetic	0.64	< 0.05	0.68	< 0.05
Comfort	Aesthetic	0.51	< 0.05	0.62	< 0.05
Preference	Comfort	0.45	< 0.05	0.43	< 0.05
Aesthetic	Prototypicality	0.43	< 0.05	0.43	< 0.05
Preference	Prototypicality	0.47	< 0.05	0.41	< 0.05
Comfort	Prototypicality	0.41	< 0.05	0.43	< 0.05
Comfort	Past Experience	0.41	< 0.05	0.38	< 0.05
Preference	Past Experience	0.35	< 0.05	0.26	< 0.05

Table IX- 8: Spearman's Rho Test for correlation

Preference judgements are most strongly correlated with judgements of aesthetic quality. In all cases, and notably with unchurched respondents, the highest rho value is between preference and aesthetic quality. In the case of the unchurched, the rho value is between 0.68 and .077. This value is more strongly correlated than prototypicality, which has a rho value under 0.5. Judgements of aesthetic quality are also most correlated with preference for churched respondents as well, although generally to a slightly lesser degree. Unchurched respondents, in the cases of 242 and RBC have a higher correlation between aesthetic quality and preference than churched respondents. The case of 242 has the highest discrepancy between CH (0.62) and UN (0.77). The correlation in the cases of DUMC and EHC is either equal between CH and UN (EHC) or slightly higher for CH participants (DUMC).

Comfort judgements are more highly correlated with preference ranking than judgements of prototypicality. Second to aesthetic quality, the next most strongly correlated judgment to preference is judgements of comfort. In general the rho value of correlation is between 0.53 and 0.62 compared to correlations scores under 0.5 for prototypicality. For the cases which have embraced architectural evangelism (242, EHC), the correlation between comfort and prototypicality is lower for the CH respondents compared to the UN respondents. In contrast for the more traditional church cases (DUMC, RBC), the correlation between comfort and preference is higher for CH respondents than UN respondents.

Judgements of comfort are most highly correlated with judgements of aesthetic quality over prototypicality or past experience. Overall, the second highest correlated pair of variables is judgements of comfort and judgements of aesthetic quality. This

relationship is most prominent with unchurched respondents. In such cases the rho value ranges between 0.62 and 0.68. Although this correlation is the same for churched respondents, it is to a slightly lesser degree with a rho value ranging between 0.51 and 0.56. These rho values are stronger than the correlation values between comfort and prototypicality which range between 0.08-0.41 for CH respondents and 0.40 – 0.47 for unchurched respondents. It is noted, though, that the correlation between comfort and prototypicality is distinctly higher for unchurched than it is for churched individuals—particularly in the case of churches that have embraced architectural evangelism.

Judgements of aesthetic quality are generally more correlated with prototypicality for unchurched than for the churched. In three of the four cases, the unchurched rho value for correlation between aesthetic quality and prototypicality are higher than for the churched respondents. Only in the case of RBC are the CH and UN values equal. In the case of CH respondents, the correlation scores range between 0.27 at the low end for 242 CH and up to 0.46 for EHC. For the UN respondents, the correlation score between aesthetic judgements and prototypicality range between 0.43 and 0.50.

Characteristics of Unchurched Preference Judgements

The above correlation test reinforces previous observations about unchurched understandings of church architecture. First, aesthetic quality, judgements of comfort, and prototypicality are all positively correlated with preference. This set of correlations is supported by observations in Chapter VI and Chapter VIII which note that unchurched judge buildings with a more traditional ecclesiological design as more beautiful and comfortable. Chapter VII further supported an observed unchurched preference for

buildings with a more ecclesiological design by observing that the unchurched respondents identify a church's emphasis on worship as most important.

The correlation test also demonstrated that unchurched preferences are primarily correlated with aesthetic quality over judgements of comfort. This result is consistent with observations made in Chapter V regarding unchurched place constructs. Chapter V observed that unchurched respondents primarily understand church architecture via physical elements over conceptions. Thus, for unchurched respondents, aesthetic quality is primary as it relates to physical elements over judgements of comfort which is rooted in conceptions. Further, these observations in Chapter V also suggest an explanation of why aesthetic quality judgments is more correlated than prototypicality. Again, aesthetic quality judgments is rooted in purely physical element terms, while judging if a building 'looks like a church' is both physical form and conceptual constructs.

In short, unchurched individuals prefer buildings designed in a traditional ecclesiological style. Further, this preferences is consistent and distinct, as seen in the MDS analysis, especially with buildings that have most of these attributes. Lastly, unchurched characteristics of preference judgments are consistent across all four cases. Such a pattern of unchurched preference differs starkly from the claims of architectural evangelism that unchurched individuals generally do not prefer traditional ecclesiological designed buildings and thus would prefer church buildings designed with a secular typology.

CHAPTER X

Conclusions

The aptness and efficacy of Architectural Evangelism: Conclusions

With the rise in popularity of Americanized church growth theory, Protestant and evangelical Protestant churches changed the direction of mission activity. Prior to the influence of church growth theory, missional efforts typically moved outward from the church towards unchurched populations. However, in the 1970s church growth proponents began to apply church growth analysis methods to contemporary mission efforts and discovered that these efforts were by-in-large not producing converted individuals active in a local church body (McGavran & Arn, 1977). Consequently, church growth proponents proposed that mission activities be re-united with the local church (Wagner, 1984; Wagner et al., 1986). Instead of going from the church into unchurched populations, as the theory went, churches should seek to attract unchurched members to the local church in hopes of integration and eventual conversion. This conceptual shift became popularized through publications and the practical application of the theory was developed by prominent mega-church pastors and socio-demographic researchers (Barna, 1993; Hybels & Hybels, 1995; Strobel, 1993; Warren, 1995). The theory was applied to numerous aspects of the church including, but not limited to, worship practices, sermon content, and marketing strategies. Most notably for this study, the theory was also applied to the design of the church buildings.

Since mission activity, under the influence of Americanized church growth theory, aimed to attract unchurched individuals to the local church, church architecture became an important feature to attract unchurched. Americanized church growth proponents began to ask the questions of what types of buildings attracted unchurched individuals, what aspects of the church's building design were barriers for the unchurched, and what general observations from social analysis could be applied to the refinement of a church architecture intended for the unchurched. These architectural questions have been refined over the past twenty five years, formulating a theory known as *architectural evangelism*. Architectural evangelism seeks to provide a theory of church design that produces a design which is preferred by the unchurched via the removal of unchurched barriers such that unchurched would be attracted to and more apt to attend church.

As laid out in Chapter II, architectural evangelism theory and its design prescriptions are rooted in a missiological logic. This missiological logic, in short, states that churched and unchurched individuals hold different understandings of church architecture; therefore in order to create a church for the unchurched, the traditional design of churches must be evaluated and reconsidered. Continuing the ML then provides an operational foil for the evaluation process. It notes that in order to draw in unchurched individuals any and all perceived barriers must be removed. Following, the ML looks to social and cultural observations and concludes traditional ecclesiological design creates barriers. Specifically, the ML claims that unchurched do not perceive traditional ecclesiological design comfortable or welcoming; they perceive it as emphasizing worship when they prefer an emphasis on community engagement, and they

perceive it as hypocritical to have a high quality aesthetic building when the church should be serving the community. In all cases, architectural evangelism proposes that to remove these barriers and build churches that the unchurched prefer—buildings that eschew traditional ecclesiological typologies and embrace a secular typology for church design.

The influence of architectural evangelism over the last decades has been far reaching. The theory has evolved into the leading design trend supported by a full range of the industry: architectural firms specialized in the approach, two monthly American magazines are published providing information on leading developments, and annual national and regional conferences bring together church leaders with design professionals and leading mission thinkers to refine the theory. Further, the awarding of AIA and Solomon Design awards have validated the theory as a top design approach. As a result, countless Protestant and evangelical Protestant congregations have either re-formulated their architecture or they have sold their traditional building to build a new secular-based structure.

Due to the vast influence of architectural evangelism on the religious built landscape of America, and the lack of previous in-depth examination of its claims, this dissertation sought to explore the aptness and efficacy of the logic and design prescriptions of architectural evangelism. To do so, the dissertation asked:

- 1) What is the relationship between the design of Protestant church exteriors and the use of place construct systems held by church and unchurched individuals?
- 2) What is the relationship between the design characteristics of a Protestant church exterior and judgements / preference of churched and unchurched individuals?

To explore these questions, as laid out in Chapters III, this dissertation developed a theoretical foundation based on previous work in the fields of place theory and environmental / empirical aesthetics. Place theory, as exemplified by David Canter's place theory model (1977), and personal construct theory (Kelly, 1955) served as foundational for understanding the attributes of an understanding of the built environment. Canter's model further served as the foil by which church and unchurched constructs of church architecture were analyzed. Further, environmental and empirical aesthetics served as a precedent for the research approach and tactics to explore individual's judgements of the built environment.

These two fields of study undergirded the research design, detailed in Chapter IV, of a mixed-methods case study approach that utilized an image-based sorting task interview tactic. Within this research framework, the dissertation utilized four case studies of 50 respondents (25 church and 25 unchurched) for a total of 200 research participants. Two case studies were located in Southeast Michigan, and two case studies were located in Southern California. Further, two cases—one in each location—were of churches that had embraced architectural evangelism; and two cases—one in location—were of churches that had not embraced architectural evangelism.

The research first explored the question, "What is the relationship between the design of Protestant church exteriors and the use of place construct systems held by church and unchurched individuals?" in Chapter V. To test this idea, participants completed a series of free-sorting tasks and the data was subsequently analyzed via frequency of use analysis, content analysis, and MDS analysis.

