

**THE SACRED IN ARCHITECTURE:
A STUDY OF THE PRESENCE AND QUALITY OF PLACE-MAKING
PATTERNS IN SACRED AND SECULAR BUILDINGS**

A Dissertation

by

ARSENIO TIMOTIO RODRIGUES

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2008

Major Subject: Architecture

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Approved by:

Chair of Committee,
Committee Members,

Head of Department,

Phillip J. Tabb
Chang-Shan Huang
Jody R. Naderi
Mardelle M. Shepley
Glen T. Mills

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ABSTRACT

The Sacred in Architecture: A Study of the Presence and Quality of Place-making Patterns in Sacred and Secular Buildings. (December 2008)

Arsenio Timotio Rodrigues, B. Arch., Goa University;
M. Arch., Texas A&M University

Chair of Advisory Committee: Dr. Phillip J. Tabb

The purpose of this research is to expand knowledge regarding the presence and quality of expression of certain place-making patterns that contribute to place being experienced as sacred. The results are intended to validate and make available an assessment method based on pattern presence and pattern quality for determining whether a specific built environment is more likely to be experienced as sacred or secular. In addition, the results are intended to provide architects with research-informed design guidelines for sacred place-making. This research explores the difference in the presence and quality of expression of certain place-making patterns at two selected sacred and secular buildings, i.e., Rothko Chapel and Contemporary Arts Museum, both in Houston, Texas.

Two key literature references were used as a basis for identifying place-making patterns used in this research: 1) *Sacred Place: The Presence of Archetypal Patterns in Place Creation*, authored by Phillip Tabb in 1996; and 2) *Using the Place-Creation Myth to Develop Design Guidelines for Sacred Space*, authored by Michael Brill in 1985. Three types of data were collected and analyzed: graphical data, questionnaire data, and focus group discussion data. Graphical data included photographs and sketches with field notes. A total of forty-eight (48) questionnaires (24 at each setting) were administered to twenty-four (24) Houston architects at the selected buildings. The focus group discussion panel consisted of 6 participants – three architects and three spiritual mentors from Houston, Texas. Relative frequencies were calculated for multiple-choice answers in the questionnaire, while open ended questionnaire items were subjected to inductive content analysis. Focus group discussion data was examined and coded by means of open coding, axial coding, and selective coding. The analyzed data were synthesized to test whether the presence and quality of expression of certain place-making patterns contributed to place being experienced as sacred.

This study concludes that built environments which possess a higher presence and higher quality of expression of certain place-making patterns are more likely to be experienced as

sacred than built environments with a lower presence and lower quality of expression of the place-making patterns. A set of design guidelines for sacred place-making were produced and a place-making pattern matrix was developed as part of this study.

DEDICATION

To my wife

Yolanda

my source, strength, and inspiration.

ACKNOWLEDGEMENTS

After years of working on this dissertation, I am proud to have it completed. There are many people I have the pleasure of thanking. Without these individuals the dissertation may never have seen the pages of a book.

I would like to thank Dr. Phillip Tabb, for serving as my chair and being my mentor. His knowledge, wisdom, and confidence in me, helped me realize that a study of this nature could indeed be undertaken and completed. I am indebted to him for his constant guidance, inspiration, and support.

I would like to thank Dr. Chang-Shan Huang for serving on my committee. His insights helped me tremendously in laying the ground work for my dissertation.

I would like to thank Professor Jody Naderi for serving on my committee. Her experience in research methods helped me understand the need for grounding the study.

I would like to specially thank Dr. Mardelle Shepley for serving on my committee and for believing in me. She helped me gain a thorough understanding of methods in research and how to go about conducting the study. She worked patiently and tirelessly with me to make sure I finished the dissertation. I am forever indebted to her for her consistent guidance, advice, and kindness.

I would like to thank the staff of the Rothko Chapel and the Contemporary Art Museum who gave me permission to conduct the research at their settings. I would also like to thank all the participants who took time off from their busy schedules and deadlines to diligently fill out the questionnaire forms and who participated in the two hour long discussion group.

I thank my parents. I appreciate all the sacrifices they made for me, without which I would not be where I am now. Through them, I have learned that hard work, dedication, and integrity are the keys to success.

Finally, I would like to thank my wife, whose support, patience, and devotion helped me through the entire process and enabled me to realize this dissertation.

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CHAPTER I

INTRODUCTION

*The sacred is pre-eminently the Real, a wholly other Reality
which does not belong to this world, even though it is manifest in and through it.*

Mircea Eliade, 1959

Defining the sacred is improper, because definitions imply limits and are not all-inclusive (Meurant, 1989; Lawlor, 1994). Lawlor (1994) believes that a precise definition of the sacred is not possible, simply because of the uniqueness of our individual backgrounds, while Robert Meurant (1989:1) states that “To confine the Godhead to our construction and image, is to attempt to name God. That is not our privilege.” According to Eliade (1959), an understanding of the nature of the sacred as a transcendental, all-inclusive, and absolute reality is difficult, because such an endeavor requires integral, unified thinking and experience. Our entire education is based upon contention, polarities, and the nature of categorization, making the concept of totality extremely difficult to understand (Critchlow, 1980). But, though the sacred cannot be defined, it can be sensed and partially understood – its presence can be known (Meurant, 1989).

In “Das Heilige” (The Sacred), published in 1917, the sacred is defined as a “terrible power”, an “awe-inspiring mystery”, an “overwhelming superiority of power” the experience of which is characterized by a “feeling of terror” (Eliade, 1959:9). This frightening and irrational experience, according to Eliade (1959:9), is induced by “the revelation of an aspect of divine power” – an entity that is “numinous” or “wholly other”. The sacred reveals itself to us as something that is wholly different from our other natural realities – a reality which does not belong to our world and before which man senses his absolute nothingness (Eliade, 1959). The sacred can, therefore, be thought of as the “opposite of the profane” – something that reveals and manifests itself to us as a wholly different order from the profane, thus making us aware of its reality (Eliade, 1959:11).

To understand the sacred in architecture, one has to explore multiple ways in which it finds inclusion in place-making. Place-making, in this context, denotes the action for creating a place

This dissertation follows the style and format of the *Journal of Architectural and Planning Research*.

or a sense of place (Tabb, 2006), and by its very nature, implies a superabundance of reality, a break in the plane, or an irruption of the sacred in the terrestrial world (Eliade, 1959). From this, it follows that, place-making, in its entirety, is founded upon the cosmogony or the paradigmatic act of the creation of the Universe (Eliade, 1959). The desacralization of place, however, has made it increasingly difficult for modern societies to rediscover existential dimensions of the sacred that were once readily accessible to man of the archaic societies in his everyday places (Eliade, 1959). Profanation of place, therefore, pervades the modern world, and is observed through the wide spread construction of structures that provide habitation, but fail to address the spiritual health of their inhabitants (Lawlor, 1994). The resulting disharmonious environments can contribute to psychological stress and lead to a decline in physiological health (Venolia, 1988).

According to Venolia (1988), the built environment has the potential of contributing significantly to our health and well being. Tabb (1996) reiterates that there should be some discussion on the nature of the sacred and its relationship to place-making, if we are to create healing and sustainability within the spaces we inhabit. In 2004, the Academy of Neuroscience for Architecture addressed the need for more research to better understand the characteristics of sacred architecture and its subsequent effect on our experience of place (Eberhard, 2005).

In a time dominated by desacralization of place, the rediscovery of timeless design principles and values, which have guided and informed place-making from time immemorial, is often overlooked or worse, forgotten. The motivation behind this study, therefore, comes from the need to reconnect with such design principles or pattern language and to reinvigorate the corporeal process of contemporary architecture. In this sense, the study is intended to provide inspiration to facilitate the relevance of contemporary architecture to sacred place-making and to provide a more renewed interest in the meaning and use of sacred design principles or patterns.

According to Tabb, a *pattern* refers to a “form, template, or model (or, more abstractly, a set of rules) which can be used to make or to generate things or parts of things, especially if the things that are generated have enough in common for the underlying pattern to be inferred or discerned, in which case the things are said to exhibit the pattern” (2006:55). A place-making pattern is, therefore, a component form that contributes to place creation (Tabb, 2006). It is speculated that the energy behind place-making patterns in sacred architecture and their meaningful inclusion, engender power to place, which in turn contribute to sacredness of place (Tabb, 2006).

It was around sacred place that archaic humans settled and founded their world, thereby giving meaning to sacred place as the center of their world (Eliade, 1959). Since sacred space symbolized an irruption of the sacred in the material world, by living in close proximity to sacred place and by merely entering it, man was ensured of transcending the profane world, thereby, sharing in the world of the sacred (Eliade, 1959). Design principles or place-making patterns that contribute to sacredness of place are, therefore, inextricably related not only to architectural creativity, but also to our overall health, well-being, and spirituality.

Place-making patterns that contribute to place being experienced as sacred, could express higher intensions, exemplifications, and important cultural values (Tabb, 1996). When these are uplifted in place, the resulting architecture can be transformed from merely being secular to becoming sacred (Tabb, 1996). How does this process happen? What are the contributing factors? Can they be objectified? One assertion is that sacred places embody certain place-making patterns, by means of which they distinguish themselves from our other inventory of places and reveal themselves as sacred to us (Brill, 1985; Tabb, 1996). However, place-making patterns, theorized to be exclusive to sacred places, may also be present at secular places. No empirical studies have been conducted to examine ways in which place-making patterns, common to both sacred and secular places, differ in terms of their presence and quality of expression. In addition, there is no known assessment method for determining whether a specific built environment is more likely to be experienced as sacred or secular. This gap in knowledge is a problem because, until more is known about the difference between place-making patterns common to both sacred and secular places, the potential health benefits of sacred environments may not be made available in everyday places.

1.1 RESEARCH QUESTIONS AND HYPOTHESIS

The purpose of this research is to examine differences in the presence and quality of expression of certain place-making patterns that contribute to place being experienced as sacred. The research is guided by the following questions: 1) Do place-making patterns, common to both sacred and secular places, differ in terms of their presence and quality of expression?; and 2) If yes, then how? The research would increase our understanding of whether and how certain place-making patterns contribute to place being experienced as sacred. More specifically, the research would validate and make available, an assessment method based on pattern presence and pattern quality, for determining whether a specific built environment is more likely to be

experienced as sacred or secular. In addition, the results would provide architects with research-informed design guidelines for sacred place-making. The design guidelines are intended to assist architects in creating everyday architecture that is meaningful and sacred. The knowledge gained through this study would contribute significantly to develop the field of evidence-based design and theory of place-making.

The central hypothesis for this study is that *built environments which possess a higher presence and higher quality of expression of certain place-making patterns are more likely to be experienced as sacred, than built environments with a lower presence and lower quality of expression of the place-making patterns*. To test the hypothesis, this research utilizes graphical data, questionnaire data, and focus group discussion data. *First*, in-depth literature review and analysis were conducted to develop a comprehensive set of place-making patterns. *Second*, on-site architectural analyses of a sacred building and a secular building were conducted to quantify the presence of the place-making patterns. The architectural analyses of the selected settings produced graphical data, i.e., photographs and sketches with field notes. *Third*, questionnaires were administered at the sacred and secular buildings to assess pattern presence, pattern quality, and sacredness of each place. The questionnaires yielded quantitative data as well as qualitative data. *Fourth*, focus group discussions were conducted to explore experiences elicited at the sacred and secular buildings, and to explore how architecture impacts sacredness (if at all) at the selected buildings. The focus group discussions produced qualitative data.

1.2 RESEARCH OBJECTIVES

The central objectives of this study are: *first*, to validate the pattern presence and pattern quality assessment methods as viable tools for determining whether a specific built environment is more likely to be experienced as sacred or secular; *second*, to test the validity of the hypothesis and develop theory in relation to the presence and quality of expression of place-making patterns in sacred and secular places; and *third*, to develop research-informed design guidelines for sacred place-making. More detailed objectives are:

- 1) To identify place-making patterns, (theorized to be present in sacred places) from relevant literature and develop a comprehensive list of place-making patterns for further analysis;
- 2) To synthesize the place-making patterns (from previously developed place-making pattern lists), based on their comparative similarities and differences and develop

the Comprehensive Place-making Pattern Set to be used as a basis for the research.

- 3) To analyze architecturally, by means of on-site observations, two case studies – one sacred building and one secular building, to identify ways in which individual place-making patterns from the Comprehensive Place-making Pattern Set physically correspond with the architecture of the sacred and secular buildings. This will quantify the presence of individual place-making patterns from the Comprehensive Place-making Pattern Set at the sacred and secular buildings.
- 4) To validate, by means of questionnaires, the presence of individual place-making patterns from the Comprehensive Place-making Pattern Set at the sacred and secular buildings.
- 5) To assess, by means of questionnaires, the quality of expression of individual place-making patterns from the Comprehensive Place-making Pattern Set at the sacred and secular buildings.
- 6) To assess, by means of questionnaires, whether the selected buildings are experienced to be sacred or not.
- 7) To explore, by means of focus group discussions, experiences elicited at the sacred and secular buildings.
- 8) To explore, by means of focus group discussions, how architecture impacts sacredness (if at all) at the selected buildings.

CHAPTER II

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter begins with a discussion on the definition of health. Shortcomings in the traditional model of health are identified and the biopsychosocial model of health is defined. The review then identifies specific and health-related benefits associated with spirituality, followed by a discussion on specific experiences associated with sacred places. Specific feelings associated with transcendental and sacred experiences are identified next, followed by a discussion on various sacred place types and functions based on the work of John Steele and James Swan. The chapter then outlines the chronological evolution of place-making pattern theory in Architecture that includes significant authors such as Marcus Vitruvius Pollio, Andrea Palladio, Christopher Alexander, Sara Ishikawa, Murray Silverstein, Michael Brill, Charles Moore, Donlyn Lyndon, and Phillip Tabb. Finally, the review provides a descriptive summary of specific place-making patterns theorized to be present at sacred places by two key authors, i.e., Michael Brill and Phillip Tabb. Place-making patterns proposed by Michael Brill and Phillip Tabb have been specifically selected for the study, as both authors speculate the presence of certain place-making patterns at sacred places. The review draws from multiple sources of publications related with sacred places and place-making patterns in architecture.

2.2 THE BUILT ENVIRONMENT AND HEALTH

2.2.1 Biopsychosocial Model of Health

Does the built environment contribute to health? An important question that could precede this is – what does it mean to be healthy? The World Health Organization (WHO), a growing number of health-care professionals, and the public today, equate good health not merely to the absence of disease, but also to the presence of positive well-being (Brannon & Feist, 2002). George Stone (1987) classified available definitions of health into two broad categories: 1) Health as an ideal (static) state of positive well-being; and 2) Health as a (dynamic) state of consistently moving towards positive well-being. According to Brannon and Feist (2002), the second definition suggests a greater holistic approach, as it acknowledges health, not merely as a static state of

being, but more as a direction on a continuum towards positive well-being. The much prevalent 20th century biomedical model, therefore, falls short in defining health as a holistic dimension, as it addresses health exclusively in terms of a single condition – the absence of disease (Brannon & Feist, 2002). The traditional biomedical model of health has therefore, given way to the biopsychosocial model – a model that advocates a greater holistic approach towards health, considering not only our biological, but also our social, psychological, physiological, as well as our spiritual health (Brannon & Feist, 2002).

2.2.2 Specific and Health-Related Benefits Associated with Spirituality

Although acknowledged as a healing adjunct among various cultures since ancient times, only recently have we been able to scientifically quantify specific and related health benefits, associated with spirituality. In the mid-1990's, the Faith Factor series (i.e., a review of nearly 400 empirical studies on the connection between spirituality and health) documented by Matthews and colleagues' (Matthews et al., 1993a, 1993b; Matthews & Larson, 1995 and Matthews & Saunders, 1997) showed that there were frequent positive correlations between spirituality and several health-related benefits. Several studies have shown that spirituality is associated with better health outcomes, coping skills and health-related quality of life, as well as with lower rates of anxiety, depression and suicide (Fehring et al., 1997; Lukoff et al., 1999; Sloan et al., 1999; Thoresen, 1999; Luskin, 2000; McCullough et al., 2000; Mueller et al., 2001; Nelson et al., 2002; Sloan & Bagiella, 2002; McClain et al., 2003; Powell et al., 2003; Seemann et al., 2003).

Various Studies have confirmed that spirituality is positively associated with quality of life and fighting-spirit, and negatively correlated with helplessness/ hopelessness, anxious preoccupation and cognitive avoidance (Cotton, Levine, Fitzpatrick, Dold, & Targ, 1999). Research has recently confirmed that patient recovery from illness is enhanced, when their spiritual needs are addressed (Mueller et al., 2001). Other benefits that are positively correlated with spirituality include significantly lower rates of cancer, better overall health and increased life expectancy (Enstrom, 1998; Koenig, McCullough & Larson, 2001; Simmerman, 1993; Hummer, Rogers, Nam, & Ellison, 1999). Recent empirical studies show a correlation and salutary relationship between spirituality and a number of beneficial psychological outcomes, including positive mental health, greater personal happiness and/or self esteem (Bahr & Martin, 1983; Ellison & George, 1994; Koenig, 1998; Koenig, McCullough & Larson, 2001; Thomas & Cornwall, 1990; Willits & Crider, 1988) and lower rates of depression (Ellison & George, 1994). These and similar

studies constitute a fraction of scientific inquiries conducted to date, that have successfully found positive correlations between health-related benefits and spirituality.