At the foundation of the ML is the claim that churched and unchurched respondents employ different understandings of church architecture. Results from the free-sort exercises and subsequent analysis via content analysis and MDS confirm this claim. However, the ML roots its subsequent architectural prescriptions in the notion of unchurched perceptions of ‘comfort’ and ‘welcome.’ Yet, as the content analysis of the free sort revealed, the primary difference between churched and unchurched place constructs is that the unchurched constructs are mainly comprised of physical attribute categories with very few concept categories. This fact is not too surprising. The unchurched individuals, in general, would have spent far less time within church buildings and thus have a far less developed conceptual cognitive schema of church buildings than the churched. Yet, the ML errs in borrowing from churched constructs (comfort and welcome) in order to develop design prescriptions for unchurched church architecture.

Stemming from this accurate presupposition that churched and unchurched individuals do employ different understandings of church architecture, architectural evangelism then proposes three primary barriers for the unchurched and offer the use of secular typologies as a solution to remove those barriers. To explore the accuracy of the proposed barriers and the efficacy of the design prescriptions, the dissertation asked, “What is the relationship between the design characteristics of a Protestant church exterior and judgements / preference of churched and unchurched individuals?” Chapter VI – Chapter IX explored variants of this question. Table X-1 summarizes both the sub-questions and select key findings.

CH VI	What is the relationship between design characteristics and judgements of comfort?	<ul style="list-style-type: none"> - Unchurched respondents hold a more consistent and distinct pattern of comfort judgments than churched respondents. - Buildings that have a more traditional design profile are judged as more comfortable by the unchurched. - Façade compositional hierarchy and use of ecclesiological elements are the predominant criteria for unchurched judgements of comfort. - Pre-modern or mixed façade composition hierarchies and strong use of ecclesiological elements are considered most comfortable.
CH VII	What is the relationship between design characteristics and judgements of emphasis?	<ul style="list-style-type: none"> - Unchurched individuals consistently rank ‘worship emphasis’ as the highest importance for an ideal church over ‘community engagement emphasis’ or ‘church development emphasis’. - Buildings with a strong ecclesiological design profile are primarily perceived to have an emphasis on worship. - Buildings designed in a secular typology where judged to emphasize church development or community engagement most often. - Churches with a simple, more austere design were most often judged as focusing on church development – not community engagement.
CH VIII	What is the relationship between design characteristics and judgements of aesthetic quality?	<ul style="list-style-type: none"> - Overall, all respondents found buildings with a more traditional ecclesiological profile more beautiful. - Churches designed the most austere were rated of the lowest aesthetic quality, no matter if the design included some ecclesiological elements. - Aesthetic quality judgements are distinct for the highest and lowest quality ranked buildings, and judgements are less distinct for buildings in-between.
CH IX	What is the relationship between design characteristics and preference judgements?	<ul style="list-style-type: none"> - Unchurched individuals consistently prefer buildings designed with a more traditional ecclesiological design, whereas churched individuals vary among preferred design profiles. - Prototypicality judgements are more correlated with preference than past experience with preference. - The highest correlated judgements are between preference and aesthetic quality, then between aesthetic quality and comfort, followed by preference and comfort.

Table X- 1: Summary of key analysis findings, Ch VI - Ch IX

Chapter VI explored the first barrier proposed by architectural evangelism: unchurched individuals perceive traditional church design as uncomfortable. Data was collected from all participants via a directed sorting task and was statistically analyzed via a Kruskal-Wallis and post-hoc tests, via a visual analysis, and via a MDS analysis. The MDS analysis revealed that unchurched respondents hold a more consistent and distinct pattern of comfort judgment than churched individuals. Further, the statistical analysis showed for every design profile characteristic tested, the sub-characteristic most often found in traditional church architecture was judged as more comfortable by unchurched individuals. Amongst the different profile characteristics, the analysis suggested that façade composition hierarchy and use of ecclesiological elements as predominant criteria for unchurched judgements who preferred strong use of ecclesiological elements and a pre-modern or mixed façade composition hierarchy.

Chapter VII explored the second barrier proposed by architectural evangelism which claims that perception of a worship emphasis is a barrier for unchurched. Thus, as the ML reasons, a church should seek to emphasis community engagement via the use of secular typology for church design. Data was collected from all participants via a directed sorting task and statistically analyzed using descriptive statistics MDS analysis, and Kruskal-Wallis test. The results of the analysis showed, again, a consistency between all four cases for unchurched individuals. In all four cases, unchurched individuals ranked worship emphasis of highest importance over community engagement or church development. This result contradicts the prediction that worship emphasis is a barrier.

Further, analysis was completed to explore the relationship between design profile characteristics and judgements of emphasis. Results from the MDS and visual analysis provided several key observations. Despite participants verbally expressing hesitancy with sorting buildings by perceived emphasis, the MDS shows a consistent and distinct pattern of judgements. As expected, buildings with a strong traditional ecclesial design profile were judged primarily as having an emphasis on worship, and buildings that were more secular based were judged as emphasizing church development or community engagement. Further, there was no statistical pattern of design profile use between buildings judged as emphasizing church development and community engagement. However, the visual analysis observed that churches that were more simple and austere in design were more often judged as focusing on church development. Further, these churches which were judged as emphasizing church development were designed with a semi-public secular typology such as residential, school, or strip mall. In contrast the buildings that were judged as more community engaging were designed with public secular typologies such as a library, hospital, stadium, museum, and were designed in a less austere way. These findings suggest that architectural evangelism's prescription for austere simple design as a means to express community engagement may not be accurate.

Continuing the examination into the relationship between design profile characteristics and judgements, Chapter VIII explored aesthetic quality judgments. To do so, the chapter analyzed directed sorting task data from all participants via statistical analysis as well as MDS and visual analysis. Results again revealed a consistent pattern of unchurched judgments across all four case studies. The statistical analysis and post-hoc tests demonstrated that the unchurched find church buildings designed with a more

traditional ecclesiological profile more beautiful. Further, it was observed that the churched find buildings designed in a simple, more austere way are rated of the lowest aesthetic quality, no matter if the design includes, often in a limited way, inclusion of ecclesiological design elements. Further via the MDS analysis, it was observed that there is a distinct and consistent set of judgements for the highest level of aesthetic quality and lowest aesthetic quality, but less consistency for buildings in the middle ranges of judged aesthetic quality.

The results from the aesthetic quality judgement analysis served to inform Chapter IX, which explored the relationship between design profile characteristics and preference judgements. To gather data on preference judgments the research design utilized two exercises: a directed sort of the images into a 5-point Likert scale of the semantic differential of “Like” and “Dislike” and a total preference ranking of the images from 1 being most liked and 25 being least liked. The data was then analyzed via Kruskal-Wallis and post-hoc tests as well as an MDS analysis. These tests revealed that unchurched individuals prefer buildings with a more traditional ecclesiological design profile in a consistent manner. Further, the MDS analysis showed that, similar to judgements of aesthetic quality, there is a consistent and distinct set of preferences for the most and least preferred buildings, but inconsistency in judgment in the middle range.

Next, drawing from previous research in the role that judgements of prototypicality and environmental roles play on preference, the research then explored preference judgements in relation to judgements of prototypicality. Formal prototypicality judgments were collected from participants via a directed sort based into a 5-point Likert scale based on the semantic differential of “Looks like a Church” and

“Does not Look like a Church”. Further, to account for the difference between ‘expert’ and ‘non-expert’ cognitive schema, participants were asked to sort the buildings into a 5-point Likert scale based on the semantic differential of “Looks like a church I’ve had experience with,” and “Does not look like a church I’ve had experience with.” Results showed no difference in judgments of formal prototypicality based on environmental role of churched and unchurched individuals. Spearman Rho correlation tests were then executed between judgements of preference and judgments of prototypicality and past experience. Results showed a consistent pattern across all four case studies that there is a positive correlation between preference and past experience but a stronger correlation between preference and judgements of prototypicality.

Continuing to explore preference, Chapter IX progressed via an examination of correlation between all variables and preference. The results showed that although prototypicality is positively correlated with preference, judgments of aesthetic quality are positively correlated to a stronger degree. Following aesthetic quality, judgments of comfort are the next most correlated variable. This results reflects the nature of unchurched understandings of churches observed in Chapter V. Due to the fact that unchurched individuals hold an understanding of church architecture primarily defined by physical attributes and not conceptions, a stronger correlation between aesthetic quality and preference is expected. Additionally, the unchurched reliance on physical elements for church constructs also goes to explain a higher correlation between aesthetic qualities than prototypicality. Unlike aesthetic quality which is rooted in physical elements, prototypicality is rooted in both physical elements as well as constructs.

Chapter IX, much like previous chapters, suggests that architectural evangelism's claim that unchurched individuals prefer secular typology based church design over traditional ecclesiological typology based church design may be in error.

Overall the results of the research suggest that the missiological logic of architectural evangelism accurately identifies the presupposition that there is a difference in churched and unchurched understandings of church architecture. However, the results also suggest that architectural evangelism errs in its identification of unchurched barriers. In all four case studies, unchurched respondents found churches designed with a traditional ecclesial typology more comfortable, more beautiful, and emphasizing worship (which was identified as the most important emphasis). These observations align with previous findings of the two limited studies which have considered unchurched preferences and have observed that unchurched tend to prefer churches designed with a more traditional ecclesiological design profile (Barna Research Group, 2014; Lifeway Research Group, 2008)

In conclusion, the research found consistent results across all four case studies that unchurched respondents prefer traditional church architecture, suggesting that the aptness and efficacy of the architectural evangelism prescription for exterior church design based on secular typologies may be in error.

Implications for Design of Protestant Churches

The application of architectural evangelism theory to church design is the predominant trend in the design of Protestant and evangelical Protestant churches in America. However, the results of this research suggest that the aptness and efficacy of

the theory may be in error. Thus the results suggest several implications for the design of Protestant churches. The suggestions below begin from the presumption of architectural evangelism that attracting unchurched individuals to church is of value.