2.2.3 Specific Feelings Associated with Transcendental and Sacred Experiences

Pioneering psychological studies have shown that transcendental experiences are characterized by a sense of ego surrender (James, 1902), feelings of unification and harmony with all things, feelings of blessedness or joy, a sense of timelessness and spacelessness, a sense of connecting with some sort of objectivity or ultimate reality, and a sense of divine presence or sacredness (Stace, 1960). Research involving neuroscience suggests that sacred experiences relate to elevated states of awareness and feelings of awe (Eberhard, 2005). According to Venolia (1988), such experiences, associated with feelings of calm, relaxation and balance, are unique characteristics of healing environments.

2.2.4 Specific Experiences Associated with Sacred Place

Sacred Places, on account of their inherent purpose and function, have the potential of contributing significantly to our spiritual health. Among various place types, sacred places are speculated to significantly support healing (Swan, 1990), help us feel energized (Brill, 1986), bring about a unique transformation of consciousness (Steele, 1988), and contribute to transcendental experiences (Crithchlow, 1980). According to Brill (1986), specific emotions triggered and awakened at sacred places include ecstasy, ancient stirrings within the self, feelings of repose, feelings of sensory unification, and a sense of dissolution of the self – emotions that are not only powerful, but also intensely real, human and similar to those, experienced by archaic people in their sacred places. Being embodied in sacred place, therefore, can contribute significantly to our overall health and well-being.

2.3 SACRED PLACE TYPES AND FUNCTIONS

Based on their function and purpose, a variety of sacred place types can be classified. According to Steele (1988), sacred places can be separated into four basic categories, depending on their

function: 1) healing sites; 2) fertility sites; 3) prophecy sites; and 4) astronomical calendars. The review of relevant literature suggests the classification of sacred places as follows:

- 1) Graves, cemeteries and burial grounds – places that serve the purpose of celebrating the death of a person and the return of life back to the source for rebirth (Swan, 1990).
- 2) Purification places – places that serve the purpose of dispelling disharmony and restoring health (Swan, 1990).
- 3) Healing sites – places that serve the purpose of healing (Swan, 1990).
- 4) Prophecy sites – places that are designed for divination and to observe the movement of planets against the celestial background (Swan, 1990).
- 5) Vision questing and dreaming places – places that stimulate inner messaging and induce visions and profound dreams (Swan, 1990).
- 6) Fertility sites – places that celebrate actual and symbolic fertility (Swan, 1990).
- 7) Ceremonial sites – places that celebrate seasonal changes, summer and winter solstices, moon phases, including the births and deaths of saints, avatars and other notable figures, revolutions, wars and other historical events (Swan, 1990).
- 8) Astronomical observatories – places that are used to observe solar and other celestial phenomena, including the movement of the sun throughout the year for articulating the solstice sunrises and sunsets and for dividing the year into months and day into hours (Swan, 1990).
- 9) Sacred plant and animal sites – places that are used as portals to communicate with the spirit world, typically celebrated in totems expressing specific qualities (Swan, 1990).
- 10) Temples, shrines and effigies – places that celebrate mutable events such as solstices and seasonal changes, or commemorate a person, god or presence (Swan, 1990).
- 11) Sacred cities – places (mostly ancient) where sacred design principles were incorporated (Swan, 1990).
- 12) Historical sites – places that celebrate historical events and places where artifacts of ancient cultures are preserved (Swan, 1990).

2.4 EVOLUTION OF PLACE-MAKING PATTERN THEORY IN ARCHITECTURE

Several authors have discussed and developed fundamental characteristics associated with place-making in their respective works. Earliest known explorations on principles and guides for town planning and architectural design can be attributed to Marcus Vitruvius Pollio (*The Ten Books on Architecture*) in the First Century BC, followed by the Italian architect, Andrea Palladio (*The Four Books on Architecture*) in 1570.

In 1977, Christopher Alexander, Sara Ishikawa and Murray Silverstein with Max Jacobson, Ingrid Fiksdahl-King and Shlomo Angel, authored – *A Pattern Language: Towns, Buildings, Construction*, an exploration on patterns applied to varying scales of the built environment. This literature contains 253 highly structured patterns classified into three general categories, i.e., towns, buildings and construction, and is intended as a practical guide for architectural designers. In the literature, Christopher Alexander and his colleagues discuss certain desirable physical outcomes through the use of specific pattern types. Subsequently, in 2002, Christopher Alexander in his work – *The Nature of Order: The Phenomenon of Life*, identifies 15 fundamental properties which when embodied, generate a profound degree of life and wholeness in objects, buildings and places.

In 1985, in an address entitled - *Using the Place-Creation Myth to Develop Design Guidelines for Sacred Space*, given at the annual conference of the Council of Educators in Landscape Architecture at the University of Illinois in Urbana, IL, Michael Brill proposed a set of fourteen common and fundamental characteristics, by means of which places reveal themselves as sacred.

In 1994, Charles Moore and Donlyn Lyndon compiled a series of personal observations on places that they considered to be memorable. Their work – *Chambers of a Memory Palace*, addressed specific themes and compositions observed within a few select memorable settings from around the world. Their discussions entail how the specified themes and compositions create and shape the experience of the place.

In 1996, Phillip Tabb proposed that sacred places embody specific archetypal place-making patterns in his work – *Sacred Place: The Presence of Archetypal Patterns in Place Creation*. A series of fifteen place-making patterns that seem to recur in sacred places are specified and discussed in the literature. These patterns are arranged hierarchically within a pattern matrix and

classified subsequently into three levels, which he describes as Archetypal, Ectypal and Typal. The review of relevant literature indicates that, of all aforementioned authors, only two (i.e., Michael Brill and Phillip Tabb) specifically theorize the presence of certain place-making patterns at sacred places in their respective work. The place-making patterns ascribed by both, Michael Brill and Phillip Tabb, seem to have been inspired and developed from the groundbreaking work – *The Sacred and the Profane: The Nature of Religion*, published in 1959 by the famed historian of religion, Mircea Eliade.

2.5 PLACE-MAKING PATTERNS IN SACRED ARCHITECTURE

Sacred places are qualitatively different from our other inventory of places. They symbolize a break in the homogeneity of space (Eliade, 1959). Brill (1985) and Tabb (1996) suggest that this difference is observed at sacred places by means of an exclusive set of place characteristics or patterns. It is speculated that these recurring place characteristics or patterns make sacred places unique and distinguish them from our other inventory of places, thereby revealing them as sacred to us.

According to Brill (1985), sacred places are patterned around the cosmic model of creation or primordial myth of creation and, hence, share a common and fundamental set of design characteristics, while Tabb (1996) suggests that sacred places share underlying principles or patterns that recur physically in sacred places. Brill (1986) suggests that the act of place-making is symbolic of the triumph of order over chaos and formlessness. According to Tabb (1996), place-making patterns that recur in sacred places, possibly share a common origin. Tabb speculates that the combined relationship between these place-making patterns and their sequential embodiment in place are significant to place being experienced as sacred (1996). In addition, Tabb (1996) suggests that a sacred place need not embody all fifteen place-making patterns and acknowledges that the fifteen place-making patterns do not form an exclusive list, i.e., sacred places may embody other patterns that have not yet been revealed.

2.5.1 Place-making Patterns Proposed by Michael Brill

According to Brill (1985), the fourteen design characteristics theorized to be present at sacred places include: 1) Making a Location and Center; 2) Making Orientation and Direction; 3) Spatial

Order; 4) Celestial Order; 5) Differentiating Boundaries; 6) Reaching Upwards; 7) Triumph over the Underworld; 8) Bounding; 9) Passage; 10) Ordered Views; 11) Light; 12) Materials for Making; 13) Nature in Our Places; and 14) Finishing a Place. What follows, is a descriptive summary of the fourteen design characteristics, proposed by Michael Brill in 1985 in his address – *Using the Place-Creation Myth to Develop Design Guidelines for Sacred Space*, given at the annual conference of the Council of Educators in Landscape Architecture at the University of Illinois in Urbana, IL.

Making a Location and Center

Sacred place has a fixed location, an articulated center, and is likened to the mandala (Brill, 1985). The creation or acknowledgment of a center symbolizes a reality, versus the non-reality of uninterrupted, homogenous, and formless space (Brill, 1985). Sacred place is, therefore, the physical embodiment of center on the earth – it is substantial and expressed as a fixed location (Brill, 1985). The process of establishing a fixed point results in the creation of center (Brill, 1985). It is symbolic of the creation myth or victory over chaos, and signifies a new beginning, a new place, a new life – it is ceremonial in space (Brill, 1985).

Making Orientation and Direction

Sacred place has orientation and direction with relation to the center and each of these directions express qualitative differences (Brill, 1985). Orientation and direction arise from the three axes of the body, which subsequently define the four cardinal directions i.e., north, south, east, and west), the heaven and the underworld (Brill, 1985). Each direction, though equally important to the wholeness of place, is qualitatively different from its counterparts (Brill, 1985). The directions are expressive of different meanings such as the pleasure of sunrise, the terror of sunset, forward and backward movement, left and right movement, levity towards the heaven or downward movement into chaos (Brill, 1985). When a gesture towards the downward direction is made, it is controlled and provided with a unique name to ensure self-empowerment (Brill, 1985).

Spatial Order

The creation of center with subsequent orientation and direction results in the generation of spatial order that is highly valued (Brill, 1985). When embodied in sacred place, it signifies victory over chaotic space (Brill, 1985). Sacred places, therefore, reveal spatial order, suggesting our need for it (Brill, 1985). It is physically embodied in sacred place through rhythms in spaces and through succession of spaces (Brill, 1985). Sacred place embodies the first ordering principle of visual symmetry, which is articulated through the fixed relationship of the center with

the boundaries (Brill, 1985). Symmetry serves in defining the wholeness of a pattern and is related to the process of cutting something in half, i.e., it signifies the process of understanding parts of the pattern by simply dividing the whole (Brill, 1985).

Celestial Order

Celestial order expresses the play of celestial rhythms on, and in space (Brill, 1985). Celestial order in sacred place could also be created and based upon celestial references such as the locations and cycles of the sun, moon, stars and winds (Brill, 1985).

Differentiating Boundaries

Each of the boundaries related with the four directions is fixed, clear, distinct, and equidistant from the center (Brill, 1985). These boundaries reveal different qualities when compared with each other suggesting symmetry but not sameness (Brill, 1985).

Reaching Upwards

Sacred place is expressive of verticality, signifying a path to the heavens (Brill, 1985). Verticality is embodied in sacred place to acknowledge our need to reach higher, to touch the heavens, to subdue chaos, to connect us with the greater cosmos, and to subsequently come closer to what is divine (Brill, 1985). Verticality is articulated in place by opening it to the sky, or providing soaring walls, columns, etc., that reach upward toward the heavens (Brill, 1985). It is expressed naturally through sacred mountains, the summit of which symbolizes the center of centers (Brill, 1985). In instances where upward protection from the elements is required, verticality is expressed by providing a pierced roof or by embodying a heavenly canopy with celestial references (Brill, 1985). Other examples of verticality include pyramids, ziggurats, and towers (Brill, 1985).

Triumph over the Underworld

Verticality towards the heaven generates the counter property of reaching downward towards the watery chaos of the underworld (Brill, 1985). This property of reaching downward is conquered through the process of place-making (Brill, 1985). Therefore, little reference to, or access to, the chaos of the underworld is provided in sacred place (Brill, 1985). In instances where chaos or the downward direction is acknowledged, it is typically embodied and revealed in the form of chaos that is controlled (Brill, 1985). Examples of such situations include sparse water under our control, i.e., a water fountain, shallow still pool or cistern, an ordered garden that is bordered and controlled (Brill, 1985).

Bounding

The break in the homogeneity of formless space is clear and substantial – it embodies fixed boundaries (Brill, 1985). Bounding expresses differentiation and defines the distinct domain of an ordered cosmos from chaos (Brill, 1985). Boundaries are, therefore, distinct, and articulated in three dimensional space in the form of walls, floors, and roofs (Brill, 1985). Of these three, the roof is most expressive of our desire to reach the divine (Brill, 1985). Hence the roof is absent, open, or the most permeable of the three boundaries in sacred place (Brill, 1985). Floors and walls in sacred place serve to isolate us from the chaos of the underworld, including the world beyond in the four cardinal directions (Brill, 1985). Floors and roofs are, therefore, absolute, fixed, and impenetrable boundaries (Brill, 1985). The roof and walls are typically expressed as distinct elements in sacred place – the roof remains open or pierced, signifying the heavens, while the floor and walls are expressed as staunch boundaries (Brill, 1985).

Passage

Passage into sacred place is achieved through dematerialization of staunch wall boundaries (Brill, 1985). Passage is embodied such that one is able to enter and leave sacred space, while partaking in both sacred and profane domains (Brill, 1985). Passage, therefore, forms a continuity and means of communication between two opposing domains (Brill, 1985). The doorway is symbolic of the threshold and signifies a distinct place that is to be experienced (Brill, 1985). It provides distance between the two modes of being – sacred and profane (Brill, 1985). The function of passage is likened to the role of middle ground i.e., middle plane that mediates between the heavens and the underworld (Brill, 1985). Moreover, passage is distinct and significantly marked to differentiate it from the pragmatic function of profane doorways (Brill, 1985). It is typically large in size to accommodate the divine and godly enhancement that occurs on exit from sacred place (Brill, 1985).

Ordered Views

The importance and significance of passage in sacred place is maintained by restricting views between the sacred and profane realms (Brill, 1985). This enables sacred place to sustain and reinforce its sacrality, and keeps it distinct from the mundane world (Brill, 1985). Direct views between sacred and profane place are avoided (Brill, 1985). This characteristic is observed in sacred place through the limited use, and specific location of openings such as windows and doorways (Brill, 1985). At times, openings are avoided all together, to restrict views that would otherwise negate the experience within sacred place (Brill, 1985). The absence of openings therefore, also suggests ordered views (Brill, 1985). Since sacred places share in each other's

space and time, direct views between corresponding sacred places and other special features are intentionally provided (Brill, 1985). Specific views to gardens, trees, geologic rock formations, mountains and water features are provided to sustain or enhance the integrity of experience from within the sacred place (Brill, 1985).

Light

The daily cycles of day and night i.e., light and darkness, signify the unending cosmic struggle (Brill, 1985). Light signifies hope with the rising of the sun each day and enables us to experience the changing world (Brill, 1985). In sacred place it is symbolic of the passage of time (Brill, 1985). Light in sacred place is typically provided from above and serves to provide orientation and contrast from the surrounding darkness (Brill, 1985).

Materials for Making

Light reveals the texture and form of materials in sacred place (Brill, 1985). The materials that make up sacred place are symbolic of the cosmic struggle and victory over chaos i.e., the triumph of order over formlessness and chaos (Brill, 1985). Therefore, building materials used in sacred place suggest a struggle i.e., the selection and placement of materials indicate a struggle and sacrifice (Brill, 1985). These materials are rare, distinct from other materials used in the profane world, not easily obtained, cumbersome to work with, and difficult to move – they suggest struggle and sacrifice (Brill, 1985). The materials in sacred place are carefully crafted, far from their natural state (Brill, 1985). These materials are resistant to erosion brought about by natural forces and maintain their formal integrity and physical order (Brill, 1985). Furthermore, the making of whole elements from parts, i.e., the joinery between materials suggests order (Brill, 1985).

Nature in Our Places

An important feature of sacred place is that it contrasts with the unruly, unbordered, and disordered vastness of nature surrounding it (Brill, 1985). This potency of sacred place is likened to chaos that is conquered and subdued in the making of place (Brill, 1985). Therefore, nature in sacred place maintains its natural spirit, but is subdued, controlled, bordered, ordered and tamed (Brill, 1985). In this sense, nature is constantly cared for, controlled and ordered in sacred place signifying the image of balance, and control of chaos (Brill, 1985). Sacred place is, therefore, a reflection of the balance between nature and cosmic order – it expresses the garden or earthly paradise (Brill, 1985).

Finishing a Place

The act of place-making signifies an absolute beginning – it is a divine repetition of the creation myth or the creation of the world (Brill, 1985). Therefore, ritualistic and consecrative acts and ceremonial celebrations mark the act of completion of sacred place (Brill, 1985). Such ceremonies signify the reality and enduringness of our efforts in finishing the place for habitation (Brill, 1985).

2.5.2 Place-making Patterns Proposed by Phillip Tabb

According to Tabb (1996), the fifteen place-making patterns theorized to be present at sacred places, include: 1) Center; 2) Bounding; 3) Direction; 4) Descent; 5) Ascent; 6) Passage; 7) Numeric Order; 8) Geometric Order; 9) Spatial Order; 10) Anthropomorphic Order; 11) Ordered Nature; 12) Celestial Order; 13) Materiality; 14) Elementals; and 15) Ceremonial Order. What follows, is a descriptive summary of the fifteen place-making patterns, proposed by Phillip Tabb in 1996 in his work – *Sacred Place: The Presence of Archetypal Patterns in Place Creation*.