The design process should not ask what unchurched find comfortable but what they find beautiful. One of the central premises of architectural evangelism is to develop a church that is comfortable and welcoming. The idea of comfort and welcome frequently appears in architectural evangelism literature and discussions. However, the results of this study show that comfort is not an unchurched construct. Therefore, when discussing the needs of the unchurched, church leadership and design professionals should focus more on physical elemental needs. As this research shows, one such need that drives preference is the need and desire for beauty.

Church designs should incorporate design profile characteristics from a traditional ecclesiological typology, but not seek to perfectly emulate prototypicality. As church leadership and design professionals look to attend to physical element needs, such as beauty, this research suggests that the incorporation of traditional design profile characteristics are perceived by the unchurched as beautiful. Designs that have a strong use of ecclesiological design, historic styling, sloped roofs, and a pre-modern or mixed façade composition hierarchy are most often judged as beautiful, and consequently comfortable. Additionally, the research results indicate that the design of churches need not be designed within a prototypical framework. While ecclesiological profiles are preferred, prototypicality does not correlate with preference as much as aesthetic beauty. The visual analysis in this study show that buildings which are identifiable as a church and use a mixed composition façade hierarchy can make up a design profile that is

considered beautiful, and thus preferred. These results support previous research which found slight variation from the prototypical is preferred (Groat, 1984; A. Purcell, 1986a).

Church design should seek to emphasize worship, and seek to redefine what it means to engage the community. Similar to discussions of comfort, an unquestioned prevailing point of discussion within church design is how to engage the broader community. Observing design trends, the answer frequently is formulated in the development of some community function (e.g. café or recreation center) or the architectural expression of a secular community based typology. This study uniquely identifies that when asked, unchurched individuals identify worship as the most important emphasis—which corresponds with aesthetic and overall preference for ecclesiological design. This research thus suggests that community engagement can be redefined to also include discussions on how to best emphasize worship within the local context—as such an expression would be aligned with unchurched priorities. Community engagement, thus, can move from the limits of cafes and gyms to the role of worship in community engagement.

Further, this study suggests that architectural evangelism's proposed correlation between austere simple design and perceived community engagement is in error. Rather, the study suggests that aesthetic quality plays a role in perception of community engagement. As one unchurched participant expressed it during the interview, churches that build austere buildings definitely don't care about the community around them. The participant continued his explanation by saying, if the mayor of a town built a public library or school like this, he would never get re-elected; he obviously doesn't care about the town, just the bottom line budget. This participant's comment highlights an

important and overlooked aspect of architecture within architectural evangelism.

Architectural design is a public expression shared by all individuals of the community.

Thus, if a church offers an austere design to the town—effectively making everyone in the area to live with austerity—the perceived level of community engagement is low.

The present research observed this trend in that those churches that were judged as mostly emphasizing church development where the churches with austere designs.

Austerity in churches signals a perception that the church cares only for itself and not the local context.

The design process should seek to understand unchurched values through discussion with unchurched, avoiding the exportation of church values as unchurched values. Beyond specific implications for the design of churches, this research highlights the importance of the integration of direct unchurched input into the design process. As seen in the research, many of the principles of architectural evangelism are called into question when directly explored with the unchurched. Several aspects of architectural evangelism are more of a direct reflection of church values and understandings than unchurched. For example, ideas regarding comfort and welcome are exportations of church values and are inaccurately applied to unchurched values. Thus, this research suggests that if a church has a desire to provide a church that is well accepted by unchurched individuals, there is need for a higher level of integration and direct input by the unchurched during the design process.

Limitations of the Study

At the start of Chapter IV, a key observation about the nature of architecture evangelism was made. Architectural evangelism is a proposed universal theory for the American setting, but is a theory that is applied to a highly contextual institution that is deeply embedded in a local setting. The research design of this dissertation took into account this dualistic nature by utilizing an embedded case study design (see p. 47-49) that Yin (2009) describes as “A Case Study within a Survey”. In this design, the image based directed sorting task interviews aimed to explore the universal claims of architectural evangelism while the application of the survey to four case studies attempted to take into account nuances of local application. Although the research produced consistent results for the unchurched, one potential limitation of the study is the limited number of case studies completed.

According to Yin (2009), the case study allows for the investigation of complex real-life contemporary phenomena. Thus, the case study is an appropriate research strategy for the research questions in this dissertation. However, there is a key limitation with a case study approach. Yin argues that case studies can produce generalizable theoretical propositions. However, he warns case studies are like experiments in their ability to produce generalizations, but the case study cannot enumerate frequencies. Or in other words, as Yin put it, the goal of a case study is to expand analytic generalizations and not statistical generalizations.

Therefore, the present study of four cases is limited in its total ability to advance statistical generalizations, and is also somewhat limited by its number of case studies to expand analytic generalization. The four cases in the study were drawn from two

different regional locations in the United States, but the diversity of cultural and geographical local realities is far more diverse than what was represented by the two regions selected. Due to practical limitations, only four case studies were conducted, thus creating a limitation of the study as compared to a larger sampling of case studies.

A second limitation of the study is in the utilized definition of unchurched. In the broader literature on the topic, there remains debate on the specific definition of unchurched. While the definition used falls within broader scholarly agreements, through the process of the research it was recognized that there needs to be more room for cultural and regional differences within the definition.

In the present research 'unchurched' was primarily defined as the frequency of interaction with church architecture. Thus, church attendance was a good measure of exposure to church architecture. However, there is the potential to unintentionally broaden this definition from frequency of exposure to church architecture to a generalization about a universal unchurched sub-culture during the interpretation of the data. And in that potential broadening, the definition of unchurched is a limitation.

During the process of the research in two different regions of the United States, it became apparent that due to broader cultural assumptions of sub-cultures and immigration patterns, defining unchurched as church attendance was limiting. For example, respondents in Michigan from a northern mid-west upper middle class white background more often related the influence of the church in their life with church attendance. However, southern California is home to a large Hispanic immigrant population who have a different basic cultural understanding of how to define influence of the church apart from attendance. Coming from a broadly Catholic orientation in

Latin America, church influence is independent of an individual's weekly attendance and thus to define unchurched by attendance misses nuances of understanding. Ultimately, a definition of unchurched that takes into account frequency of exposure as well as cultural differences in understandings of church influence is needed.

Areas of Future Research

There are several potentially promising directions either for expanding the scope of this research and/or for clarifying in greater depth the implications of its findings.

- 1) *Additional Case Studies*. The consideration of a larger number of case studies within a larger diversity of regions in the United States. The present study only allowed for the theoretical replication between two regions, with two churches per region. Thus, future research could provide further insights if a larger number of cases was considered within a single region, within a large set of diverse regions in the United States, within a set of international case studies. A larger total sample size and larger number of cases in a single region could give a more nuanced and accurate understanding of regional trends. Additionally, future research could more fully consider regional differences via a larger number of case studies with a larger diversity of regional representation. One such study could consider more than two regions, with the primary intent of exploring if the consistency found in this study remains consistent. This study could be expanded beyond the United States, to more intently consider global differences in patterns of unchurched judgements.

- 2) *Additional Design Profile Elements.* Another area of future research would be to expand the number of design profile characteristics considered. In the present study four design profile characteristics were analyzed for their statistical effect on judgements. Further work in identifying and analyzing additional profile characteristics, or analyzing additional sub-characteristics would further elucidate the relationship between design profile characteristics and judgments.
- 3) *Further Study of Key Profile Elements.* The two profile characteristics that had the most effect on judgements were: use of ecclesiological elements and façade composition hierarchy. Building from this study which identifies a general preference for traditional ecclesiological design profiles, additional studies are needed to explore the specific effect of the incorporation of specific ecclesiological elements on judgments. In a similar fashion, further research is needed to better understand how façade composition hierarchy effects design judgments. Although there have been previous studies prior to this dissertation which have identified compositional hierarchy as a key factor in environmental aesthetics (Groat, 1984, 2000), more research is needed to establish key observable and preference correlated compositional hierarchy principles across building typologies.
- 4) *Effect of Church Design on Unchurched Attendance.* Further research is needed to determine the extent to which design preferences affect the unchurched' decisions to attend or not attend a particular church. Although the present research sought to explore the accuracy and efficacy of architectural evangelism, it did not attend to the extent that architecture plays in drawing people to church

attendance. Thus the examination of the effect of architecture on decision making could be explored further with respondents or respondent focus groups.

Contributions of the Study

With the above limitations and need for future research in mind, this dissertation acknowledges that the conclusions of this research does not achieve a final judgment about the aptness or efficacy of architectural evangelism. Rather, the contribution of this research is twofold. First, the research results, based on two locations and four cases, serves to make the initial suggestion that the principles of architectural evangelism need to be re-evaluated—as conditioned by the local context. The second contribution of the study is as a methodological model for the analysis of architectural evangelism. With this contribution, further contextualized research conclusions can be derived for any specific contextual setting. Therefore, the impact of the research is in equipping church leaders and design professionals with a methodology to fully understand their missional aspirations accurately within their specific context.

APPENDICIES

APPENDIX A

Research Script

Introduction

Thank you for willingness and time taken to participate in this research. This research aims to explore individual's understandings of architectural design – and specifically the design of Protestant Churches in America. This study is being conducted for the completion of a Ph.D. in Architecture at the University of Michigan.

I am going to be interviewing you today through a series of image-based activities as a means to gather your reactions. The interview and image-base activities should take approximately 35-45 minutes.

Before we start the interview, I want to assure you that your answers are strictly confidential. For example, we will be assigning a code number, rather than your name, to the interview form. At no time will your particular responses be attributed to you specifically, or by name. Participation in this study is completely anonymous. The results of this study will not be reported or published on an individual level but on an aggregated level to insure this anonymity.

There are no risks involved in participating in this research. However, with that said, the completion of this survey is entirely voluntary. You may choose to end the interview, or choose to skip any question presented to you at any time for any reason. By agreeing to continue, you are agreeing to be a part of the study and provide your opinions

and understandings of the exterior architecture of Protestant churches. Do you wish to continue?

Free Sorting Tasks

Introduction and First Free Sort: I am going to hand you 25 photographs. As I mentioned to you before, the research is interested in exploring with people how they think about buildings. So please consider these photographs as representations of actual buildings rather than as photographs. Please take a moment to familiarize yourself with the images, and lay them out in front of you.

This first activity we will be doing several times. What I'd like you to do is to sort the buildings into groups which make sense to you—that is, so that the buildings within each group are similar in some significant way. The number of groups is up to you, and you may even leave some out if they don't seem to fit in any group. There are absolutely no correct or incorrect answers.

At first glance, you may likely see a number of ways in which these images could be placed into groups. However, the aim of the research is to get clarity on how people think about the buildings. Therefore please sort them into groups according to only one, and only one criterion at a time.

Further, please use the most obvious or significant criterion that comes to your mind first. When you are finished sorting the images, I would like you to tell me what is similar in each group, and what general criterion you sorted by.

Then, after you've completed the first arrangement, you will have an opportunity to suggest other ways of grouping the buildings. If you would, please identify the criterion that you are sorting by and sort the images into groups. Remember, there is no right or wrong answers.

Second Free Sort: I am now going to shuffle the cards and hand them back to you. Please repeat the activity, but this time choosing a criterion that you have not used yet.

Third Free Sort: I am now going to shuffle the cards and hand them back to you. Please repeat the activity, but this time choosing a criterion that you have not used yet.

Preference Sorting Task

Now, I'm going to change the instructions somewhat. What I'd like you to do is to sort this set of buildings according to your preference. And this time, I'm going to tell you how many groups to sort them into, although you can put as many or as few as you want into each group—even leaving a group empty if you wish.

Here are the five groups:

“Like Very Much” “Like Somewhat” “Neutral / Mixed” “Dislike Somewhat”
“Dislike Very Much”.

Preference Ranking

Now that you've done that, I'd like you to rank your preference of the buildings from 1 (most liked) to 25 (least liked) using the current groups as a start.

Comfort Sorting Task

I would now like you to again sort the images into categories I provide.

Imagine that you were to attend a church sponsored service or event, please sort the images by the level of comfort you would have walking into each of the buildings.

The categories are:

“Very Comfortable” “Somewhat Comfortable” “Neutral / Mixed” “Somewhat Uncomfortable” “Very Uncomfortable”

Aesthetic Quality Sorting Task

In a similar fashion, I would now like you to sort the images into these following categories:

“Beautiful” “Somewhat Beautiful” “Neutral / Mixed” “Somewhat Ugly” “Ugly”

Building Emphasis Sorting Task

Protestant churches often view their purpose in a threefold fashion: Worship to God, Developing the individuals and community within the church, and engaging the broader community through service.

Please take a look at the images and decide which of the three categories each building emphasizes most by sorting them into these three categories:

“Worship Emphasis” “Church Community Development Emphasis”
“Broader Community Engagement & Service Emphasis”

Church Emphasis Sorting Task

In your ideal conception of a church, please rank the three emphases in order of importance.

Prototypicality Sorting Task

I would now like you to sort the photos according to the level that you feel they look like a church.

The categories are:

“Looks very much like a church” “Looks somewhat like a Church” “Neutral / Mixed”
“Somewhat does not look like a church” “Does not look like a church”

Identification of significant features

Now, from this grouping of “Looks very much like a church” select two images that you feel most look like a church.

In the first picture, what about the building or architecture makes you feel this way?
In the second picture, what about the building or architecture makes you feel this way?

Now, from the grouping of “does not look like a church” select two images that you feel least look like a church.

In the first picture, what about the building or architecture makes you feel this way?
In the second picture, what about the building or architecture makes you feel this way?

Past Experience Sorting Task

Please take a moment to recall any past experience you have had with a church.

Looking at the image set one last time, please sort the buildings according to the level of similarity these buildings have in relation to those past experience. The categories are:

“Looks very much like a church I’ve had experience with”
“Looks somewhat like a church I’ve had experience with”
“Neutral / Mixed”
“Somewhat does not look like a church I’ve had experience with”
“Does not look like a church I’ve had experience with”

Demographics

Now in conclusion, if need to collect some very basic demographic information:

- 1) Speaking of your age, are you in your 20's, 30's, 40's, 50's, 60's, or 70's?
- 2) What is your ethnicity or race?
- 3) What do you consider your gender?
- 4) Do you regularly attend church sponsored worship services or functions at least once per month on average?

(if yes)

Generally Speaking, what were the reasons you were attracted to this church?

Do you like your church's architecture, or would you prefer different?

(follow up) What do you like? OR What would you prefer different?

(if no)

- 4) At any point in your adult life did you regularly attend church sponsored worship services or functions at least once per month on average?

(if yes)

- 5) "What was the name or denomination of the church?"

Conclusion Statement

I'd like to thank you for your time today. If you have any questions about either the research or the interview, I can answer them now.

Finally, I have one important request to make; we'd like to ask that you refrain from discussing the content of the interview with anyone that has not done the interview yet. The reason is that the whole point of the interview is to explore how each person individually feels about the various buildings and issues we've asked you about. If you were to discuss the interview with someone before we've had a chance to interview them, it might significantly alter how they would answer the questions. We appreciate your cooperation on this.

Lastly, if you know of any individuals who you feel would enjoy or like to participate in this research, it would be helpful if you would like to share their name. We are always interested in additional individuals for the research.

Thank you again.

APPENDIX B

Building Image Details



IMAGE 1¹
Saint James Episcopal Church
Fairhope, Alabama
S, H, R, PRE



IMAGE 2²
Claude Presbyterian Church
Caledon, Ontario
S, H, R, PRE



IMAGE 3³
Westminster Presbyterian Church
St. Louis, Missouri
S, H, R, PRE



IMAGE 4⁴
Wallace Presbyterian Church
College Park, Maryland
S, NH, R, MIX

¹ St. James Episcopal Church [Online Image]. (2006). Retrieved March 5, 2015 from <https://www.flickr.com/photos/fancyhorse/84074151>

² Claude Presbyterian Church [Online Image]. (2012). Retrieved March 5, 2015 from http://www.insidecaledon.com/wp-content/uploads/2012/01/Claude_Presbyterian_Church-575x433.jpg

³ Westminster Presbyterian Church [Online Image]. (2011). Retrieved March 5, 2015 from https://www.stlouis-mo.gov/government/departments/planning/cultural-resources/city-landmarks/images/IMG_4101.JPG

⁴ Wallace Presbyterian Church [Online Image]. (2015). Retrieved March 5, 2015 from https://s3-media1.fl.yelpcdn.com/bphoto/zby_39anIDbn04FRrpc5dw/ls.jpg



IMAGE 5⁵
 Mariners Church
 Irvine, California
S, NH, R, MIX



IMAGE 6⁶
 Seaside Chapel
 Seaside, Florida
S, NH, R, MIX



IMAGE 7⁷
 Kuokkala Church
 Jyväskylä, Finland
S, NH, R, MOD



IMAGE 8⁸
 National Presbyterian Church
 Washington D.C., Maryland
S, NH, R, MOD

⁵ Mariners Church [Online Image]. (2014). Retrieved March 5, 2015 from <http://saddlebackdevelopment.com/images/project-mariners-02.jpg>

⁶ Seaside Chapel [Online Image]. (2012). Retrieved March 5, 2015 from <http://bettercities.net/sites/default/files/seaside-1.jpg>

⁷ Tianen, J. (2010). Kuokkala Church [Online Image]. Retrieved March 5, 2015 from <http://www.archdaily.com/72755/kuokkala-church-lassila-hirvilammi/5012615b28ba0d1b4c00048d-kuokkala-church-lassila-hirvilamm-photo>

⁸ National Presbyterian Church 1 [Online Image]. (2013). Retrieved March 5, 2015 from <https://billebovich.files.wordpress.com/2013/01/national-presbyterian-church-11.jpg?w=549>



IMAGE 9⁹
Heights Christian Church
Houston, Texas
M, H, NR, PRE

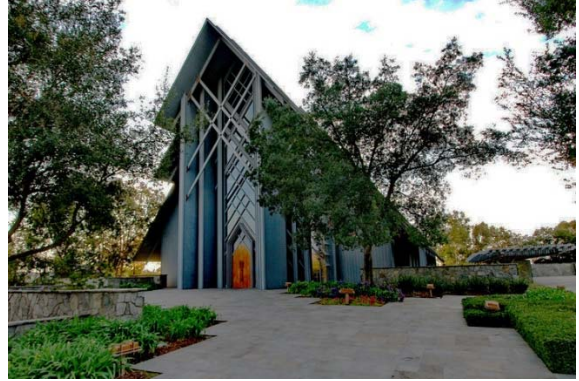


IMAGE 10¹⁰
SkyRose Chapel
Whittier, California
M, NH, R, MIX



IMAGE 11¹¹
Aldersgate United Methodist Church
Aldersgate, Texas
M, NH, R, MIX



IMAGE 12¹²
Lindale Assembly of God
Lindale, Texas
M, NH, R, MOD

⁹ Uthman, E. (2010). Heights Christian Church [Online Image]. Retrieved March 5, 2015 from http://www.orangesmile.com/common/img_cities_500/houston-20128761-1.jpg

¹⁰ Locke, M. (1997). SkyRose Chapel [Online Image]. Retrieved March 5, 2015 from https://farm8.staticflickr.com/7364/12411777513_5065918a96_z.jpg

¹¹ Aldersgate Church [Online Image]. (2014). Retrieved March 5, 2015 from [http://4.bp.blogspot.com/-eKJY775yWvk/Uw1Z0kqumKI/AAAAAAAAACJs/xVN0ASz5mE/s1600/0513+-+Aldersgate+Exterior+Education+Building+-+Final+\(Med\).jpg](http://4.bp.blogspot.com/-eKJY775yWvk/Uw1Z0kqumKI/AAAAAAAAACJs/xVN0ASz5mE/s1600/0513+-+Aldersgate+Exterior+Education+Building+-+Final+(Med).jpg)