Center

Center signifies the seed idea that the creation myth seeks to express (Tabb, 1996). It is the conceptual essence of the place and signifies the spatial or non-spatial point where a connection between the aspirant and the divine is most likely to occur (Tabb, 1996). In its physical form, the center is the focal point of a ceremonial experience and forms an expression of the whole (Tabb, 1996). The center relates to the infinite through its non-spatial nature (Tabb, 1996). It symbolizes the fundamental unit or seed that embodies the coding for manifestation into the world of space and form (Tabb, 1996). The center could be represented through the geometrical center of the place and in its physical expression could symbolize the center of the world – that which is known or could be an experienced position in space (Tabb, 1996). It is associated with intense activity and meaning (Tabb, 1996). In sacred places, the center in its physical form could be embodied in a special space, square, temple, market, street, building, landmark, fountain, rock, tree, garden, crystal, sand painting or alter (Tabb, 1996).

Bounding

Bounding signifies the fixed relationship of the center with the comprehensible surrounding edge (Tabb, 1996). This relationship is formless and is associated with the center – boundary –

domain realms (Tabb, 1996). The relationship between the center, boundary and domain is triangular and comprises of unity in the center where all parts are unified into one, diversity at the periphery where everything remains distinct, and homogeneity within the domain where all the parts mediate between unity and diversity (Tabb, 1996). Bounding defines extent and is represented by the outer walls of the building, the property edge or the village boundary (Tabb, 1996). The sense of enclosure created by the boundary may or may not be substantially complete, i.e., oriented openings and implied directions may be present (Tabb, 1996). Therefore, in sacred place, the coherence of the design is differentiated from the surrounding non-developed land through a distinct boundary that is clear, substantial and physically fixed (Tabb, 1996).

Direction

Direction signifies the terrestrial world manifested in the four cardinal directions (Tabb, 1996). It is related to the square or the physical world that must be transcended (Tabb, 1996). Direction is likened to information or the in-form – the evolution and growth of the center into the manifest world (Tabb, 1996). The impulse of the center to manifest itself outward into the physical world, and the embodiment of our bodies in space, generate the three axes of the body, i.e., front-back, left-right, and up-down (Tabb, 1996). The three axes subsequently define the four cardinal directions or north, south, east, west, the upward direction or the heavens, and the downward direction or the underworld (Tabb, 1996). Direction, therefore, relates with materialization of the coding contained within the center, expressed physically in the terrestrial world and manifested by means of the cardinal directions and the vertical directions (Tabb, 1996). By means of these directions (aligned with the center), direction could be pivotal in first, articulating the creation of symmetry, second, providing initial organization to place, and third, generating overall form to place (Tabb, 1996). Orientation, therefore, could provide differentiation and diversity to place (Tabb, 1996). In sacred place, orientation is achieved through acknowledgment and response to the cardinal directions, the natural contours of the site, to sea or nature related views, or to the position of the sun in the sky (Tabb, 1996). The cardinal directions also acknowledge distinct teachings and relate to the four elemental qualities – fire, water, air and earth (Tabb, 1996). At certain locations where the cardinal directions or geomantic and natural energies transverse through the boundaries, formal differentiations are articulated which denote the base of the manifest and terrestrial world (Tabb, 1996). The qualities of these intersections are represented in the formal differences and sometimes celebrate diurnal cycles (Tabb, 1996).

Descent

Descent signifies the deep grounding of a community and usually denotes a place of communal gathering (Tabb, 1996). Grounding the energy of a place is essential and is achieved by physically or mentally descending into the place (Tabb, 1996). Descent involves a resolve of forceful action and is associated with the deep psyche, the instinctual and the primitive (Tabb, 1996). It is also related with the idea of fertility; i.e., sacred places could embody earth-wombs, typically associated with healing or cosmological functions such as the ceremonial principle of solar rays penetrating the earth (Tabb, 1996). Descent is an essential relationship and transition that is created on account of the vertical walls of a building penetrating the horizontal plane of the earth (Tabb, 1996). Descent is physically represented by the ground and lower floors, foundations, and footings that occupy the under-realm (Tabb, 1996). These grounded features tend to generate particular ordering principles and material responses (Tabb, 1996). Therefore, descent is symbolic of the gravitational energy of the building, and carries with it a sense of grounding that is eventually exchanged and transferred directly into the earth at the lowermost point of physical form (Tabb, 1996).

Ascent

Ascent signifies the essence of uplift or the aspirational source that governs the realm of life (Tabb, 1996). It is expressive of verticality and signifies a breakthrough between two differing realms – it forms a path and connection between the underworld and the heavens (Tabb, 1996). Ascent expresses movement in the upward direction and involves awareness of the aspirational source related with the will or energy of life (Tabb, 1996). This upward movement that governs the will or energy of life requires the firm grounding or founding in the earth against which to push on, to rise upward (Tabb, 1996). The laws of gravity govern and constrain the material realm, while the realm of life is subject to the laws of levity or uplift (Tabb, 1996). In sacred place, this uplift or levity is expressed by means of openings and through acknowledgment of the sky above (Tabb, 1996). It is realized through vertical features within the physical structure that soars towards the sky – towers, vertical ascending roof lines, columns, shafts of light, and other vertical elements (Tabb, 1996). Ascent is also observed in the natural landscape through mountains and ridges (Tabb, 1996). Hierarchy of spaces and important public and sacred sites are usually delineated in villages through the use of ascent (Tabb, 1996).

Passage

Passage signifies the transitional and neutral space between profane and sacred place (Tabb, 1996). It is an actual space with distinct features and acknowledges the point and place of actual

entry into a domain (Tabb, 1996). It is symbolic of thresholds of continuity and signifies a realm that is distinct from the sacred and the profane (Tabb, 1996). Passage reinforces the inner process of transition between the two realms by functioning as a preparatory space for meaningful spatial experience within the two realms (Tabb, 1996). In this sense, passage is a symbolic gesture of a welcome space for the soul, while simultaneously providing a gradual and comfortable transition back into the mundane realm (Tabb, 1996). Passage, therefore, expresses a sense of entrance, coupled with harmonious resonance within the body (Tabb, 1996). When the boundary of place is dematerialized, passage is generated that functions to provide the right-relationship, a scaled transition and an appropriate cleansing for one's initial entry and penetration into the sacralized realm from the mundane world (Tabb, 1996).

Numeric Order

Numeric order signifies numerical identity, revealed as pattern in place, i.e., acknowledging the recurrence of significant sets of numbers, such as the singularity or duality of forms, number of towers, doors, windows, columns, walls, steps (Tabb, 1996). Numeric order relates to the Pythagorean school of thought – the belief that numbers are evocative of hidden meanings (Tabb, 1996). Since numbers serve to describe and distill qualitative and quantitative characteristics associated with themselves in actual form and physical detail, numeric order when acknowledged in place, results in the creation of ceremonial architecture (Tabb, 1996). Numeric order, therefore, engenders both, a quantitative and qualitative character to place (Tabb, 1996). Numeric order is expressed by acknowledging numbers' one through nine (i.e., primary numerical identities), numbers' one through ten (i.e., the tetractys - an ancient Greek study tool), numbers' 11, 12, 16, 19, 22, 360 or other differing sets of numbers that are considered significant in various esoteric and philosophical traditions (Tabb, 1996).

Geometric Order

Geometric order signifies shapes that generate the physical form of the structure or built-form (Tabb, 1996). It represents number expressed as volume in space (Tabb, 1996). Geometric order pervades all physical entities, i.e., it exists across all natural elements and its ordering principle governs the structure of all physical manifestations in space (Tabb, 1996). Geometric order is suggestive of significant relationship between the measurable and immeasurable numbers (Tabb, 1996). It embodies the transcendental root powers – the square root of two, three, and five (Tabb, 1996). These immeasurable numbers function as geometric metaphors and transformational agents for generating geometric order in sacred place (Tabb, 1996). The transformation occurs in space through three processes – the formative, generative, and

regenerative (Tabb, 1996). Geometric order, therefore, generates harmonic proportion and progression to physical built-form in sacred place (Tabb, 1996).

Spatial Order

Spatial order signifies visual symmetry or the transformation of chaotic and undeveloped landscape (Tabb, 1996). It results in the rhythmic order and succession of spaces such as that seen in the mandala (Tabb, 1996). Spatial order is embodied and expressed in space through circular, linear, radial, triangular, orthogonal or spiral organizations (Tabb, 1996). In the organization of the domain, the three transcendental orders or sacred geometries (i.e., square root of two, three and five) can be used to yield expanding or collapsing proportional relationships (Tabb, 1996). It embodies ethereal force lines that are directed in the outward direction such as that seen in the lotus or soul-flower (Tabb, 1996). Spatial order, therefore, generates a field like effect of multiple centers or events, and is responsible for delineating appropriate meaning, hierarchy, and proportion to the overall spatial organization (Tabb, 1996).

Anthropomorphic Order

Anthropomorphic order or scale signifies human proportions, human references, or human behavior, given to inanimate objects, including architecture (Tabb, 1996). It is observed through the articulation of built-form and detail based on anthropomorphic attributes or measurements of the human body, typically expressed in terms of scale in architecture (Tabb, 1996). The cardinal directions and vertical axis are expressed in the human body – front-back, left-right, and up-down (Tabb, 1996). Sacred architecture (plans, sections, elevations, and details) is, therefore, proportioned with reference to various attributes of the human form, human scale, and human features (Tabb, 1996). Anthropomorphic order is also expressed by means of geometric proportions and relationships related with the Golden Mean proportion (Tabb, 1996). The design of the building could, therefore, be expressive of body height, facades that represent facial features, curvilinear forms, and details that engender human-like attributes to place (Tabb, 1996). Anthropomorphic order, therefore, provides resonance and harmony in the human body (Tabb, 1996).

Ordered Nature

Ordered nature signifies the spirit of nature that is controlled and tamed in sacred place versus the boundless expanse of unknown, wild, disordered and chaotic nature in the mundane world (Tabb, 1996). The spirit of nature in sacred place is typically given expression by means of special trees, geological formations, natural springs, gardens, landscaping, and groomed natural

ground cover (Tabb, 1996). Although the force of nature is controlled and tamed in sacred place, it is essential to maintain the natural processes that sustain the natural qualities of nature (Tabb, 1996). Therefore, at times, natural wild areas in sacred place are left undisturbed and unspoiled at specific locations within the precinct (Tabb, 1996). In addition, nature within sacred place serves to articulate seasonal changes, thereby contributing towards ceremonial ordering of the year (Tabb, 1996).

Celestial Order

Celestial order signifies the connection and understanding of the greater cosmos, i.e., it relates to the visual experience of the celestial wallpaper (Tabb, 1996). It is expressed by means of openings or markers that articulate the movement of the sun, moon, celestial objects, constellations, or by means of formal orientations that articulate solstices or equinoxes, i.e., orientation of built-form that acknowledges temporal changes or the changing of light (Tabb, 1996). The cosmos expresses an order that is harmonious and whole in context with the earth (Tabb, 1996). Celestial order, therefore, signifies an Earth-centered perspective (Tabb, 1996). It is acknowledged in sacred place by means of ceiling forms, such as domes, vaults, and open-to-sky roofs (Tabb, 1996).

Materiality

Materiality signifies the physical state, quality of being material or the materialization of a substance in space resulting in an expression of physical form (Tabb, 1996). It allows for the manifestation of the sacred through the generation of form (Tabb, 1996). In sacred place, materials are rare, difficult to work with, and cumbersome to move (Tabb, 1996). Materiality in sacred place, therefore, suggests a struggle, unlike materials used in the mundane world that are local, indigenous, and easily changed (Tabb, 1996). This results in an interesting and dramatic contrast versus the materiality of buildings found in the mundane world (Tabb, 1996).

Elementals

Elementals signify the fundamental qualities of the substantive world (Tabb, 1996). They include fire, water, air, earth, and ether (Tabb, 1996). Elementals are related to human attributes – human spirit, emotions, mind, and body and form the basis for contemplation through their qualitative characteristics (Tabb, 1996). Sacred place is expressive of the elemental qualities through the embodiment of various features such as the protective mandala of the church, temple, or mosque, the village well, the breeze moving through an orchard, the wind moving

through an open window, a community bonfire, the fountain or water pool, and the physical experience of the very materials that make up the place (Tabb, 1996).

Ceremonial Order

Ceremonial order signifies the completion of sacred place through the consecration and blending of our consciousness (Tabb, 1996). It is symbolic of our consciousness uniting with the spatial wholeness of place in time (Tabb, 1996). In sacred place, human ceremony, meditation, and prayer are governed by ceremonial ordering principles (Tabb, 1996). Ceremonial order of sacred place could embody temporal celebrations such as the seasonal changes or the rhythms of the day (Tabb, 1996). Transcendental states of consciousness can be triggered using ceremonial ordering devices of sacred place (Tabb, 1996). The creation myth can be experienced through the ceremonial order of place, i.e., the spatial experience of ceremonial order in the temporal dimension reinforces and reminds us of the beginning of all things (Tabb, 1996). Ceremonial order embodies a vibratory connection between the self and the physical place, resulting in the creation of boundary and alignment with the geometry of place (Tabb, 1996). The wholeness of place and its centrality, therefore, can be experienced by means of ceremonial order (Tabb, 1996). Similarly, the downward force or grounding of the human body into the earth generates ceremonial connection with the Earth, while the force of uplift or levity celebrates ceremonial connection with the heavens (Tabb, 1996).

2.6 SUMMARY

The traditional biomedical model of health is considered obsolete by WHO, health-care professionals, and the public, since it addresses health exclusively in terms of the absence of disease (Brannon & Feist, 2002). The biopsychosocial model of health, on the other hand, advocates a greater holistic approach towards health by considering our biological, social, psychological, physiological, and spiritual health (Brannon & Feist, 2002). Empirical studies on the connection between spirituality and health showed that there were frequent positive correlations between spirituality and several health-related benefits Matthews and colleagues' (1993a, 1993b, 1995, 1997). Specific feelings associated with transcendental and sacred experiences include ego surrender (James, 1902), unification and harmony, blessedness, joy, timelessness, spacelessness, connection with objectivity or ultimate reality, sense of divine presence or sacredness (Stace, 1960), elevated states of awareness, and feelings of awe (Eberhard, 2005). Such experiences, associated with feelings of calm, relaxation and balance,

are unique characteristics of healing environments (Venolia, 1988). Sacred places support healing (Swan, 1990), help us feel energized (Brill, 1986), bring about a unique transformation of consciousness (Steele, 1988), and contribute to transcendental experiences (Crithchlow, 1980). Specific experiences associated with sacred place include ecstasy, ancient stirrings within the self, feelings of repose, feelings of sensory unification, and a sense of dissolution of the self – emotions that are powerful, intensely real, human and similar to those, experienced by archaic people in their sacred places Brill (1986). Sacred places, therefore, can contribute significantly to our overall health and well-being.

Four basic functions of sacred places are as follows (according to Steele, 1988): 1) healing sites; 2) fertility sites; 3) prophecy sites; and 4) astronomical calendars. Twelve different sacred place types, based on their purpose, were identified as follows (according to Swan, 1990): 1) Graves, cemeteries and burial grounds; 2) Purification places; 3) Healing sites; 4) Prophecy sites; 5) Vision questing and dreaming places; 6) Fertility sites; 7) Ceremonial sites; 8) Astronomical observatories; 9) Sacred plant and animal sites; 10) Temples, shrines and effigies; 11) Sacred cities; and 12) Historical sites.

Significant explorations conducted by key authors, related with place-making pattern theory, can be arranged in a chronological time-line as follows:

- 1) First Century BC – Marcus Vitruvius Pollio (*The Ten Books on Architecture*).
- 2) 1570 – Andrea Palladio (*The Four Books on Architecture*).
- 3) 1977 – Christopher Alexander, Sara Ishikawa and Murray Silverstein with Max Jacobson, Ingrid Fiksdahl-King and Shlomo Angel (*A Pattern Language: Towns, Buildings, Construction*).
- 4) 1985 – Michael Brill (*Using the Place-Creation Myth to Develop Design Guidelines for Sacred Space*).
- 5) 1994 – Charles Moore and Donlyn Lyndon (*Chambers of a Memory Palace*).
- 6) 1996 – Phillip Tabb (*Sacred Place: The Presence of Archetypal Patterns in Place Creation*).
- 7) 2002 – Christopher Alexander (*The Nature of Order: The Phenomenon of Life*).

Of all aforementioned authors, only two (i.e., Michael Brill and Phillip Tabb) specifically theorize the presence of certain place-making patterns at sacred places in their respective work. Place-making patterns proposed by Michael Brill and Phillip Tabb, share certain similar characteristics. Patterns that are exclusive to Michael Brill include *Differentiating Boundaries*, *Ordered Views*,

and *Light*, while patterns that are exclusive to Phillip Tabb include *Numeric Order*, *Geometric Order*, *Anthropomorphic Order*, and *Elementals*. The sequence of listing the place-making patterns varies with both authors. The design characteristics proposed by Michael Brill are patterned around the creation myth or the primordial act of creation, i.e., the physical act of making place, beginning with *Making a Location and Center* and ending with *Finishing a Place*. Place-making patterns proposed by Phillip Tabb are arranged in hierarchical order (based on their relation with specific concepts), beginning with *Center* and ending with *Ceremonial Order*, i.e., *Center* – point, *Bounding* – plane, *Direction* – volume, *Descent and Ascent* – vertical axis; *Passage* – continuity and bridge between realms; *Numeric Order*, *Geometric Order*, and *Spatial Order* – ordering of place; *Anthropomorphic Order* and *Celestial Order* – correspondence with proportions of human body and the heavens; *Ordered Nature*, *Materiality*, *Elementals* – natural world as under the presence of the sacred place; *Ceremonial Order* – consecration of place.

CHAPTER III

RESEARCH METHODOLOGY

3.1 PHILOSOPHICAL FRAMEWORK

This study explores the difference in the presence and quality of expression of place-making patterns in sacred and secular buildings. Research design involves the selection of appropriate data and research methods that depend on the nature of the research questions, the researcher, and the context of the research study (Tashakkori & Teddlie, 2003). In this study, the exploration of the difference in the presence and quality of expression of place-making patterns in sacred and secular buildings is interpreted both, objectively and subjectively, using pluralistic approaches and mixed methods. This research maintains that the problem under study requires mixed methods for providing the desired outcomes. Researchers utilizing multiple approaches, methods, techniques, and procedures, to collect and analyze data, and to subsequently understand and provide solutions to the research problem, draw from the pragmatist school of thought (Rossman & Wilson, 1985).

The pragmatist position assumes that external realities, even though they may exist, are difficult to determine (Creswell, 2003; Tashakkori & Teddlie, 1998; Green, 1994). Actions, situations and consequences related with knowledge claims take utmost precedence in pragmatism (Creswell, 2003). Pragmatism assumes that "Truth is what works at the time; it is not based in a strict dualism between the mind and a reality completely independent of the mind" (Creswell, 2003:12). It follows that greater emphasis is placed on the research problem under investigation, rather than on a specific approach or method. Researchers that draw from the pragmatist school, therefore, utilize various approaches, methods, techniques and procedures to collect and analyze data, and to understand the research problem under study (Rossman & Wilson, 1985). Depending on the intended consequences, pragmatist researchers focus primarily on the "what" and "how" to investigate (Creswell, 2003; Cherryholmes, 1992; Murphy, 1990). With pragmatism as the underlying paradigm, practicality, contextual responsiveness and consequentiality in a study take utmost precedence during the decision-making process (Greene, 1994). Such an assumption forms the basis for utilizing pluralistic approaches to derive the required knowledge for this research.

As a philosophical paradigm, pragmatism entails the selection of appropriate tools and methods that, best address the research problem and its context (Creswell, 2003; Tashakkori & Teddlie, 1998; Green, 1994). Pragmatism concentrates more on practicality, applicability, contextual responsiveness, consequentiality, and providing solutions to problems (Patton, 1990).

Pragmatism as a worldview, therefore, requires the selection of specific interpretations related with specific situations, contingent upon these interpretations generating the required outcomes. In addition, the pragmatist school of thought does not require the researcher to adopt a single system of inquiry – both, qualitative and quantitative frameworks, as appropriate to the nature of the study, can be assumed by pragmatist researchers (Creswell, 2003; Cherryholmes, 1992; Murphy, 1990). This investigation, therefore, in the author's perspective, appropriates pragmatism as its underlying philosophical paradigm.

Since pragmatism is concerned not so much with a specific approach or method, but more with the research problem under investigation, circumstances could entail either an interaction between the researcher and the subject under study, or situations could necessitate the researcher to be objective and isolate himself or herself, from what is being studied, depending on the nature of the inquiry (Tashakkori & Teddlie, 1998). In certain circumstances, this study assumes an objective reality, where the researcher is independent of the subject of inquiry, while at other times, the study assumes a subjective reality, where the researcher interacts with the subject being investigated. A pragmatist researcher can therefore, be both, objective and as well as subjective in his inquiry, at different stages of the research, depending on what is being studied. In this context, it is also worth noting that during such interaction, the researcher's and participant's value systems play an explicit role in the study and as such, have the potential of influencing the outcome (Tashakkori & Teddlie, 1998).

3.2 METHODOLOGICAL FRAMEWORK

Grounded theory methodology, developed by social researchers Barney Glaser and Anselm Strauss in the 1960's, forms the basis for the methodological frame of this study. Grounded theory is based on the systemic gathering of data and its analysis to generate substantive theory (Strauss & Corbin, 1998, 1994; Glaser & Strauss, 1967). Grounded theory methodology focuses on a constant dialogue between data analysis and data collection, i.e., researchers that adopt the grounded theory methodology, use inductive data analysis to consistently address decisions associated with further data collection (Strauss & Corbin, 1994). Primary characteristics of this

theory, adapted in the study are inductive, contextual, and process elements (Orlikowski, 1993), including actions of key players associated with sacred architecture and spirituality. The grounded theory approach is significant to this research because it allows for the holistic exploration of differences in sacred and secular place-making patterns, including sacredness experienced in place, rather than an objective and static inquiry that is projected as mere causality. And, even though findings of this grounded theory study have a proclivity towards specific particularizations, greater generalization can be extracted from the results. Such analytic generalization can be engendered to similar contextual conditions by means of theoretical concepts and patterns (Yin, 1994).

Grounded theory methodology can be applied to both, qualitative as well as quantitative research (Straus & Corbin, 1994). Mixed research methods are increasingly gaining favor as an alternative to the exclusive use of qualitative or quantitative methods, particularly when addressing multi-faceted research problems (Creswell, 2003; Tashakkori & Teddlie, 2003). An integrative approach towards research involving different research methods from various traditions is being advocated by researchers in many disciplines, including architecture (Groat & Wang, 2002). Miles and Huberman (1994:41) summarized Sieber's (1973) rationale for combining qualitative and quantitative data as follows:

Quantitative data can help with the qualitative side of a study during *design* by finding a representative sample and locating deviant cases. It can help during *data collection* by supplying background data, getting overlooked information, and helping avoid "elite bias" (talking only to high-status respondents). During *analysis* quantitative data can help by showing the generality of specific observations, correcting the "holistic fallacy" (monolithic judgments about a case), and verifying or casting new light on qualitative findings... Qualitative data can help the quantitative side of a study during *design* by aiding with conceptual development and instrumentation. They can help during *data collection* by making access and data collection easier. During *analysis* they can help by validating, interpreting, clarifying, and illustrating quantitative findings, as well as thorough strengthening and revising theory.

This combination of qualitative and quantitative data can be used to achieve significant benefits that include: *first*, triangulation – utilizing the findings of one method to develop and compliment the results of another method; and *second*, examining different facets of the same phenomenon (Creswell, 2003; Tashakkori & Teddlie, 2003).

The research utilized both qualitative and quantitative methods, by means of a three-tiered approach, i.e., architectural analyses, questionnaires, and focus group discussions. The following Figure III-1 shows a diagrammatic overview of grounded theory methods adapted in this study.

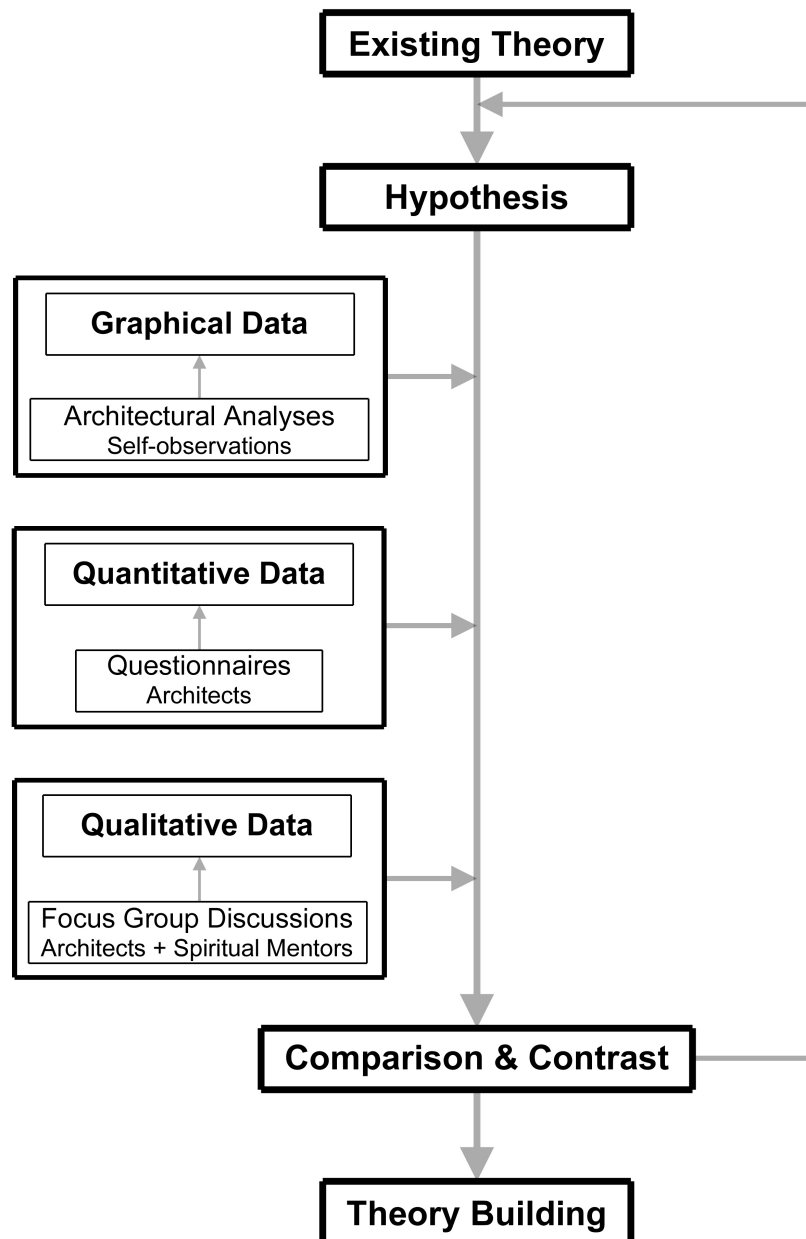


FIGURE III-1. Diagrammatic overview of methods.

3.3 METHODOLOGY

The study was conducted in four phases. Phase 1 utilized an in-depth literature review and analysis to develop a comprehensive set of place-making patterns. Phase 2 utilized on-site architectural analyses of a selected sacred and secular building to quantify the presence of these place-making patterns. The architectural analyses of the selected settings produced graphical data. Phase 3 utilized questionnaires distributed at the sacred and secular buildings to assess pattern presence, pattern quality, and sacredness of each place. The questionnaires yielded quantitative data as well as qualitative data. Phase 4 utilized focus group discussions to explore experiences elicited at the sacred and secular buildings, and how architecture impacts sacredness (if at all) at the selected buildings. The focus group discussions produced qualitative data.

The four phases of this study were intended to complement and build upon each other: *first*, the data analyzed in Phase 1 of the research was used as a basis for conducting Phase 2, Phase 3, and Phase 4 of the research; *second*, architectural analyses of Phase 2 of the research, helped interpret questionnaire results of Phase 3 and focus group discussion findings of Phase 4 of the research; *third*, questionnaire results of Phase 3 of the research were used to interpret and validate architectural analyses of Phase 2 and focus group discussion findings of Phase 4 of the research; and *fourth*, focus group discussion findings of Phase 4 of the research helped interpret and validate architectural analyses of Phase 2 and questionnaire results of Phase 3 of the research.

Several studies (Ph.D. dissertations in architecture conducted at Texas A&M University, College Station, Texas) have successfully utilized a similar approach with research methods for assessing physical constructs of the built environment, similar to those that are used in this research. Examples of such studies include:

- 1) *The impact of visual connection with nature on social interaction in facilities for the elderly* by Kwan Yong Lee in 2003. This study utilized questionnaires, behavioral mapping, and observations.
- 2) *Subjective responses to daylight, sunlight, and view in college classrooms with windows* by In-Kon Kim in 1997. This study utilized questionnaires.
- 3) *Environmental quality and healing environments: A study of flooring materials in a healthcare telemetry unit* by Debra D. Harris in 2000. This study utilized behavioral mapping, questionnaires, and analysis of environmental conditions.

- 4) *Impact of a family-centered-care approach on the design of neonatal intensive-care units* by Marie-Andree Fournier in 1999. This study utilized analysis of architectural documents, participant observations, journaling, interviews and questionnaires.
- 5) *The interaction of climate, culture, and building type on built form: A computer simulation study of energy performance of historic buildings* by Anat Mintz Geva in 1995. This study utilized architectural analysis of buildings.
- 6) *The building border: A hermeneutical study in the cultural politics of space in Egypt, the case of El-houd El-marsoud park in Cairo* by Khaled Nezar Adham in 1997. This study utilized archival techniques, case study analysis, and open ended interviews.
- 7) *Light in Thai places: A cultural interpretation of Thai buddhist architecture* by Vannapa Pimviriyakul in 2001. This study utilized participant observations, in-depth interviews, archival research of architectural documents, and lighting observations.
- 8) *A royal temple in the Thai urban landscape: Wat Pho, Bangkok* by Alisara Menakanit in 1999. This study utilized field observations, structured interviews, journaling and analysis of historic documents, contemporary documents, aerial photographs, maps, illustrations, and television programs.
- 9) *Specialized knowledge roles and the professional status of healthcare architects* by Duk-Su Kim in 2001. This study utilized questionnaires, interviews, and focus group discussions.

The studies listed above were successful in utilizing case study analysis, questionnaires, and focus group discussions, either individually or in combination with each other and other data collection tools for studying physical characteristics of the built environment.

Data generated through the four phases of this research were synthesized to: *first*, validate the pattern presence and pattern quality assessment methods as viable tools for determining whether a specific built environment is more likely to be experienced as sacred or secular; *second*, test the validity of the hypothesis and develop theory in relation of the presence and quality of expression of place-making patterns in sacred places; *third*, develop research-informed design guidelines for sacred place-making; and *fourth*, propose limitations and implications for further research. The following Figure III-2 shows the notional diagram of the research methodology adapted in this study.

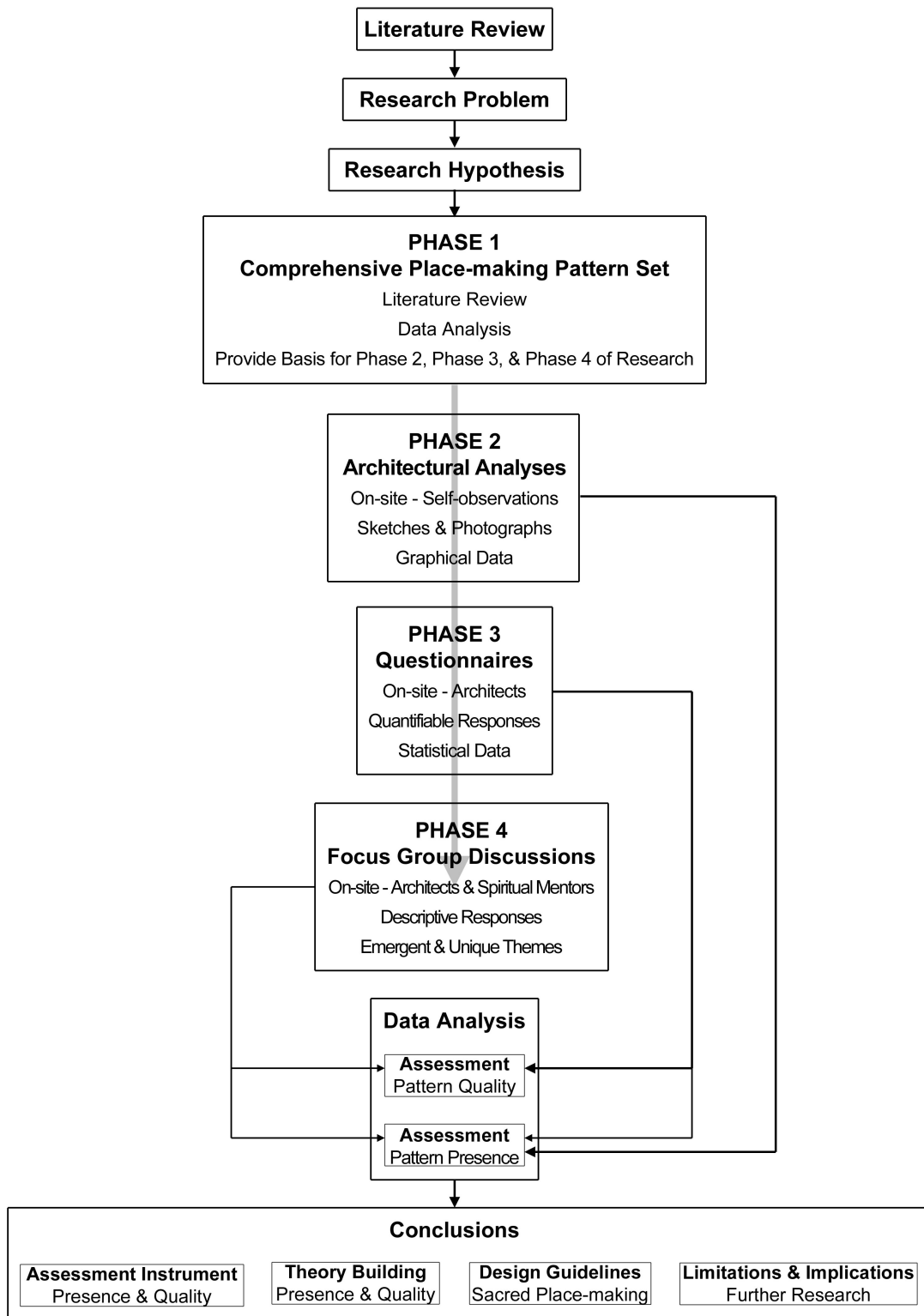


FIGURE III-2. Notional diagram of research methodology.