¹² Lindale Assembly [Online Image]. (2010). Retrieved March 5, 2015 from <http://lindaleassembly.com/wp-content/uploads/2014/09/ChurchBuilding-1024x548.jpg>



IMAGE 13¹³
 Crystal Cathedral
 Garden Grove, California
M, NH, R, MOD



IMAGE 14¹⁴
 New Faith Baptist Church
 Matteson, Illinois
M, NH, NR, MOD



IMAGE 15¹⁵
 Busan Church
Proposal
M, NH, NR, MOD



IMAGE 16¹⁶
 First Baptist Church
 Dallas, Texas
M, NH, NR, MOD

¹³ Doctor Robert Schuller's Crystal Cathedral [Online Image]. (2012). Retrieved March 5, 2015 from http://www.thetimes.co.uk/tto/multimedia/archive/00252/100765832_crystal_252114b.jpg

¹⁴ New Faith Baptist Church International – Worship Center [Online Image]. (2014). Retrieved March 5, 2015 from http://www.worshipfacilities.com/images/photos/SV_156_print1_New_Faith_Baptist.jpg

¹⁵ Busan Daeyang Church [Online Image]. (2015). Retrieved March 5, 2015 from <http://1.bp.blogspot.com/-qa-DXBO2G-A/VGjICEBRCII/AAAAAAAAABY/pMIKxLKh84/s1600/Busan%2Bdaeyang%2BChurch.jpg>

¹⁶ Theiss, T. (2014). First Baptist Church Exterior [Online Image]. Retrieved March 5, 2015 from http://104.244.125.55/~terry/wp-content/uploads/2014/09/first-baptist-church-dallas-texas-lundy-services-terry-theiss-photography_61A7999-10x15-150-a.jpg



IMAGE 17¹⁷
Lilly Grove Missionary Baptist Church
Houston, Texas
M, NH, NR, MOD



IMAGE 18¹⁸
First United Methodist Church
Ardmore, Oklahoma
N, H, R, PRE



IMAGE 19¹⁹
Lawton First Assembly of God
Lawton, Oklahoma
N, NH, NR, MIX



IMAGE 20²⁰
River Hills Christian Church
Loveland, Ohio
N, NH, R, MIX

¹⁷ Lilly Grove Missionary Baptist Church [Online Image]. (2014). Retrieved March 5, 2015 from http://www.humphries-const.com/phpThumb/phpThumb.php?w=160&src=/uploads/images/galleries/large/lilygrove_rendering_38.jpg

¹⁸ First United Methodist Church [Online Image]. (2010). Retrieved March 5, 2015 from http://4.bp.blogspot.com/-tCOG1h7jnJg/UexvWjkU1yI/AAAAAAAAJFU/66u8MhTm-1A/s1600/100_5960.JPG

¹⁹ Lawton First Assembly [Online Image]. (2014). Retrieved March 5, 2015 from https://faithstreet.s3.amazonaws.com/uploads/church/5008307ee412b00d40002eb5/church_image/5076d4a14573210017000023/medium_5b21d36a3eda17c08e87.jpg

²⁰ River Hills Christian Church [Online Image]. (2012). Retrieved March 5, 2015 from <http://www.church-designer.com/wp-content/uploads/2012/06/church-rhcc01.jpg>



IMAGE 21²¹
Faith Community Church of God
Huntington, Indiana
N, NH, R, MOD



IMAGE 22²²
St. Aloysius Church
Baton Rouge, Louisiana
N, NH, R, MOD



IMAGE 23²³
Lakeside Christian Church
Hebron, Kansas
N, NH, NR, MOD



IMAGE 24²⁴
Watermark Community Church
Dallas, Texas
N, NH, NR, MOD

²¹ Faith Community Building [Online Image]. (2013). Retrieved March 5, 2015 from <http://www.faithchog.org/>

²² Schindler, A. (2012). Aloysius Exterior [Online Image]. Retrieved March 5, 2015 from <http://images.adsttc.com/media/images/50ab/d13c/b3fc/4b0b/5400/0138/slideshow/REV.C3J4540-Edit.jpg?1414009709>

²³ Lakeside Christian Church – Hebron Campus – Repurposed Facility [Online Image]. (2014). Retrieved March 5, 2015 from http://worship_facilities.s3.amazonaws.com/images/made/images/photos/SV_30_print1_Lakeside_Christian_Hebron_140_76_c1.jpg

²⁴ Watermark Church [Online Image]. (2015). Retrieved March 5, 2015 from <http://roweb2016.com/wp-content/uploads/2015/02/Watermark.jpg>



IMAGE 25²⁵
Faith Promise Church
Knoxville, Tennessee
N, NH, NR, MOD

²⁵ Faith Promise Church [Online Image]. (2013). Retrieved March 5, 2015 from <http://www.ldstn.com/image/Faith%20Promise%20Church.jpg>

APPENDIX C

Comfort Judgement Directed Sorting Task Results

Participants were asked to sort the image set into a five point Likert Scale for the semantic differential Comfortable – Uncomfortable based on the level of comfort they would have walking into each of the buildings if they were to attend a church sponsored service or event.

*5 – Very Comfortable; 4 – Somewhat Comfortable; 3- Neutral / Mixed;
2 – Somewhat Uncomfortable; 1- Very Uncomfortable*

Subsequently, the mean ranks were calculated for the different participant groupings—total participants, unchurched participants, churched participants.

Table C.1 Comfort Judgement Mean Rank Order, 242

242	TOTAL		CHURCHED		UNCHURCHED	
RANK	MEAN	IMAGE #	MEAN	IMAGE #	MEAN	IMAGE #
1	4.44	5	4.68	5	4.64	1
2	4.02	1	4.40	20	4.24	2
3	3.98	20	4.08	24	4.20	5
4	3.76	10	4.08	25	4.16	4
5	3.72	4	3.88	19	4.16	3
6	3.62	2	3.80	11	4.08	10
7	3.58	3	3.48	17	3.56	20
8	3.50	11	3.44	10	3.48	6
9	3.50	24	3.44	16	3.36	22
10	3.26	22	3.40	1	3.36	9
11	3.24	9	3.32	14	3.36	18
12	3.22	6	3.32	23	3.20	11
13	3.22	25	3.28	4	2.92	24
14	3.20	19	3.24	21	2.84	16
15	3.16	18	3.16	22	2.56	15
16	3.14	16	3.12	9	2.52	19
17	2.88	17	3.00	2	2.48	21
18	2.86	21	3.00	3	2.48	12
19	2.78	14	2.96	6	2.44	8
20	2.70	12	2.96	18	2.36	25
21	2.56	8	2.92	12	2.28	17
22	2.56	23	2.68	8	2.24	14
23	2.52	15	2.52	13	2.16	13
24	2.34	13	2.48	15	1.96	7
25	1.94	7	1.92	7	1.80	23

Table C.2 Image Ranking of Comfort Judgement Mean Rank Order, 242
 1 – Most Comfortable; 25 – Least Comfortable

242 RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			
























242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
9					
10					
11					
12					
13					
14					
15					
16					
17					




























242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table C.3 Comfort Judgement Mean Rank Order, DUMC

DUMC	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.58	5		4.68	5		4.48	5
2	4.24	1		4.30	20		4.48	1
3	4.01	20		4.00	1		4.22	2
4	3.95	10		3.86	11		4.22	3
5	3.92	4		3.86	19		4.08	10
6	3.83	2		3.84	4		4.00	4
7	3.79	3		3.84	24		3.72	20
8	3.55	11		3.82	10		3.66	6
9	3.47	19		3.62	25		3.30	9
10	3.45	24		3.44	2		3.28	18
11	3.42	6		3.36	3		3.24	11
12	3.20	22		3.28	13		3.20	22
13	3.15	9		3.28	17		3.08	19
14	3.11	18		3.20	22		3.06	24
15	3.08	25		3.18	6		2.84	16
16	3.00	16		3.16	16		2.76	8
17	2.91	17		3.16	21		2.56	21
18	2.86	21		3.00	9		2.54	15
19	2.80	8		3.00	12		2.54	17
20	2.74	13		3.00	14		2.54	25
21	2.71	12		2.96	23		2.42	12
22	2.69	14		2.94	18		2.38	14
23	2.56	23		2.84	8		2.20	13
24	2.48	15		2.42	15		2.16	23
25	2.18	7		2.20	7		2.16	7

Table C.4 Image Ranking of Comfort Judgement Mean Rank Order, DUMC
 1 – Most Comfortable; 25 – Least Comfortable

DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			












































DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

Table C.5 Comfort Judgement Mean Rank Order, EHC

EHC	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.46	5		4.40	5		4.52	5
2	4.34	1		4.20	1		4.48	1
3	3.96	20		3.96	20		4.16	2
4	3.94	4		3.92	19		4.12	4
5	3.78	2		3.76	4		4.00	3
6	3.74	19		3.76	11		3.96	20
7	3.64	3		3.40	2		3.84	24
8	3.60	24		3.36	10		3.64	6
9	3.52	11		3.36	24		3.60	10
10	3.48	10		3.28	3		3.56	19
11	3.44	6		3.24	6		3.44	9
12	3.20	9		3.16	17		3.28	11
13	3.20	16		3.12	16		3.28	16
14	3.18	17		3.12	25		3.28	18
15	3.08	22		2.96	9		3.24	22
16	3.06	18		2.96	23		3.20	17
17	2.92	25		2.92	21		3.12	15
18	2.90	8		2.92	22		3.04	13
19	2.78	14		2.84	18		3.00	8
20	2.76	15		2.80	8		2.80	14
21	2.62	13		2.76	14		2.72	25
22	2.60	21		2.40	15		2.28	21
23	2.58	23		2.36	12		2.24	7
24	2.22	12		2.20	13		2.20	23
25	2.14	7		2.04	7		2.08	12