3.3.1 Phase 1: Comprehensive Place-making Pattern Matrix Development

The first phase of the research involved the review of relevant literature and established a comprehensive set of place-making patterns, theorized to be present in sacred places. This list of place-making patterns was labeled as *Comprehensive Place-making Pattern Set* (hereafter, CPPS), and was used as a basis for the research.

Phase 1.1: Identification of Place-making Patterns

An extensive literature review was conducted and key literature references were selected for identifying place-making patterns, theorized to be present in sacred places. These include: 1) *Sacred Place: The Presence of Archetypal Patterns in Place Creation*, authored by Phillip Tabb in 1996; and 2) *Using the Place-Creation Myth to Develop Design Guidelines for Sacred Space*, authored by Michael Brill in 1985. The two aforementioned authors speculate about the presence of certain place-making patterns at sacred places. A comprehensive list of these patterns was developed for further analysis.

Phase 1.2: Development of Comprehensive Place-making Pattern Set

This portion of the research included the following: 1) Analyzing the pattern list (previously developed) for comparative similarities and differences; 2) Grouping similar patterns under common categories and identifying unique ones as distinct patterns; and 3) Developing the Comprehensive Place-making Pattern Set, based on the analysis conducted.

3.3.2 Phase 2: Architectural Analyses

The second phase of the research was conducted by means of on-site observations and involved an architectural analysis of the selected sacred and secular buildings. Multiple site visits were conducted in each setting. This served the purpose of *first*: identifying ways in which individual place-making patterns from the CPPS, physically corresponded with the architecture of the sacred and secular buildings; and *second*, quantifying the presence of individual place-making patterns at the sacred and secular buildings, thereby establishing the total number of place-making patterns present at each setting. The assessment of pattern presence conducted by means of the architectural analyses, was complimented by questionnaire results in Phase 3 of the research.

Phase 2.1: Identification of Place-making Patterns at Selected Buildings

The case study analyses of the selected sacred and secular buildings involved photographing and sketching formal characteristics of each building with accompanying field notes. This data was then compared with the CPPS to identify ways in which individual place-making patterns physically corresponded with the architecture at each setting. If a specific place-making pattern was present at a given setting, then a sketch and photograph accompanied by field notes recorded how that particular pattern was physically present at that setting.

Phase 2.2: Assessment of Pattern Presence at Selected Buildings

Upon identifying how architectural characteristics of the selected sacred and secular buildings physically corresponded with individual place-making patterns from the CPPS, the total number of place-making patterns present at the sacred and secular buildings was quantified. A higher pattern presence for a particular setting indicated that the given setting had a greater number of place-making patterns than the setting with a lower pattern presence.

3.3.3 Phase 3: Questionnaires

The third phase of the research was conducted by means of questionnaires administered to Houston architects at the sacred and secular buildings. The questionnaire served the purpose of: *first*, assessing (for validating the findings of the architectural analyses in Phase 2) the presence of individual place-making patterns from the CPPS at the sacred and secular buildings; *second*, assessing the quality of expression of individual place-making patterns at the sacred and secular buildings; and *third*, assessing whether the selected buildings were experienced to be sacred or not. The assessment of pattern presence, pattern quality, and sacredness of each place, conducted by means of questionnaires was complimented by focus group discussion findings in Phase 4 of the research.

Phase 3.1: Validation of Pattern Presence at Selected Buildings

Prior to assessing the quality of individual place-making patterns from the CPPS at the sacred and secular buildings, the questionnaire assessed whether individual place-making patterns were present at each setting. Assessment of pattern presence, by means of questionnaires served mainly to validate the pattern presence at each setting, established during the architectural analyses in Phase 2 of the research. In the questionnaire, the presence of individual place-making patterns at the sacred and secular buildings was scored by using the

terms – *Yes* and *No* (where *Yes* = pattern is present, and *No* = pattern is absent). In this manner, the total number and percentage of participants that answered positively (i.e., *yes*), to individual place-making patterns being present at the sacred and secular buildings were quantified. A higher number and percentage of participants at a particular setting indicated that more participants were aware of the presence of the place-making patterns at that setting.

Phase 3.2: Assessment of Pattern Quality at Selected Buildings

The questionnaire served the purpose of assessing the quality of expression of individual place-making patterns from the CPPS at the sacred and secular buildings. This was accomplished by assessing how high or low in quality individual place-making patterns were perceived to be at each setting. To assess the quality of expression of individual place-making patterns at the sacred and secular buildings, questionnaire responses allowed for scoring from 1 to 5, on a 5 point scale (where 1 = very low quality; 2 = low quality; 3 = intermediate quality; 4 = high quality; and 5 = very high quality). This assessed the quality of expression of individual place-making patterns at the sacred and secular buildings. A higher pattern quality for a particular setting indicated that the given setting had a greater quality of expression of place-making patterns than the setting with a lower pattern quality. In addition to validating pattern presence and assessing pattern quality, the questionnaire contained an item titled '*comments*' associated with each pattern. This provided participants with the opportunity to add their personal thoughts and opinions related to the presence and quality of individual place-making patterns. Blank lines were provided for inclusion of such thoughts and opinions.

Phase 3.3: Assessment of Sacredness of Selected Buildings

The questionnaire concluded with two additional items that asked participants whether they felt that the place was sacred, and if so, why they felt the place was sacred. The sacredness of each place was scored by using the terms – *Yes* and *No* (where *Yes* = place is sacred, and *No* = place is not sacred). If participants felt that the place was sacred, then blank lines were provided for inclusion of their thoughts and opinions as to why they felt that the place was sacred.

3.3.4 Phase 4: Focus Group Discussions

The fourth phase of the research was conducted by means of focus group discussions with Houston architects and individuals from Houston with spiritual backgrounds, i.e., people engaged in spiritual mentoring and meditative activities (hereafter, spiritual mentors) at the

sacred and secular buildings. The focus group discussions served the purpose of: *first*, exploring experiences elicited at the sacred and secular buildings; and *second*, exploring how architecture impacts sacredness (if at all) at the selected buildings. This exploration of experiences and how architecture impacts sacredness at the sacred and secular buildings was complemented by questionnaire results in Phase 3 of the research.

Phase 4.1: Exploration of Experiences Elicited at Selected Buildings

To explore experiences elicited at the sacred and secular buildings, focus group discussion participants were asked to: *first*, describe what sacred and secular meant to them; and *second*, describe experiences elicited at the sacred and secular buildings.

Phase 4.2: Exploration of How Architecture Impacts Sacredness at Selected Buildings

To explore how architecture impacts sacredness at the selected buildings, focus group discussion participants were asked to: *first*, determine whether they experienced the selected buildings to be sacred or secular and *why*; and *second*, identify what architectural characteristics, contributed to their experience of sacredness (if at all) at the sacred and secular buildings.

3.4 DATA

The study uses three types of data - graphical, quantitative, and qualitative. *First*, Graphical data, including photographs and sketches with field notes, was produced by means of case study analyses of the sacred and secular buildings. *Second*, quantitative data was mainly produced by means of questionnaires, administered to Houston architects at the sacred and secular buildings. *Third*, qualitative data, including manuscripts of discussions with a group of Houston architects and spiritual mentors was produced by means of focus group discussions. A small portion of the qualitative data for this study also came from descriptive items in the questionnaire.

3.4.1 Graphical Data

Graphical data was produced by means of architectural analyses of the selected sacred and secular buildings. The architectural analyses involved multiple site visits to the sacred and

secular buildings and were conducted by means of on-site observations (i.e., observations from the researchers' perspective) at each setting. Sketches (with field notes) and photographs of the exterior of each building, including landscape features were recorded. Since photography was prohibited inside the selected buildings, graphical data in the form of photographs was restricted to the exterior of each building. To compensate for this drawback, sketches of the interior of each building were produced with field notes.

Selection of Case Studies

Two case studies, each demonstrating dramatic differences in presence and quality of expression of place-making patterns, were selected. Strauss and Corbin's (1998) techniques and procedures of theoretical sampling were used as a basis for selecting the case studies. Theoretical sampling refers to data collection based upon ideas that arise out of the evolving theory (Strauss and Corbin, 1998). It makes comparisons to "maximize opportunities to compare events, incidents, or happenings to determine how a category varies in terms of its properties and dimensions" (Strauss and Corbin, 1998:202). As such, in theoretical sampling, theoretical relevance and purpose are emphasized (Orlikowski, 1993). The two case studies were selected based on specific similarities and differences related to a set of ten criteria. These criteria were used to ensure greater conformity between the case studies for comparison purposes and have been arranged in hierarchical order of consideration as follows:

1. Place Type: One case study should be an acknowledged and purpose-built sacred place, while the other should be a secular place. This will enable the study of potential differences in presence and quality of expression of place-making patterns between sacred and secular places.
2. Spatial Program: The spatial programs of the two case studies should be similar, i.e., the two case studies should both be places of assembly, museum galleries, exhibition spaces, etc. This will ensure common programmatic functions between the two case studies.
3. Denomination: The selected sacred place should be non-denominational, i.e., it should not cater exclusively to people of a particular faith and/or religion, but should serve people of any and every belief system. The secular place will be non-denominational by default. This will ensure that the results of the research are not biased by the beliefs

and/or practices of a particular religion and/or faith, thereby making the results of the research universally applicable.

4. Site Context: The two case studies should both exist within similar site contexts - similar climatic conditions and similar surroundings (i.e., rural, semi-urban, or urban settings). This ensures common site contexts between the two case studies.
5. Cultural Context: The two case studies should both exist within similar cultural contexts, i.e., the same region of a country. Region, here, implies the nationally accepted boundaries of a state or province within a country. This ensures common cultural contexts between the two case studies.
6. Building Life: The two case studies should have been built at approximately the same time, i.e., the sacred and secular place should have been constructed within 10 years (i.e., one decade) of each other. This ensures common building lives between the two case studies.
7. Design Process: The two case studies should both have been either professionally designed or vernacular products, i.e., the sacred and secular building should both have been either designed by professionally trained architects or they both should be the vernacular products of a given community. This ensures common design processes between the two case studies.
8. Scale: The two case studies should be of similar size, i.e., the sacred and secular buildings should both encompass relatively similar built-up areas. As a general guideline, the built-up area of one building should not be more than double the built-up area of the other building. This ensures common building scales between the two case studies.
9. Visitation: The two case studies should cater to visitors on a regular weekly basis, including weekends. Further, the two case studies should remain open during normal business hours, and should stay open during most months of the year. This will allow for multiple site visits for data collection. In addition, this ensures additional data collection, should the need arise, upon formal completion of on-site research.

10. Accessibility: The two case studies should be relatively feasible to access for data collection purposes, i.e., the sacred and secular place should be within a 100 -150 mile radius from College Station, Texas. This will minimize travel distance to the two case study locations and subsequently allow more time to be spent at each site for data collection purposes. In addition, this ensures that recurring site visits remain economical.

Based on these criteria, the two case studies were the Rothko Chapel (Figure III-3) and the Contemporary Arts Museum (Figure III-4), both located in Houston, Texas, USA. The Rothko Chapel is an acknowledged sacred building and houses a group of fourteen paintings by Mark Rothko. The paintings are exhibited along the periphery of the interior octagonal shaped plan. Besides exhibiting Rothko's work, the Chapel functions as a place for private meditation, common worship, and hosting colloquia related with philosophical and religious themes. The Contemporary Arts Museum, on the other hand, is a secular building, dedicated to exhibiting contemporary art to the public. A comparative analysis of the ten criteria associated with each case study, have been provided in Table III-1.

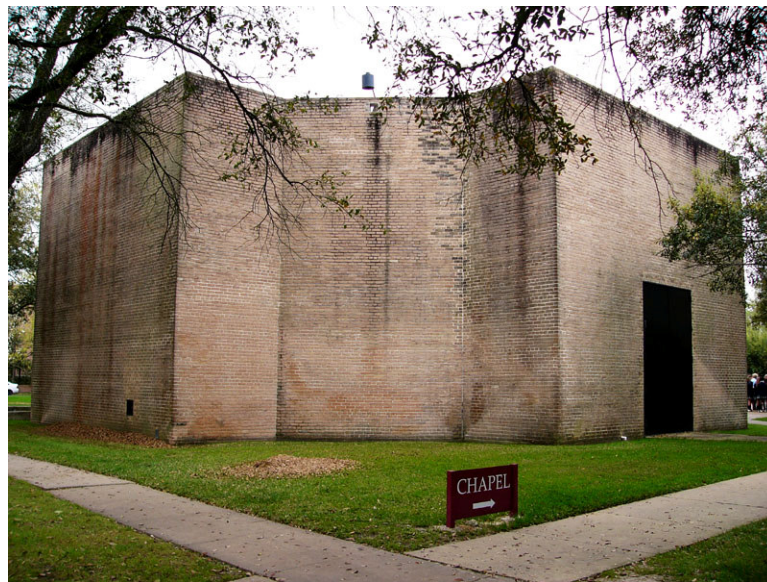


FIGURE III-3. View of Rothko Chapel.



FIGURE III-4. View of Contemporary Arts Museum.

TABLE III-1. Comparative analysis of criteria associated with selection of case studies.

Criteria	Rothko Chapel	Contemporary Arts Museum
1. Place Type	Sacred place - not-for-profit institution	Secular place - not-for-profit institution
2. Spatial Program	Gallery space	Gallery space
3. Denomination	Non-denominational	Non-denominational
4. Site Context	Urban	Urban
5. Cultural Context	Houston, Texas	Houston, Texas
6. Building Life	1971	1972
7. Design Process	Architects Philip Johnson, Howard Barnstone and Eugene Aubry	Architect Gunnar Birkits
8. Scale	4,500 sq. ft.	8,900 sq. ft.
9. Visitation	Open year round	Open year round
10. Accessibility	100 miles from College Station, Texas	100 miles from College Station, Texas

With regards to relevance, both case studies have similar spatial programs (i.e., both case studies function as gallery spaces) and are non-denominational, not-for-profit institutions. In addition, both case studies exist in the same climatic conditions and urban setting (i.e., museum district in the city of Houston, Texas). Furthermore, both case studies have approximately similar building lives, and were designed by professionally trained architects. Both case studies are of approximately similar size in terms of scale. They are both open to the public all year round and are in relatively close proximity to the researcher's place of residence. An assessment of the presence and quality of expression of place-making patterns in sacred and secular buildings would be compatible across the two case studies chosen for this study.

The purpose of this study is to explore differences in the presence and quality of expression of place-making patterns between sacred and secular buildings. Thus, difference in place-type was the primary criteria in selecting the case studies. The two case studies selected, differed with regards to place type, i.e., one case study is an acknowledged sacred place, while the other case study is a secular place. This fundamental difference in place type between the two case studies would allow for the study of the difference in presence and quality of expression of place-making patterns in sacred and secular buildings.

3.4.2 Quantitative Data

The questionnaire, designed for the study, was administered to Houston architects, at both the sacred and secular places. Multiple-choice questions are favorable in situations where problem sets are defined, regularities of problem settings are known, and when quantifiable data is required (Babbie, 1973). The questionnaire was comprised of open-ended questions as well as multiple choice questions. The detailed chronicle of events in the questionnaire ranged from the presence and quality of expression of individual place-making patterns from the CPPS to open-ended questions (i.e., comments) regarding individual place-making patterns.

Sampling

The sample population for the questionnaire was architects from architecture firms in Houston, providing basic architectural services and specializing in the design of both, religious and secular facilities. A questionnaire recruitment package consisting of a cover letter (describing the nature of the study) and a RSVP note (accompanied with a self-addressed, stamped return envelope) were mailed to selected architecture firms in Houston. The sampling for mailing the

questionnaire recruitment package for the purpose of recruiting questionnaire participants was derived by means of an online directory on the AIA Houston website, using the *Find Architectural Firm* feature. Such formal list and directories serve as effective guides to the general public seeking professional services (Goode, 1957). The online directory on the AIA Houston website, therefore, served as a useful and effective guide for identifying questionnaire participants. The inclusion criteria used to derive the list of architecture firms for recruiting questionnaire participants were: 1) Houston, Texas, as the geographic location of firms; 2) Basic architectural services as the type of service provided by firms; and 3) Religious facilities as the building-type specialization of firms. Architecture firms not matching these three criteria were excluded. On the basis of the three criteria, ninety (90) architecture firms were identified for mailing the questionnaire recruitment packages. Twenty four (24) architects from the identified architecture firms replied with a positive response, stating their willingness to participate. As a result, a total of forty-eight (48) questionnaires (twenty-four at the sacred place and twenty-four at the secular place) were administered, representing 54% of the total number of architecture firms that were mailed the questionnaire recruitment package. According to Babbie (1973), 50% is an adequate response rate for the purpose of analysis and reporting. The results from these 48 questionnaires, complemented by architectural analyses and focus group discussions in the research, therefore, provided sufficient data to support analysis and report results.

Pilot Study

A pilot study, involving three participants with architectural backgrounds (i.e., two architecture students from Texas A&M University, College Station, Texas, and one architecture professor from Prairie View A&M University, Prairie View, Texas), was conducted at both, the sacred and secular places. A total of six questionnaires (three at the sacred place and three at the secular place) were administered to the three participants to test the questionnaire format, ease of use, motivation, and clarity. The questionnaire included two introductory questions (asking participants their age and gender), and thirty six multiple-choice answers. Upon completion of the pilot study, minor changes were made to the questionnaire. The final questionnaire included two introductory questions (asking participants their age and gender), thirty seven multiple-choice answers, and nineteen open-ended questions.

Questionnaire Format

The questionnaire consisted of 5 sheets of 8.5" x 11" size paper. The questionnaire was single-sided and stapled at the top left-hand corner. A cover sheet was provided with the questionnaire that included the purpose of the questionnaire, details on how questionnaire participants would

remain anonymous, and contact information of the researcher, faculty advisor, and TAMU Institutional Review Board. The first page of the questionnaire included the title of the study, participant number designation, location, date, time, and instructions for completing the questionnaire.

The questionnaire listed brief descriptions of individual place-making patterns followed by two multiple-choice answers and one open ended question. Each place-making pattern description, therefore, was followed by three questionnaire items, forming a set of questions. The questionnaire was made up of a series of such sets of questions. Consistency in questionnaire format, results in ease of question identification (Fink, 1995). Single-line spacing between place-making pattern descriptions and the associated three questions was consistently provided throughout the questionnaire. Double-line spacing was consistently provided between individual sets consisting of pattern descriptions and the associated three questions. This spacing format made it easier for participants to identify the three questions related with each place-making pattern. Times New Roman font-style (10 point font-type) was used consistently throughout the questionnaire. Bold type was used consistently throughout the questionnaire for emphasis. Individual place-making pattern descriptions were typed in bold. This provided distinction between place-making pattern descriptions and questions.

The presence of individual place-making patterns from the CPPS at the sacred and secular buildings was scored by using the terms – *Yes* and *No* (where *Yes* = pattern is present, and *No* = pattern is absent). To assess the quality of expression of individual place-making patterns at the sacred and secular buildings, questionnaire responses allowed for scoring from 1 to 5, on a 5 point scale (where 1 = very low quality; 2 = low quality; 3 = intermediate quality; 4 = high quality; and 5 = very high quality). A box was provided against each multiple-choice answer for checking purposes. The open-ended questionnaire item, titled *comments*, was followed by a blank line for inclusion of thoughts and opinions related with the presence and quality of expression of individual place-making patterns. The sacredness of the selected buildings was scored by using the terms – *Yes* and *No* (where *Yes* = place is sacred, and *No* = place is not sacred). Toward the very end, the questionnaire included an open ended question followed by five blank lines for participants to include their thoughts and opinions on why they felt that the place was sacred. A copy of the questionnaire is included in Appendix A.

3.4.3 Qualitative Data

Questionnaires were utilized for obtaining comparable and quantifiable data, whereas focus group discussions were used to yield detailed and qualitative data. According to Goodrich (1974), data obtained by means of quantitative methods, becomes more effective when combined with other methods of data collection. Therefore, data obtained by means of focus group discussions was complemented by questionnaires and vice versa. According to Miles and Huberman (1994:10), major advantages of qualitative data, besides providing rich and holistic information, is that it focuses on “naturally occurring, ordinary events in natural settings”, thereby providing researchers with information on real life situations and exhibiting greater potential for revealing complexity. The premise behind focus group discussions is that people who are familiar with a particular subject and who share a common interest would be more willing to discuss it as a group (Bellenger et al., 1976). The focus group discussions, therefore, provided detailed information regarding the presence and quality of expression of place-making patterns at the sacred and secular places, thereby, validating and complementing questionnaire results in the study. A reflective journal was maintained during the entire research.

Focus Group Discussion

The focus group discussion panel consisted of 6 participants – three architects and three spiritual mentors from Houston, Texas. Invitations, in the form of emails, were sent to the group of architects who had previously completed the questionnaires. Three architects replied with a positive response, stating their willingness to participate. A list of individuals engaged in spiritual mentoring and meditative activities in Houston, Texas, was provided by the staff at Rothko Chapel. Invitations, in the form of emails, were sent to individuals on this list, followed by personal telephone calls in an effort to recruit focus group discussion participants. Subsequently, three spiritual mentors agreed to participate in the study. A total of six participants were, thus, recruited for the focus group discussion. The ideal size of a focus group panel should range from 6 to 12 participants - focus groups “should not be so large as to be unwieldy or to preclude adequate participation by most members nor should it be so small that it fails to provide substantially greater coverage than that of an interview with one individual (Merton et al., 1990: 137). This highly homogenous group comprised of three architects and three spiritual mentors, formed an ideal panel for conducting the focus group discussions. The focus group comprised of the same participants at both settings.

The focus group discussions were conducted sequentially at both settings, i.e., first at Rothko Chapel and second at Contemporary Arts Museum. The focus group discussion was conducted in the main gallery of the Rothko Chapel, while at the Contemporary Arts Museum, the focus group discussion was conducted in a room at the lower level. The duration of focus group discussions at each location was approximately one hour. Each of the focus group discussions was moderated by the researcher. Responses were recorded in the form of field notes for later transcription.

Focus group discussions are successful to a study when questions that guide the focus group discussion are consistent and pertinent to the objectives and purpose of the research (Stewart & Shamdasani, 1990). Focus group discussion questions were, therefore, excerpted from the questionnaire that was administered at the sacred and secular building. The questions were modified accordingly, based on initial analysis of questionnaire results. Stewart and Shamdasani (1990) suggested the use of an interview guide to provide focus groups with a direction for their discussions. The following two categories were utilized to develop the guide: 1) exploration of experiences elicited at the selected buildings; and 2) exploration of how architecture impacts sacredness (if at all) at the selected buildings. Based on these two categories, the following questions were developed for the focus group discussions:

- 1) Exploration of experiences elicited at the selected buildings
 - Describe what sacred and secular means to you.
 - Describe the experience elicited in this building.

- 2) Exploration of how architecture impacts sacredness (if at all) at selected buildings
 - Do you experience this building to be sacred or secular? Why?
 - Identify what architectural characteristics contribute to your experience of sacredness (if at all) at this building.

3.5 DATA ANALYSIS

In the first phase of the research, the analysis of selected place-making patterns yielded the CPPS. The review of relevant literature identified two key literature references, each containing a specific list of place-making patterns, theorized to be present at sacred places. The two reference lists were first analyzed for similarities and differences. Place-making patterns that

were common to both lists were grouped under a single category, while those that were unique to a single list were identified as distinct place-making patterns. Subsequently, a comprehensive set, including place-making patterns from both reference lists, was developed based on the analysis conducted.

During phase 2 of the research, sketches and photographs of the selected sacred and secular buildings were produced with field notes. The photographs and sketches of the selected buildings were compared and were analyzed graphically against individual place-making patterns from the CPPS to identify ways in which individual place-making patterns corresponded with the architecture at each setting.

In phase 3 of the research, relative frequencies were calculated for multiple-choice answers in the questionnaire, while open ended questionnaire items were subjected to inductive content analysis, first reading responses to identify emerging categories and then coding for category inclusion. Overall, content analysis took precedence over statistical analysis. Descriptive analysis and charts was used to analyze questionnaire results.

Data gathered by means of focus group discussions in phase 4 of the research was examined and coded by focusing on experiences associated with the sacred and secular buildings. In grounded theory methodology, the use of open coding in data analysis entails the formation of initial categories of information about the phenomenon under study, through a process of data segmentation (Creswell, 1998). As such, the data were subjected to content analysis and initial categories were identified by means of open coding. Responses of focus group discussion participants at the sacred and secular places were compared and contrasted for similarities and differences. Axial coding refers to the reassembling of data that is segmented during open coding, to produce elaborate explanations about the phenomenon under study (Strauss and Corbin, 1998). Accordingly, data that was fractured during open coding was reassembled using axial coding, to yield explicit and elaborate explanations about the phenomenon under study. According to Strauss and Corbin (1998), the formation of initial categories using open coding and major categories using axial coding, do not result in the development of theory, unless these categories are integrated and unified around a single or core category using selective coding. Selective coding was, therefore, utilized to develop and refine a theoretical scheme by integrating all categories, identified during open coding and axial coding, around a single and unified core category. Eventually, data analysis ended when open coding and axial coding did

not produce any new categories and all data gathered by means of the focus group discussions was cohesively explained using selective coding by means of core categories.

The analyzed data were synthesized to: *first*, validate the pattern presence and pattern quality assessment techniques as viable tools for similar research; *second*, test the validity of the hypothesis and develop theory in relation of the presence and quality of expression of place-making patterns in sacred places; *third*, develop research-informed design guidelines for sacred place-making, and *fourth*, propose limitations and implications for further research.

CHAPTER IV

RESULTS

4.1 INTRODUCTION

In this study, graphical data, quantitative data, and qualitative data, were collected and analyzed for triangulation purposes. The Comprehensive Place-making Pattern Set (CPPS) developed in the first phase of the research was used as a basis for analyzing all three types of data. Graphical data (sketches and photographs with field notes) was used to identify ways in which individual place-making patterns from the CPPS physically corresponded with the architecture at the sacred and secular buildings. The presence of individual place-making patterns was assessed, thereby, quantifying the presence of individual place-making patterns at the sacred and secular buildings. Quantitative data (questionnaires) was used to: *first*, validate findings of the graphical data, i.e., the presence of individual place-making patterns at the sacred and secular buildings; *second*, to assess the quality of expression of individual place-making patterns at each setting; and *third*, to assess whether the selected buildings were experienced to be sacred or secular. Finally, qualitative data (focus group discussions) was used to: *first*, explore experiences elicited at the sacred and secular buildings; and *second*, explore how architecture impacts sacredness (if at all) at the selected buildings. Using grounded theory methodology, the graphical data, quantitative data, and qualitative data were compared and contrasted to develop a theory related with the presence and quality of expression of specific place-making patterns and their contribution to making place sacred.

4.2 COMPREHENSIVE PLACE-MAKING PATTERN SET

Two key literature references were used as a basis for developing the CPPS as follows: 1) *Sacred Place: The Presence of Archetypal Patterns in Place Creation*, authored by Phillip Tabb in 1996; and 2) *Using the Place-Creation Myth to Develop Design Guidelines for Sacred Space*, authored by Michael Brill in 1985. According to Tabb (1996), the following place-making patterns are speculated to be present in sacred places: 1) Center; 2) Bounding; 3) Direction; 4) Descent; 5) Ascent; 6) Passage; 7) Numeric Order; 8) Geometric Order; 9) Spatial Order; 10) Anthropomorphic Order; 11) Ordered Nature; 12) Celestial Order; 13) Materiality; 14) Elementals; and 15) Ceremonial Order. Brill (1985) speculates the presence of the following

place-making patterns in sacred places: 1) Making a Location and Center; 2) Bounding; 3) Making Orientation and Direction; 4) Triumph over the Underworld; 5) Reaching Upwards; 6) Passage; 7) Spatial Order; 8) Nature in Our Places; 9) Celestial Order; 10) Differentiating Boundaries; 11) Ordered Views; 12) Materials for Making; 13) Light; and 14) Finishing a Place. The two sets of place-making patterns listed above, were analyzed for comparative similarities and differences to yield the CPPS (Table IV-1). Place-making patterns common to both authors were listed together, while unique patterns were identified separately. The CPPS, therefore, included a total of eighteen place-making patterns as follows: 1) Center; 2) Bounding; 3) Direction; 4) Descent; 5) Ascent; 6) Passage; 7) Numeric Order; 8) Geometric Order; 9) Spatial Order; 10) Anthropomorphic Order; 11) Ordered Nature; 12) Celestial Order; 13) Differentiating Boundaries; 14) Ordered Views; 15) Materiality; 16) Elementals; 17) Light; and 18) Ceremonial Order. The eighteen place-making patterns of the CPPS were used as a basis for conducting the research.

TABLE IV-1. Development of Comprehensive Place-making Pattern Set (CPPS) using place-making patterns (speculated to be present in sacred places) proposed by authors, Tabb (1996) and Brill (1985).

Phillip Tabb	Michael Brill	Comprehensive Place-making Pattern Set
Center	Making a Location and Center	Center
Bounding	Bounding	Bounding
Direction	Making Orientation and Direction	Direction
Descent	Triumph over the Underworld	Descent
Ascent	Reaching Upwards	Ascent
Passage	Passage	Passage
Numeric Order		Numeric Order
Geometric Order		Geometric Order
Spatial Order	Spatial Order	Spatial Order
Anthropomorphic Order		Anthropomorphic Order
Ordered Nature	Nature in Our Places	Ordered Nature
Celestial Order	Celestial Order	Celestial Order
	Differentiating Boundaries	Differentiating Boundaries
	Ordered Views	Ordered Views
Materiality	Materials for Making	Materiality
Elementals		Elementals
	Light	Light
Ceremonial Order	Finishing a Place	Ceremonial Order

4.3 GRAPHICAL DATA

Graphical data was produced by means of sketches and photographs at the sacred and secular buildings. The assessment of the presence of individual place-making patterns at the sacred and secular buildings involves the following: *first*, identifying ways in which individual place-making patterns from the CPPS, physically corresponded with the architecture of the sacred and secular buildings; and *second*, quantifying the presence of individual place-making patterns at the sacred and secular buildings, thereby establishing the total number of place-making patterns present at each setting.

4.3.1 Assessment of Pattern Presence at Selected Buildings

The presence of individual place-making patterns at the sacred place, i.e., Rothko Chapel and the secular place, i.e., Contemporary Arts Museum is displayed below.

Center

The presence of *Center* was experienced to be present at the Rothko Chapel through the spatial center of the octagonal shaped plan of the Chapel (Figure IV-1). The presence of *Center* was experienced to be absent at the Contemporary Arts Museum.

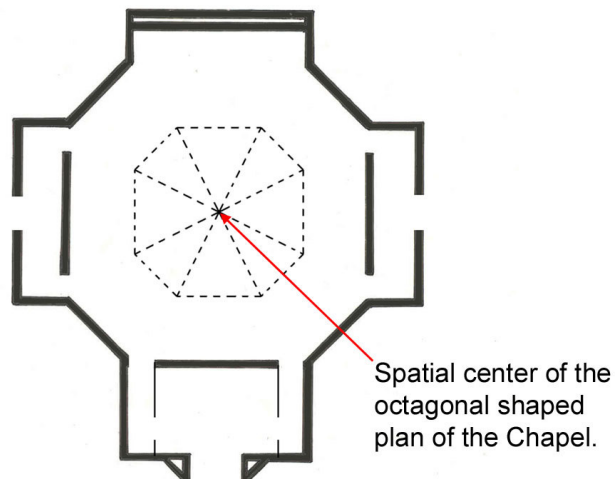


FIGURE IV-1. Presence of center at Rothko Chapel.

Bounding

The presence of *Bounding* was experienced to be present at the Rothko Chapel through the walls, floor, and ceiling of the Chapel (Figure IV-2). At the Contemporary Arts Museum, the presence of *Bounding* was experienced to be present through the walls, floor, and ceiling of the Museum (Figure IV-3).

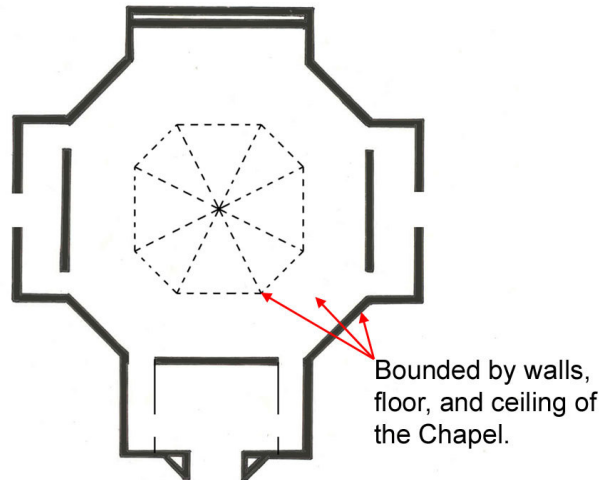


FIGURE IV-2. Presence of bounding (walls, floor, and ceiling) at Rothko Chapel.

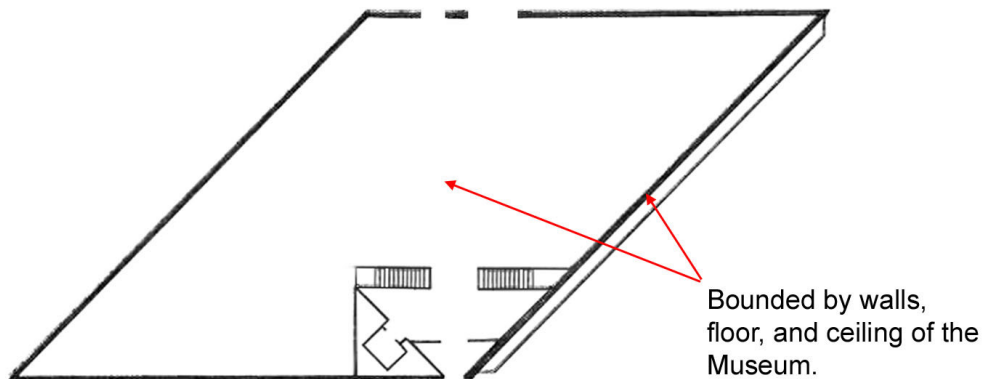


FIGURE IV-3. Presence of bounding (walls, floor, and ceiling) at Contemporary Arts Museum.