Table C.6 Image Ranking of Comfort Judgement Mean Rank Order, EHC
 1 – Most Comfortable; 25 – Least Comfortable

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			








EHC	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

























Table C.7 Comfort Judgement Mean Rank Order, RBC

RBC	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.52	1		4.68	1		4.44	5
2	4.44	5		4.44	5		4.36	1
3	4.32	4		4.40	4		4.24	4
4	4.00	2		4.16	2		4.20	10
5	3.96	10		3.88	11		4.16	3
6	3.94	3		3.76	19		3.92	20
7	3.74	20		3.72	3		3.92	9
8	3.64	11		3.72	10		3.88	18
9	3.60	18		3.56	20		3.84	2
10	3.60	19		3.40	24		3.60	22
11	3.56	9		3.36	6		3.48	6
12	3.42	6		3.32	18		3.44	16
13	3.40	22		3.24	8		3.44	19
14	3.36	24		3.20	9		3.40	11
15	3.16	8		3.20	22		3.32	24
16	3.08	21		3.16	23		3.20	21
17	3.06	17		2.96	17		3.16	17
18	3.00	16		2.96	21		3.08	8
19	2.82	25		2.96	25		2.92	14
20	2.72	23		2.68	12		2.84	7
21	2.66	12		2.56	16		2.76	15
22	2.62	7		2.40	7		2.68	25
23	2.60	14		2.28	14		2.64	12
24	2.48	15		2.20	15		2.28	23
25	2.08	13		1.96	13		2.20	13

Table C.8 Image Ranking of Comfort Judgement Mean Rank Order, RBC
 1 – Most Comfortable; 25 – Least Comfortable

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			

RBC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

APPENDIX D

Aesthetic Quality Judgement Directed Sorting Task Results

Participants were asked to sort the image set into a five point Likert Scale for the semantic differential Beautiful-Ugly.

























5 – Beautiful; 4 – Somewhat Beautiful; 3- Neutral / Mixed; 2 – Somewhat Ugly; 1- Ugly




















Subsequently, the mean ranks were calculated for the different participant groupings—total participants, unchurched participants, churchd participants.

Table D.1 Aesthetic Quality Judgement Mean Rank Order, 242

242	TOTAL			CHURCHED			UNCHURCHED	
RANK	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.52	5		4.84	5		4.52	1
2	4.14	1		4.48	20		4.36	2
3	4.14	2		4.00	24		4.32	4
4	4.12	20		3.96	3		4.20	5
5	4.04	3		3.92	2		4.12	3
6	4.04	4		3.76	1		4.04	10
7	3.82	10		3.76	4		3.76	20
8	3.72	24		3.72	16		3.56	22
9	3.54	16		3.60	10		3.44	24
10	3.30	22		3.28	17		3.36	16
11	3.06	13		3.12	19		3.20	6
12	3.04	6		3.08	14		3.16	13
13	2.94	18		3.04	22		3.12	18
14	2.86	9		2.96	13		3.00	9
15	2.86	14		2.88	6		2.84	8
16	2.82	15		2.80	15		2.84	15
17	2.70	19		2.76	11		2.64	14
18	2.68	8		2.76	18		2.28	19
19	2.68	17		2.72	9		2.08	17
20	2.40	11		2.52	8		2.04	11
21	2.12	25		2.48	25		1.88	7
22	1.80	7		2.20	23		1.76	25
23	1.76	23		1.92	21		1.32	12
24	1.62	21		1.72	7		1.32	21
25	1.50	12		1.68	12		1.32	23

Table D.2 Image Ranking of Aesthetic Quality Judgement Mean Rank Order,242
 1 – Most Beautiful; 25 – Most Ugly

242 RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
9					
10					
11					
12					
13					
14					
15					
16					
17					


































































242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table D.3 Aesthetic Quality Judgement Mean Rank Order, DUMC

DUMC	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.76	5		4.80	5		4.72	5
2	4.40	3		4.44	20		4.64	3
3	4.38	20		4.32	10		4.32	20
4	4.28	10		4.16	3		4.32	2
5	4.02	2		4.00	1		4.24	10
6	4.00	1		3.88	4		4.00	1
7	3.88	4		3.72	2		3.88	4
8	3.66	24		3.64	24		3.68	24
9	3.50	16		3.44	16		3.56	16
10	3.30	19		3.40	19		3.32	6
11	3.10	6		3.12	11		3.28	8
12	3.06	13		2.96	15		3.28	13
13	3.02	8		2.88	6		3.20	19
14	2.94	18		2.84	13		3.12	18
15	2.88	15		2.84	22		2.80	15
16	2.80	22		2.76	8		2.76	22
17	2.78	11		2.76	17		2.72	9
18	2.62	9		2.76	18		2.44	11
19	2.54	17		2.52	9		2.36	14
20	2.42	14		2.48	14		2.32	17
21	2.00	25		2.00	25		2.04	7
22	1.96	7		1.88	7		2.00	25
23	1.80	23		1.80	23		1.80	23
24	1.50	12		1.64	12		1.44	21
25	1.42	21		1.40	21		1.36	12

Table D.4 Image Ranking of Aesthetic Quality Judgement Mean Rank Order, DUMC
 1 – Most Beautiful; 25 – Most Ugly

DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			






































































DUMC	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table D.5 Aesthetic Quality Judgement Mean Rank Order, EHC

EHC RANK	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.50	5		4.56	5		4.44	5
2	4.34	1		4.48	1		4.28	4
3	4.16	4		4.04	4		4.20	1
4	3.94	3		3.96	3		4.04	2
5	3.86	2		3.84	20		3.92	3
6	3.86	20		3.76	16		3.88	20
7	3.72	10		3.72	24		3.76	10
8	3.72	16		3.68	2		3.68	16
9	3.62	24		3.68	10		3.52	24
10	3.22	18		3.24	18		3.40	13
11	3.10	13		3.08	19		3.20	18
12	3.08	9		3.04	9		3.12	9
13	3.06	19		3.00	6		3.12	15
14	2.92	15		2.80	11		3.08	22
15	2.80	17		2.80	12		3.04	19
16	2.78	6		2.80	17		2.80	17
17	2.78	22		2.72	15		2.68	8
18	2.66	11		2.64	14		2.56	6
19	2.60	8		2.52	8		2.52	11
20	2.48	14		2.48	22		2.32	14
21	2.24	25		2.36	25		2.12	25
22	1.88	7		2.08	21		1.96	7
23	1.78	21		1.88	23		1.48	12
24	1.68	23		1.80	7		1.48	21
25	1.54	12		1.60	12		1.48	23

Table D.6 Image Ranking of Aesthetic Quality Judgement Mean Rank Order, EHC
 1 – Most Beautiful; 25 – Most Ugly

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			










































































EHC	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

























Table D.7 Aesthetic Quality Judgement Mean Rank Order, RBC

RBC RANK	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.54	5		4.56	5		4.52	5
2	4.44	1		4.52	2		4.40	1
3	4.40	2		4.48	1		4.36	3
4	4.22	4		4.40	4		4.28	2
5	4.14	3		4.08	10		4.16	10
6	4.12	10		4.04	20		4.12	20
7	4.08	20		3.92	3		4.04	4
8	3.48	24		3.48	24		3.80	18
9	3.46	18		3.24	16		3.34	9
10	3.32	9		3.12	11		3.48	24
11	3.32	16		3.12	18		3.44	22
12	3.20	22		3.04	6		3.40	16
13	3.18	6		3.00	9		3.32	6
14	2.98	19		2.96	19		3.00	19
15	2.84	8		2.96	22		2.88	13
16	2.76	11		2.84	8		2.84	8
17	2.60	13		2.56	17		2.56	15
18	2.56	17		2.44	15		2.56	17
19	2.50	15		2.32	13		2.40	11
20	2.20	14		2.12	14		2.36	7
21	2.10	7		2.04	25		2.28	14
22	1.92	21		2.00	21		1.84	21
23	1.88	25		1.96	12		1.72	25
24	1.84	12		1.84	7		1.72	12
25	1.78	23		1.84	23		1.72	23

Table D.8 Image Ranking of Aesthetic Quality Judgement Mean Rank Order, RBC
 1 – Most Beautiful; 25 – Most Ugly

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

APPENDIX E

Preference Ranking Task Results

























Participants were asked to rank the images based on their overall preference from 1 – Most Preferred, to 25 – Least Preferred:

The mean ranks were calculated for the different participant groupings—total participants, unchurched participants, churched participants.