Direction

The presence of *Direction* was experienced to be present at the Rothko Chapel through the alignment of the Chapel entrance with the pool on the south (Figure IV-4). The presence of the *Direction* was experienced to be absent at the Contemporary Arts Museum.

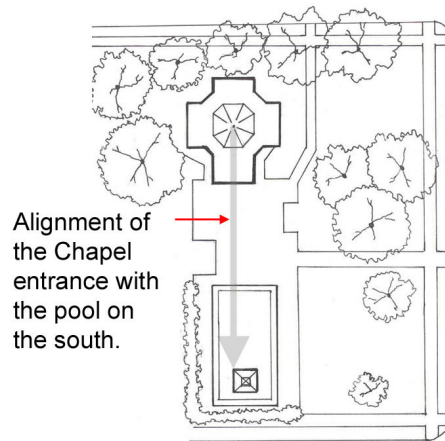


FIGURE IV-4. Presence of direction at Rothko Chapel.

Descent

The presence of *Descent* was experienced to be present at the Rothko Chapel through the darkness inside the Chapel (Figure IV-5). At the Contemporary Arts Museum, the presence of *Descent* was experienced to be present through the descending stairs leading to the lower level of the Museum (Figure IV-6).

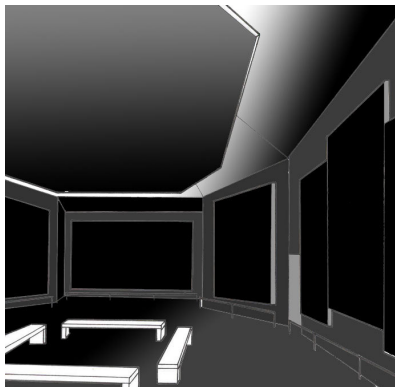


FIGURE IV-5. Presence of descent (darkness inside) at Rothko Chapel.

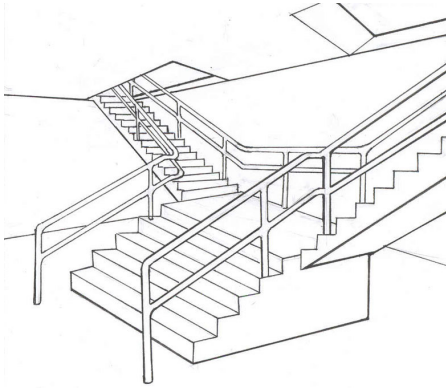


FIGURE IV-6. Presence of descent (stairs to lower level) at Contemporary Arts Museum.

Ascent

The presence of *Ascent* was experienced to be present at the Rothko Chapel through the light entering the skylight in the ceiling of the Chapel (Figure IV-7). The presence of *Ascent* was experienced to be absent at the Contemporary Arts Museum.

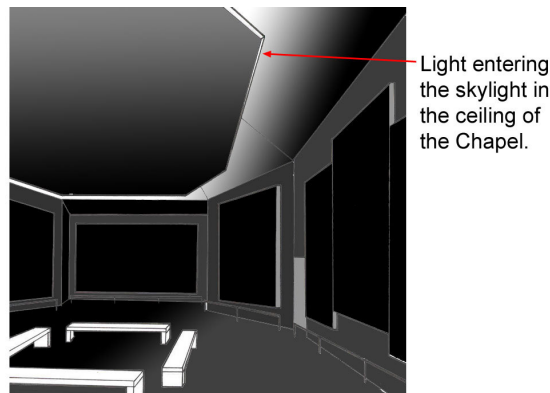


FIGURE IV-7. Presence of ascent at Rothko Chapel.

Passage

The presence of *Passage* was experienced to be present at the Rothko Chapel through the main entrance doorway of the Chapel (Figure IV-8). At the Contemporary Arts Museum, the presence of *Passage* was experienced to be present through the main entrance doorway of the Museum (Figure IV-9).



FIGURE IV-8. Presence of passage (main entrance doorway) at Rothko Chapel.



FIGURE IV-9. Presence of passage (main entrance doorway) at Contemporary Arts Museum.

Numeric Order

The presence of *Numeric Order* was experienced to be present at the Rothko Chapel through the eight sides of the Chapel (Figure IV-10). The presence of *Numeric Order* was experienced to be absent at the Contemporary Arts Museum.

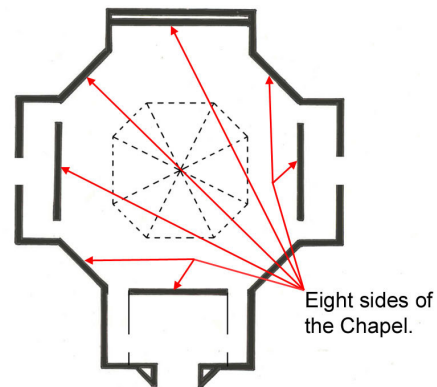


FIGURE IV-10. Presence of numeric Order at Rothko Chapel.

Geometric Order

The presence of *Geometric Order* was experienced to be present at the Rothko Chapel through the octagonal shape of the Chapel (Figure IV-11). At the Contemporary Arts Museum, the presence of *Geometric Order* was experienced to be present through the parallelogram shape of the Museum (Figure IV-12).

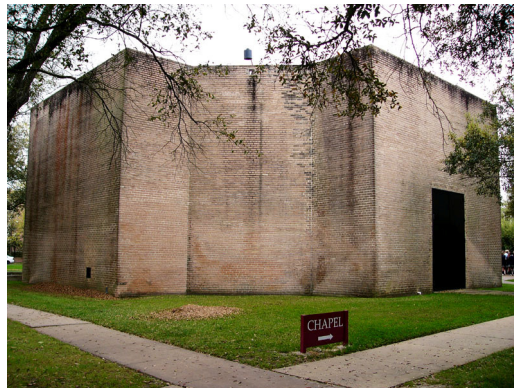


FIGURE IV-11. Presence of geometric order (octagonal shape) at Rothko Chapel.



FIGURE IV-12. Presence of geometric order (parallelogram) at Contemporary Arts Museum.

Spatial Order

The presence of *Spatial Order* was experienced to be present at the Rothko Chapel through the hierarchical arrangement of spaces from the center of the Chapel to the outdoors (Figure IV-13).

The presence *Spatial Order* was experienced to be absent at the Contemporary Arts Museum.

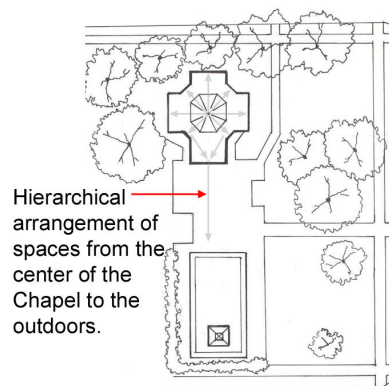


FIGURE IV-13. Presence of spatial order at Rothko Chapel.

Anthropomorphic Order

The presence of *Anthropomorphic Order* was experienced to be present at the Rothko Chapel through the high ceilings of the Chapel (Figure IV-14). The presence of *Anthropomorphic Order* was experienced to be absent at the Contemporary Arts Museum.



FIGURE IV-14. Presence of anthropomorphic order (high ceilings) at Rothko Chapel.

Ordered Nature

The presence of *Ordered Nature* was experienced to be present at the Rothko Chapel through the water pool with bamboo grove (Figure IV-15). At the Contemporary Arts Museum, the presence of *Ordered Nature* was experienced to be present through the vegetative shrubs on the site (Figure IV-16).



FIGURE IV-15. Presence of ordered nature (water pool with bamboo grove) at Rothko Chapel.



FIGURE IV-16. Presence of ordered nature (vegetative shrubs) at Contemporary Arts Museum.

Celestial Order

The presence of *Celestial Order* was experienced to be present at the Rothko Chapel through the light entering the skylight in the ceiling (Figure IV-17). The presence of *Celestial Order* was experienced to be absent at the Contemporary Arts Museum.

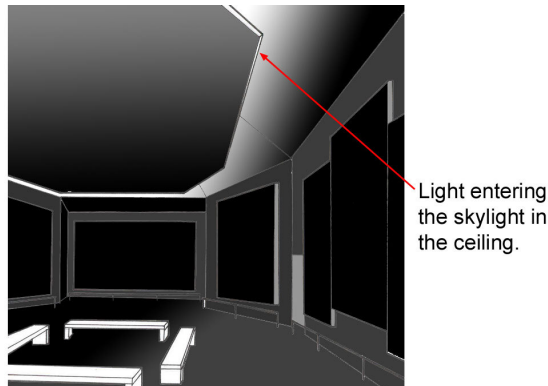


FIGURE IV-17. Presence of celestial order at Rothko Chapel.

Differentiating Boundaries

The presence of *Differentiating Boundaries* was experienced to be present at the Rothko Chapel through varying offsets in the wall planes of the Chapel (Figure IV-18). The presence of *Differentiating Boundaries* was experienced to be absent at the Contemporary Arts Museum.

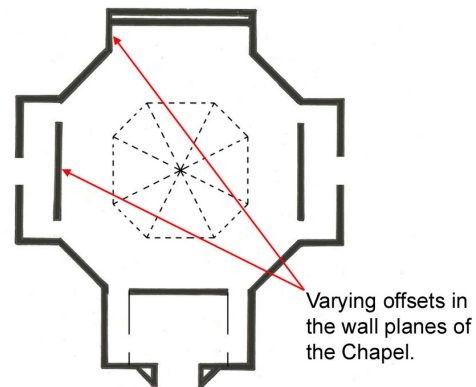


FIGURE IV-18. Presence of differentiating boundaries at Rothko Chapel.

Ordered Views

The presence of *Ordered Views* was experienced to be present at the Rothko Chapel through the large solid walls of the Chapel restricting all views to the outside (Figure IV-19). At the Contemporary Arts Museum, the presence of *Ordered Views* was experienced to be present through the walls of the Museum restricting all views to the outside (Figure IV-20).

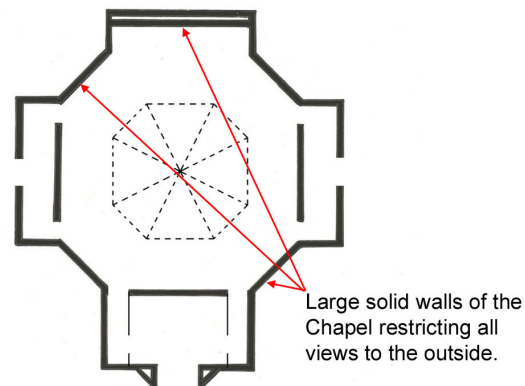


FIGURE IV-19. Presence of ordered views at Rothko Chapel.

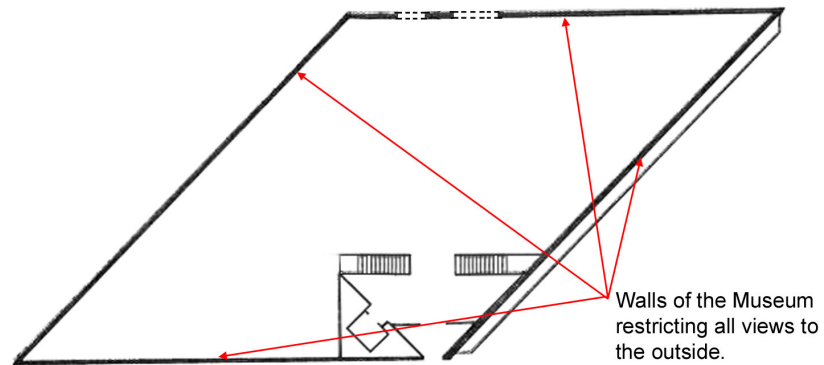


FIGURE IV-20. Presence of ordered views at Contemporary Arts Museum.

Materiality

The presence of *Materiality* was experienced to be present at Rothko Chapel through the gray walls of the Chapel (Figure IV-21). At the Contemporary Arts Museum, the presence of *Materiality* was experienced to be present through the metallic siding of the Museum (Figure IV-22).

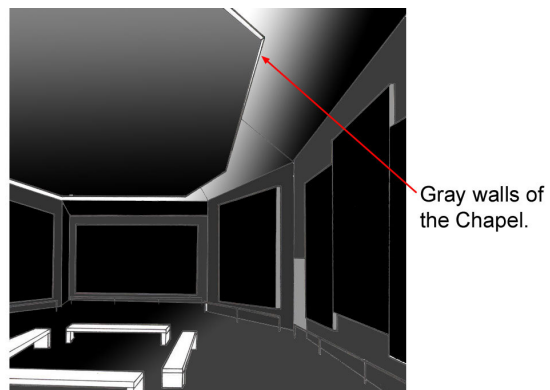


FIGURE IV-21. Presence of materiality at Rothko Chapel.

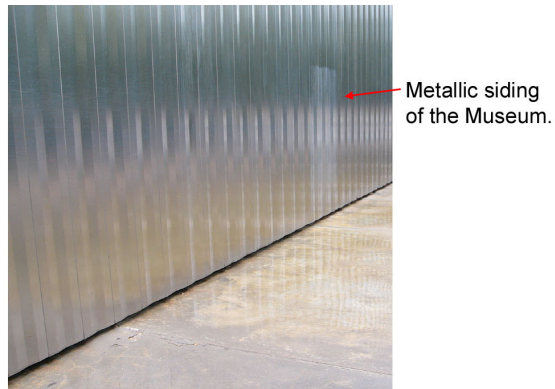


FIGURE IV-22. Presence of materiality at Contemporary Arts Museum.

Elementals

The presence of *Elementals* was experienced to be present at the Rothko Chapel through the walls – earth, skylight – fire, pool – water, and movement of bamboo grove – wind (Figure IV-23). At the Contemporary Arts Museum, the presence of *Elementals* was experienced to be present through the fountain – water (Figure IV-24).

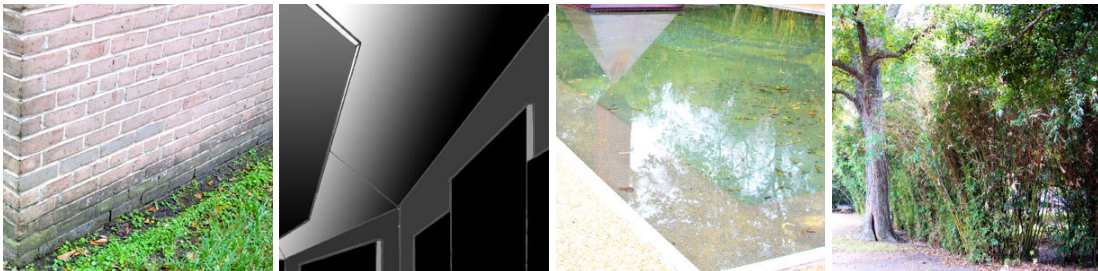


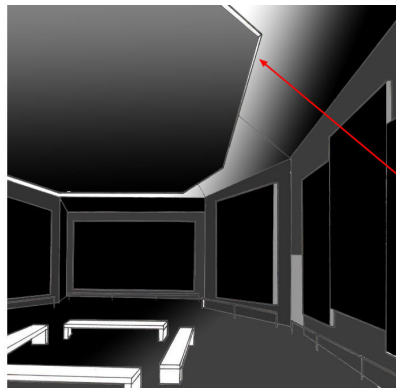
FIGURE IV-23. Presence of elementals (walls – earth, skylight – fire, pool – water, and movement of bamboo grove – wind) at Rothko Chapel.



FIGURE IV-24. Presence of elementals (fountain – water) at Contemporary Arts Museum.

Light

The presence of *Light* was experienced to be present at the Rothko Chapel through the sunlight entering the skylight in the ceiling and contrasting with darkness inside the Chapel (Figure IV-25). At the Contemporary Arts Museum, the presence of *Light* was experienced to be present through the sunlight entering the basement clerestory windows of the Museum (Figure IV-26).



Sunlight entering the skylight in the ceiling and contrasting with darkness inside the Chapel.

FIGURE IV-25. Presence of light at Rothko Chapel.



FIGURE IV-26. Presence of light at Contemporary Arts Museum.

Ceremonial Order

The presence of *Ceremonial Order* was experienced to be present at the Rothko Chapel through interaction of people with the paintings and the Chapel (Figure IV-27). The presence of *Ceremonial Order* was experienced to be absent at the Contemporary Arts Museum.

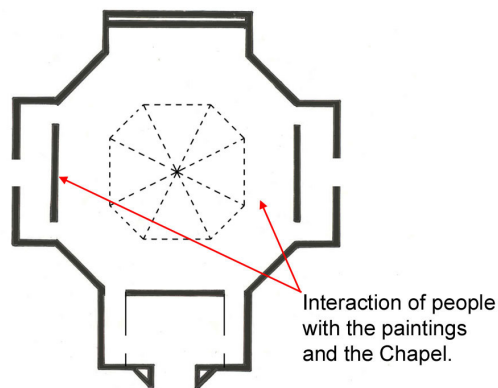


FIGURE IV-27. Presence of ceremonial order at Rothko Chapel.