Table E.1 Preference Judgement Mean Rank Order, 242

242	TOTAL			CHURCHED			UNCHURCHED	
RANK	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	5.46	5		4.72	5		5.80	2
2	7.68	2		7.24	20		6.12	1
3	7.78	20		8.96	3		6.20	5
4	7.82	3		9.20	24		6.52	4
5	7.88	1		9.56	2		6.68	3
6	8.74	4		9.64	1		8.32	20
7	9.86	10		10.96	4		8.44	10
8	10.12	24		11.28	10		10.40	22
9	11.74	6		11.96	11		10.96	6
10	12.26	16		12.04	19		10.96	16
11	12.26	22		12.08	17		11.04	24
12	13.78	9		12.52	6		11.84	9
13	13.98	18		13.56	16		12.76	15
14	14.00	15		13.76	14		13.04	18
15	14.36	11		13.92	25		13.36	13
16	14.56	14		14.12	22		13.60	8
17	14.62	19		14.88	23		15.36	14
18	14.86	8		14.92	18		16.76	11
19	15.02	17		15.24	15		17.20	19
20	15.82	13		15.72	9		17.72	7
21	16.98	25		16.12	8		17.96	17
22	18.26	23		17.40	21		20.04	25
23	18.70	7		17.52	12		20.60	21
24	19.00	21		18.28	13		21.64	23
25	19.60	12		19.68	7		21.68	12

Table E.2 Image Ranking of Preference Judgement Mean Rank Order, 242
 1 – Most Preferred; 25 – Least Preferred

242 RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
9					
10					
11					
12					
13					
14					
15					
16					
17					











































































242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table E.3 Preference Judgement Mean Rank Order, DUMC

DUMC	TOTAL			CHURCHED			UNCHURCHED	
	RANK	MEAN		IMAGE #	MEAN		IMAGE #	MEAN
1	3.98	5		3.16	5		4.80	5
2	6.38	3		5.76	20		4.96	3
3	6.46	20		7.00	10		6.32	2
4	7.02	10		7.80	3		7.04	10
5	7.96	2		7.80	1		7.16	20
6	8.40	1		8.04	4		9.00	1
7	8.88	4		9.60	2		9.72	4
8	11.96	24		10.40	24		10.84	16
9	12.04	16		11.24	11		12.76	6
10	12.70	19		11.92	19		12.84	13
11	13.04	6		13.24	16		13.28	8
12	13.36	11		13.32	6		13.40	9
13	14.02	8		14.24	17		13.48	19
14	14.38	22		14.76	8		13.52	24
15	14.70	9		14.92	22		13.60	18
16	14.80	13		16.00	9		13.84	22
17	14.96	18		16.08	15		14.40	15
18	15.24	15		16.32	18		15.48	11
19	15.62	17		16.76	13		15.88	14
20	16.44	14		17.00	14		17.00	17
21	18.44	25		17.36	25		19.52	25
22	20.60	7		20.80	23		19.80	7
23	20.96	21		20.96	12		20.92	21
24	21.10	23		21.00	21		21.40	23
25	21.84	12		21.40	7		22.72	12

Table E.4 Image Ranking of Preference Judgement Mean Rank Order, DUMC
 1 – Most Preferred; 25 – Least Preferred

DUMC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

DUMC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			







































































DUMC	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table E.5 Preference Judgement Mean Rank Order, EHC

EHC	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	5.12	5		4.04	5		6.20	5
2	7.14	3		7.76	2		6.52	3
3	7.92	2		7.72	3		7.56	1
4	8.00	1		8.44	1		7.80	4
5	8.22	4		8.64	20		8.12	2
6	8.54	20		8.48	4		8.60	20
7	10.5	10		9.28	24		9.72	10
8	10.56	24		9.84	6		11.28	24
9	11.90	6		10.92	10		11.64	9
10	12.10	9		12.56	11		11.80	16
11	12.18	16		12.56	18		12.24	22
12	12.74	18		12.04	9		12.56	13
13	13.40	11		12.00	16		12.88	6
14	13.56	19		13.44	17		13.20	15
15	14.30	15		15.40	19		13.44	18
16	14.40	13		16.24	8		13.68	19
17	14.82	22		17.40	15		14.32	8
18	14.84	8		15.36	14		14.80	11
19	14.94	17		13.28	13		16.60	17
20	16.16	14		15.44	25		16.88	14
21	17.64	25		17.16	22		17.48	7
22	18.28	7		19.08	23		18.12	25
23	18.78	23		18.40	21		19.16	23
24	19.02	21		18.48	7		19.56	21
25	19.78	12		19.64	12		19.92	12

Table E.6 Image Ranking of Preference Judgement Mean Rank Order, EHC
 1 – Most Preferred; 25 – Least Preferred

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			

















































EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

























Table E.7 Preference Judgement Mean Rank Order, RBC

RBC	TOTAL			CHURCHED			UNCHURCHED	
RANK	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	6.42	5		5.52	5		5.44	3
2	6.68	4		6.00	1		6.64	4
3	7.20	10		6.72	4		6.84	10
4	7.32	2		6.84	2		7.32	5
5	7.42	3		7.56	10		7.80	2
6	7.64	1		9.40	3		9.28	1
7	10.56	20		10.4	20		9.72	6
8	10.62	6		11.52	6		9.80	18
9	11.44	18		11.52	24		10.72	20
10	11.64	9		12.08	11		10.72	9
11	12.34	24		12.56	9		12.48	8
12	13.16	8		13.08	18		12.72	16
13	13.74	22		13.84	8		13.00	22
14	13.86	11		14.24	19		13.16	24
15	13.86	16		14.48	22		14.36	13
16	14.96	19		15.00	16		14.72	15
17	15.80	15		15.28	21		15.64	11
18	16.38	17		15.32	17		15.68	19
19	16.84	21		15.48	12		16.04	7
20	17.00	13		16.32	25		17.04	14
21	17.54	7		16.88	15		17.44	17
22	17.74	12		18.00	23		18.40	21
23	17.88	14		18.72	14		19.80	25
24	18.06	25		19.04	7		20.00	12
25	19.26	23		19.64	13		20.52	23

Table E.8 Image Ranking of Preference Judgement Mean Rank Order, EHC
 1 – Most Preferred; 25 – Least Preferred

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

APPENDIX F

Prototypicality Judgement Directed Sorting Task Results

Participants were asked to sort the image set into a five point Likert Scale for the semantic differential ‘Looks like a Church’ – ‘Does not look like a Church’ based on how much they felt the image looked like a church.

*5 – Looks Like a Church; 4 – Somewhat Looks Like a Church; 3- Neutral / Mixed
2 – Somewhat Does Not Look Like a Church; 1- Does Not Look Like a Church*




























Subsequently, the mean ranks were calculated for the different participant groupings—total participants, unchurched participants, churched participants.

Table F.1 Prototypicality Judgement Mean Rank Order, 242

242	TOTAL		CHURCHED		UNCHURCHED	
RANK	MEAN	IMAGE #	MEAN	IMAGE #	MEAN	IMAGE #
1	4.98	4	5.00	4	4.96	4
2	4.96	1	4.96	1	4.96	1
3	4.96	2	4.96	2	4.96	2
4	4.72	3	4.72	3	4.72	3
5	4.52	6	4.52	6	4.52	6
6	4.14	8	4.32	8	3.96	8
7	3.86	5	4.20	5	3.76	10
8	3.62	10	3.64	11	3.52	5
9	3.32	11	3.48	10	3.00	11
10	3.12	15	3.44	12	2.96	15
11	3.00	12	3.44	17	2.56	12
12	3.00	17	3.28	15	2.56	17
13	2.64	9	3.00	18	2.44	9
14	2.64	18	2.84	9	2.28	18
15	2.36	21	2.72	21	2.20	22
16	2.14	16	2.36	7	2.12	16
17	2.08	22	2.32	25	2.00	20
18	2.04	7	2.16	16	2.00	21
19	2.02	25	2.00	19	1.80	13
20	1.94	20	1.96	22	1.72	7
21	1.86	13	1.92	13	1.72	25
22	1.60	14	1.88	20	1.60	14
23	1.56	19	1.60	14	1.16	24
24	1.38	24	1.60	24	1.12	19
25	1.34	23	1.56	23	1.12	23

Table F.2 Image Ranking of Prototypicality Judgement Mean Rank Order, 242
 1 – Looks Most Like a Church ; 25 – Looks Least Like a Church

242 RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

























242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
9					
10					
11					
12					
13					
14					
15					
16					
17					




























242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table F.3 Prototypicality Judgement Mean Rank Order, DUMC

DUMC	TOTAL			CHURCHED			UNCHURCHED	
	RANK	MEAN		IMAGE #	MEAN		IMAGE #	MEAN
1	4.98	1		4.96	1		5.00	1
2	4.96	2		4.96	2		4.96	2
3	4.92	3		4.96	3		4.96	4
4	4.92	4		4.88	4		4.88	3
5	4.60	6		4.56	6		4.64	6
6	4.38	5		4.52	5		4.44	8
7	4.36	8		4.28	8		4.24	5
8	4.10	10		4.20	10		4.00	10
9	3.36	11		3.64	11		3.08	11
10	2.92	17		3.04	17		2.92	15
11	2.74	15		2.84	7		2.80	17
12	2.66	7		2.68	12		2.64	9
13	2.56	9		2.56	15		2.52	22
14	2.42	12		2.48	9		2.48	7
15	2.42	22		2.44	20		2.16	12
16	2.14	18		2.32	22		2.04	18
17	2.06	20		2.24	18		1.80	16
18	1.90	16		2.00	16		1.72	19
19	1.78	13		1.92	13		1.68	20
20	1.66	21		1.84	14		1.64	13
21	1.64	19		1.76	21		1.56	21
22	1.62	14		1.60	25		1.40	14
23	1.48	25		1.56	19		1.36	25
24	1.44	24		1.56	24		1.32	24
25	1.22	23		1.20	23		1.24	23

Table F.4 Image Ranking of Prototypicality Judgement Mean Rank Order, DUMC
 1 – Looks Most Like a Church ; 25 – Looks Least Like a Church

DUMC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

























DUMC	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
9					
10					
11					
12					
13					
14					
15					
16					
17					




























DUMC	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table F.5 Prototypicality Judgement Mean Rank Order, EHC

EHC RANK	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.96	1		5.00	1		4.92	1
2	4.92	2		5.00	2		4.84	2
3	4.92	4		5.00	4		4.84	4
4	4.44	3		4.56	5		4.60	3
5	4.26	5		4.32	6		4.08	6
6	4.20	6		4.28	3		3.96	5
7	4.12	10		4.28	10		3.96	10
8	3.96	8		4.12	8		3.80	8
9	3.36	11		3.72	11		3.40	15
10	3.20	15		3.28	17		3.00	11
11	3.06	17		3.00	15		2.84	17
12	2.58	16		2.64	16		2.64	9
13	2.54	9		2.64	18		2.52	16
14	2.38	18		2.52	12		2.16	13
15	2.32	12		2.44	9		2.12	18
16	2.20	13		2.24	13		2.12	12
17	1.92	20		2.08	21		1.92	20
18	1.88	7		2.00	7		1.76	7
19	1.86	21		2.00	22		1.72	22
20	1.86	22		1.96	19		1.68	19
21	1.82	19		1.96	14		1.64	21
22	1.80	14		1.92	20		1.64	14
23	1.58	25		1.76	25		1.44	24
24	1.50	23		1.60	23		1.40	25
25	1.48	24		1.52	24		1.40	23

Table F.6 Image Ranking of Prototypicality Judgement Mean Rank Order, EHC
 1 – Looks Most Like a Church ; 25 – Looks Least Like a Church

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

























EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			
























EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
18			
19			
20			
21			
22			
23			
24			
25			
























Table F.7 Prototypicality Judgement Mean Rank Order, RBC

RBC	TOTAL			CHURCHED			UNCHURCHED	
RANK	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.98	1		5.00	1		4.96	1
2	4.90	2		5.00	2		4.88	4
3	4.86	4		4.84	4		4.80	2
4	4.74	3		4.80	3		4.68	3
5	4.24	6		4.40	6		4.28	8
6	4.20	10		4.28	10		4.12	10
7	4.08	8		4.08	5		4.08	6
8	4.06	5		3.88	8		4.04	5
9	3.34	11		3.64	11		3.16	17
10	3.12	17		3.16	9		3.04	11
11	2.98	9		3.08	17		2.80	9
12	2.68	12		3.04	18		2.68	12
13	2.64	15		2.92	15		2.48	7
14	2.60	18		2.68	12		2.40	20
15	2.44	16		2.56	16		2.36	15
16	2.36	20		2.32	20		2.36	21
17	2.28	7		2.20	21		2.32	16
18	2.28	21		2.08	7		2.16	18
19	1.94	22		1.84	19		2.16	22
20	1.84	19		1.80	25		1.84	19
21	1.82	25		1.76	13		1.84	25
22	1.66	13		1.72	22		1.80	24
23	1.62	24		1.64	14		1.56	13
24	1.58	14		1.44	24		1.52	14
25	1.42	23		1.36	23		1.48	23

Table F.8 Image Ranking of Prototypicality Judgement Mean Rank Order, RBC
 1 – Looks Most Like a Church ; 25 – Looks Least Like a Church

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

APPENDIX G

Past Experience Directed Sorting Task Results

Participants were asked to sort the image set into a five point Likert Scale for the semantic differential ‘Looks like a Church I’ve had experience with’ – ‘Does not look like a Church I’ve had experience with’.

























5 – Looks Like a Church I’ve had experience with; 4 – Somewhat Looks Like a Church I’ve had experience with; 3- Neutral / Mixed 2 – Somewhat Does Not Look Like a Church I’ve had experience with; 1- Does Not Look Like a Church I’ve had experience with
























Subsequently, the mean ranks were calculated for the different participant groupings—total participants, unchurched participants, churched participants.

Table G.1 Past Experience Judgement Mean Rank Order, 242

242	TOTAL		CHURCHED		UNCHURCHED	
RANK	MEAN	IMAGE #	MEAN	IMAGE #	MEAN	IMAGE #
1	3.92	3	4.20	21	4.36	3
2	3.84	21	4.20	11	4.08	2
3	3.68	1	3.92	25	3.96	1
4	3.66	2	3.76	12	3.76	4
5	3.58	11	3.48	3	3.48	21
6	3.48	4	3.40	1	2.96	11
7	3.18	12	3.28	5	2.84	6
8	3.06	25	3.24	2	2.72	5
9	3.00	5	3.20	4	2.72	8
10	2.76	6	3.04	23	2.68	10
11	2.58	8	3.00	24	2.64	9
12	2.52	10	3.00	19	2.60	12
13	2.44	9	2.76	17	2.40	22
14	2.42	18	2.68	6	2.32	18
15	2.26	17	2.52	18	2.20	25
16	2.24	22	2.44	8	1.76	17
17	2.22	23	2.36	10	1.76	20
18	2.16	24	2.36	20	1.68	15
19	2.14	19	2.24	9	1.56	7
20	2.06	20	2.08	22	1.40	23
21	1.68	15	1.68	15	1.40	14
22	1.54	14	1.68	14	1.32	24
23	1.52	7	1.56	16	1.28	19
24	1.42	16	1.48	7	1.28	16
25	1.28	13	1.28	13	1.28	13

Table G.2 Image Ranking of Past Experience Judgement Mean Rank Order, 242
 1 – Most Experience With; 25 – Least Experience With

242 RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
9					
10					
11					
12					
13					
14					
15					
16					
17					











































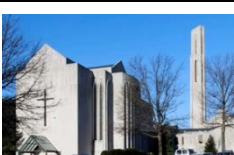

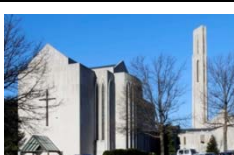






























242	TOTAL		CHURCHED		UNCHURCHED
RANK	IMAGE		IMAGE		IMAGE
18					
19					
20					
21					
22					
23					
24					
25					

Table G.3 Past Experience Judgement Mean Rank Order, DUMC

DUMC RANK	TOTAL			CHURCHED			UNCHURCHED	
	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.34	3		4.24	3		4.44	3
2	4.08	1		4.24	1		4.08	2
3	4.08	2		4.08	2		3.92	1
4	3.90	4		4.08	4		3.72	4
5	3.34	11		3.76	11		3.40	21
6	3.30	21		3.68	8		2.92	11
7	3.28	8		3.20	21		2.88	8
8	2.96	10		3.20	5		2.88	10
9	2.88	25		3.16	25		2.64	6
10	2.86	6		3.08	6		2.64	12
11	2.78	5		3.04	10		2.60	25
12	2.76	9		2.92	9		2.60	9
13	2.70	12		2.88	18		2.36	5
14	2.50	18		2.80	17		2.12	18
15	2.30	17		2.76	12		2.00	22
16	2.10	19		2.56	24		1.92	19
17	2.06	22		2.36	20		1.80	17
18	2.02	24		2.28	19		1.56	7
19	1.80	14		2.28	14		1.48	24
20	1.76	20		2.12	22		1.48	23
21	1.74	7		2.00	23		1.36	15
22	1.74	23		1.92	7		1.32	14
23	1.44	13		1.64	13		1.24	13
24	1.40	16		1.60	16		1.20	16
25	1.28	15		1.20	15		1.16	20

Table G.4 Image Ranking of Past Experience Judgement Mean Rank Order, DUMC
 1 – Most Experience With; 25 – Least Experience With

DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			























































DUMC	TOTAL	CHURCHED	UNCHURCHED
RANK	IMAGE	IMAGE	IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

Table G.5 Past Experience Judgement Mean Rank Order, EHC

EHC	TOTAL			CHURCHED			UNCHURCHED	
RANK	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	3.82	1		4.04	1		3.76	4
2	3.68	4		3.88	11		3.60	1
3	3.62	2		3.72	2		3.60	3
4	3.54	3		3.60	4		3.52	2
5	3.46	11		3.48	3		3.04	11
6	2.92	25		3.08	25		2.96	8
7	2.88	5		3.00	5		2.88	10
8	2.84	19		2.92	19		2.76	25
9	2.82	10		2.80	6		2.76	5
10	2.80	8		2.76	10		2.76	19
11	2.78	6		2.72	17		2.76	6
12	2.72	17		2.72	21		2.72	17
13	2.54	21		2.64	8		2.40	13
14	2.34	12		2.40	24		2.36	21
15	2.30	9		2.36	12		2.32	12
16	2.22	13		2.36	18		2.32	9
17	2.20	24		2.36	23		2.20	22
18	2.18	18		2.28	9		2.00	24
19	2.14	23		2.20	16		2.00	18
20	2.08	16		2.12	20		2.00	14
21	2.04	14		2.08	14		1.96	16
22	2.00	20		2.04	13		1.92	23
23	2.00	22		1.92	15		1.88	20
24	1.88	15		1.80	22		1.84	15
25	1.42	7		1.32	7		1.52	7

Table G.6 Image Ranking of Past Experience Judgement Mean Rank Order, EHC
 1 – Most Experience With; 25 – Least Experience With

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			








































EHC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

























Table G.7 Past Experience Judgement Mean Rank Order, RBC

RBC	TOTAL			CHURCHED			UNCHURCHED	
RANK	MEAN	IMAGE #		MEAN	IMAGE #		MEAN	IMAGE #
1	4.10	1		3.96	11		4.48	1
2	3.84	4		3.72	1		4.24	4
3	3.82	11		3.44	4		3.88	3
4	3.62	2		3.44	2		3.80	2
5	3.62	3		3.36	3		3.68	11
6	3.24	5		3.32	21		3.40	5
7	3.16	21		3.24	10		3.08	9
8	3.14	10		3.12	19		3.04	10
9	2.98	9		3.08	5		3.00	21
10	2.92	8		3.00	25		2.96	8
11	2.92	19		2.88	9		2.92	17
12	2.80	6		2.88	8		2.92	6
13	2.62	25		2.68	6		2.72	19
14	2.60	17		2.60	12		2.72	18
15	2.54	12		2.32	18		2.52	22
16	2.52	18		2.28	17		2.48	12
17	2.18	24		2.20	23		2.24	25
18	2.12	22		2.12	24		2.24	24
19	2.12	23		1.92	20		2.20	20
20	2.06	20		1.92	16		2.12	16
21	2.02	16		1.72	22		2.04	23
22	1.82	13		1.60	13		2.04	13
23	1.68	7		1.60	7		1.76	7
24	1.66	15		1.60	15		1.72	15
25	1.42	14		1.24	14		1.60	14

Table G.8 Image Ranking of Past Experience Judgement Mean Rank Order, RBC
 1 – Most Experience With; 25 – Least Experience With

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
1			
2			
3			
4			
5			
6			
7			
8			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
9			
10			
11			
12			
13			
14			
15			
16			
17			

RBC RANK	TOTAL IMAGE	CHURCHED IMAGE	UNCHURCHED IMAGE
18			
19			
20			
21			
22			
23			
24			
25			

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