The presence of individual place-making patterns and their correspondence with the architecture of the sacred and secular buildings is summarized in Table IV-2. The column under *Pattern list* displays individual place-making patterns. The column under *Pattern presence* shows whether individual place-making patterns are observed to be present or absent at the sacred and secular buildings. The column under *Correspondence of pattern presence with architecture* shows how, or in what ways individual place-making patterns from the CPPS, physically corresponded with

the architecture of the sacred and secular buildings. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE IV-2. Presence of patterns and correspondence with architecture of selected buildings.

Pattern list	Presence and correspondence of place-making patterns			
	RC		CAM	
	Pattern presence	Correspondence of pattern presence with architecture	Pattern presence	Correspondence of pattern presence with architecture
Center	Present	Spatial center of the octagonal shaped plan of the Chapel.	Absent	Pattern is absent.
Bounding	Present	Walls, floor, and ceiling of the Chapel.	Present	Walls, floor, and ceiling of the Museum.
Direction	Present	Alignment of the Chapel entrance with the pool on the south.	Absent	Pattern is absent.
Descent	Present	Darkness inside the Chapel.	Present	Descending stairs leading to the lower level of the Museum.
Ascent	Present	Light entering the skylight in the ceiling of the Chapel.	Absent	Pattern is absent.
Passage	Present	Main entrance doorway of the Chapel.	Present	Main entrance doorway of the Museum.
Numeric Order	Present	Eight sides of the Chapel.	Absent	Pattern is absent.
Geometric Order	Present	Octagonal shape of the Chapel.	Present	Parallelogram shape of the Museum.
Spatial Order	Present	Hierarchical arrangement of spaces from the center of the Chapel to the outdoors.	Absent	Pattern is absent.
Anthropomorphic Order	Present	High ceilings of the Chapel.	Absent	Pattern is absent.
Ordered Nature	Present	Water pool with bamboo screening.	Present	Vegetative shrubs on the site.
Celestial Order	Present	Light entering the skylight in the ceiling.	Absent	Pattern is absent.
Differentiating Boundaries	Present	Varying offsets in the wall planes of the Chapel.	Absent	Pattern is absent.
Ordered Views	Present	Large solid walls of the Chapel restricting all views to the outside.	Present	Walls of the Museum restricting all views to the outside.
Materiality	Present	Gray walls of the Chapel.	Present	Metallic siding of the Museum.
Elementals	Present	Walls – earth, skylight – fire, pool – water, and movement of bamboo groove – wind.	Present	Fountain – water.
Light	Present	Sunlight entering the skylight in the ceiling and contrasting with darkness inside the Chapel.	Present	Sunlight entering the basement clerestory windows of the Museum.
Ceremonial Order	Present	Interaction of people with the paintings and the Chapel.	Absent	Pattern is absent.

4.4 QUESTIONNAIRE DATA

A total of forty-eight (48) questionnaires (24 at each setting) were administered to twenty-four (24) Houston architects at the sacred and secular places. Of the 24 Houston architects, 16 participants were male, while 8 participants were female (Figure IV-28). A total of 12 participants were in the age group of 25 to 40 years, 8 participants were in the age group of 41 to 55 years, 3 participants were in the age group of 56 to 70 years, and 1 participant was in the age group of 71 years or above (Figure IV-29).

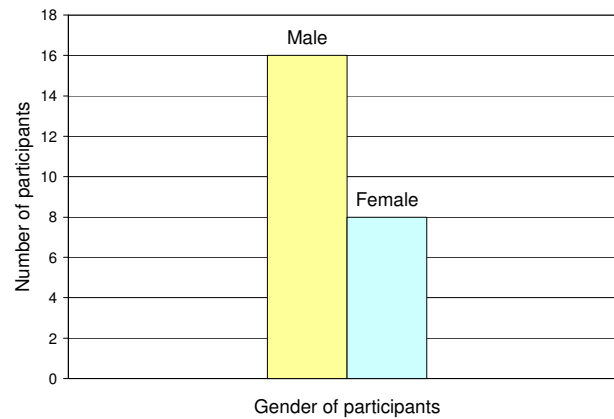


FIGURE IV-28. Gender distribution of questionnaire participants.

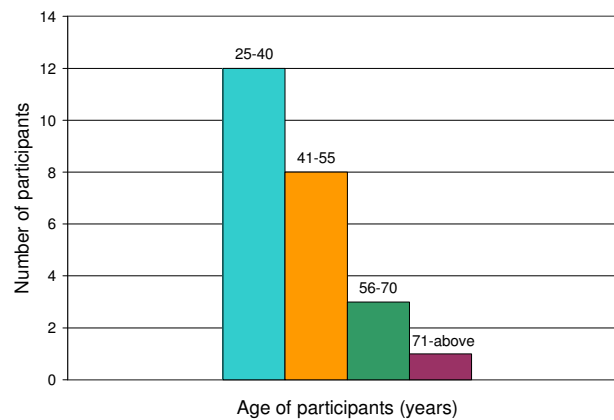


FIGURE IV-29. Age distribution of questionnaire participants.

Questionnaire results are categorized as follows: 1) validation of pattern presence at selected buildings; 2) assessment of pattern quality at selected buildings; 3) comments associated with pattern presence and pattern quality at selected buildings; 4) assessment of sacredness of selected buildings; and 5) comments associated with sacredness of selected buildings.

4.4.1 Validation of Pattern Presence at Selected Buildings

The presence of individual place-making patterns from the CPPS for both the sacred and secular places, is shown in Table IV-3. The column under *Pattern list* displays individual place-making

patterns. Two columns – *Number (no.)* and *Percentage (%)* are shown under Rothko Chapel and Contemporary Arts Museum, each. The column under Number (no.) shows the total number of participants that answered positively (i.e., yes), to individual place-making patterns being present at the specified settings, while the Percentage (%) column represents the percentage of participants that answered positively (i.e., yes), to individual place-making patterns being present at the specified settings.

TABLE IV-3. Number/percentage of questionnaire participants who agreed that place-making patterns from the CPPS were present at the sacred and secular buildings.

Pattern list	Rothko Chapel		Contemporary Arts Museum	
	Number (no.)	Percentage (%)	Number (no.)	Percentage (%)
Center	23	95.8%	6	25%
Bounding	24	100%	20	83.3%
Direction	17	70.8%	8	33.3%
Descent	16	66.6%	16	66.6%
Ascent	22	91.6%	14	58.3%
Passage	20	83.3%	14	58.3%
Numeric Order	20	83.3%	14	58.3%
Geometric Order	24	100%	21	87.5%
Spatial Order	21	87.5%	14	58.3%
Anthropomorphic Order	18	75%	10	41.6%
Ordered Nature	23	95.8%	18	75%
Celestial Order	21	87.5%	4	16.6%
Differentiating Boundaries	16	66.6%	8	33.3%
Ordered Views	20	83.3%	16	66.6%
Materiality	24	100%	22	91.6%
Elementals	22	91.6%	16	66.6%
Light	24	100%	15	62.5%
Ceremonial Order	24	100%	6	25%

The difference in presence of individual place-making patterns between the sacred and secular places has been compared in the bar charts and pie charts that follow. The bar charts compare the number (no.) of participants that answered positively (i.e., yes), to individual place-making patterns being present at the specified settings, while the pie charts compare the percentage (%) of participants that answered positively (i.e., yes), to individual place-making patterns being present at the specified settings. In both types of charts, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

Center

A total of 23 participants answered positively (i.e., yes), to the place-making pattern *Center* being present at the Rothko Chapel. This number represents 95.8% of the total number of questionnaire participants. At the Contemporary Arts Museum, 6 participants answered positively (i.e., yes) to *Center* being present. This number represents 25% of the total number of questionnaire participants (Figures IV-30 and 31).

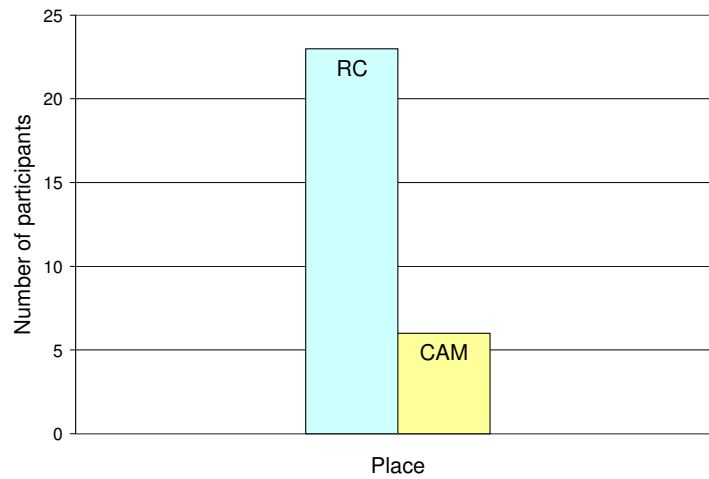


FIGURE IV-30. Presence of center based on number (no.) of participants.



FIGURE IV-31. Presence of center based on percentage (%) of participants.

Bounding

A total of 24 participants answered positively (i.e., yes), to the place-making pattern *Bounding* being present at the Rothko Chapel. This number represents 100% of the total number of questionnaire participants. At the Contemporary Arts Museum, 20 participants answered positively (i.e., yes) to *Bounding* being present. This number represents 83.3% of the total number of questionnaire participants (Figures IV-32 and 33).

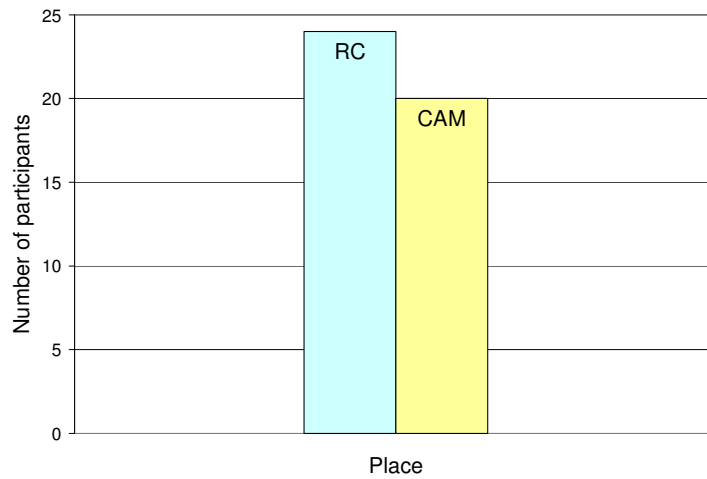


FIGURE IV-32. Presence of bounding based on number (no.) of participants.



FIGURE IV-33. Presence of bounding based on percentage (%) of participants.

Direction

A total of 17 participants answered positively (i.e., yes), to the place-making pattern *Direction* being present at the Rothko Chapel. This number represents 70.8% of the total number of questionnaire participants. At the Contemporary Arts Museum, 8 participants answered positively (i.e., yes) to *Direction* being present. This number represents 33.3% of the total number of questionnaire participants (Figures IV-34 and 35).

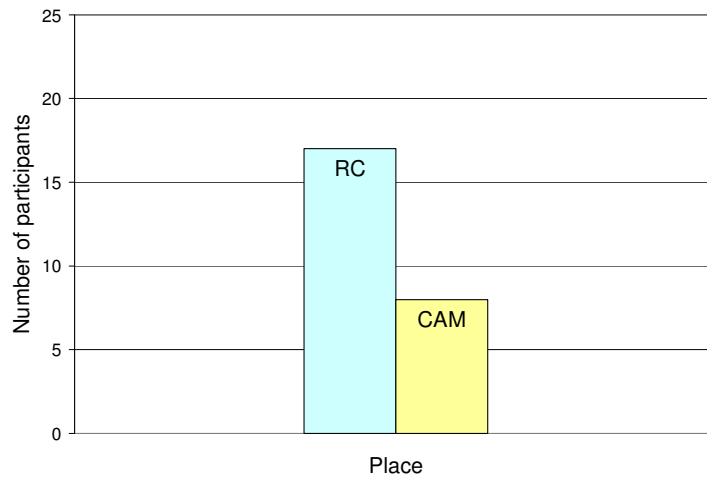


FIGURE IV-34. Presence of direction based on number (no.) of participants.

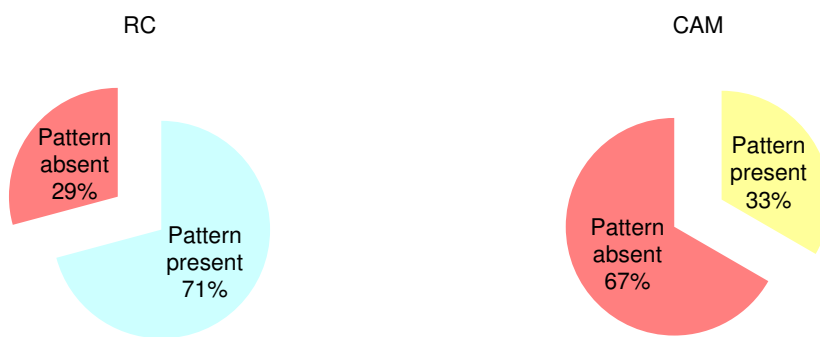


FIGURE IV-35. Presence of direction based on percentage (%) of participants.

Descent

A total of 16 participants answered positively (i.e., yes), to the place-making pattern *Descent* being present at the Rothko Chapel. This number represents 66.6% of the total number of questionnaire participants. At the Contemporary Arts Museum, 16 participants answered positively (i.e., yes) to *Descent* being present. This number represents 66.6% of the total number of questionnaire participants (Figures IV-36 and 37).

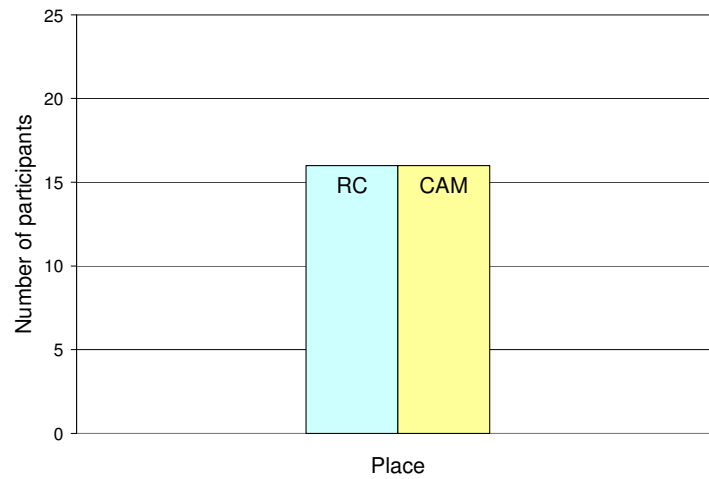


FIGURE IV-36. Presence of descent based on number (no.) of participants.

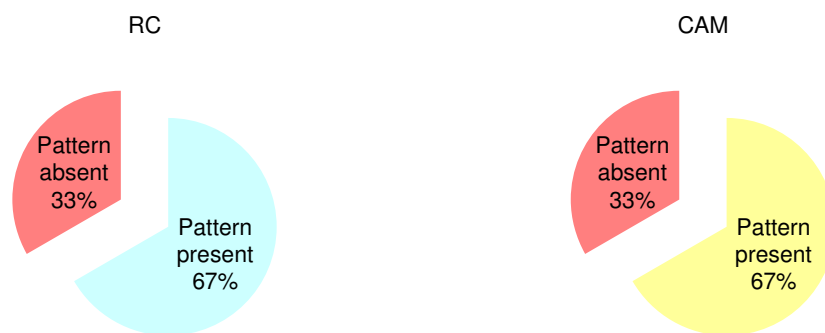


FIGURE IV-37. Presence of descent based on percentage (%) of participants.

Ascent

A total of 22 participants answered positively (i.e., yes), to the place-making pattern *Ascent* being present at the Rothko Chapel. This number represents 91.6% of the total number of questionnaire participants. At the Contemporary Arts Museum, 14 participants answered positively (i.e., yes) to *Ascent* being present. This number represents 58.3% of the total number of questionnaire participants (Figures IV-38 and 39).

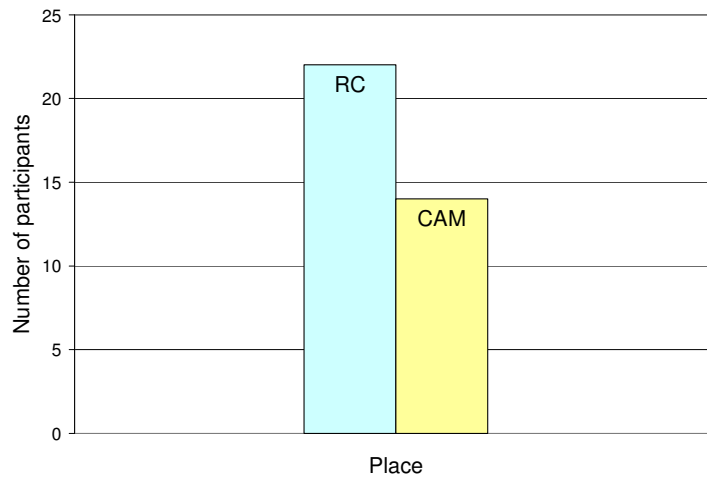


FIGURE IV-38. Presence of ascent based on number (no.) of participants.

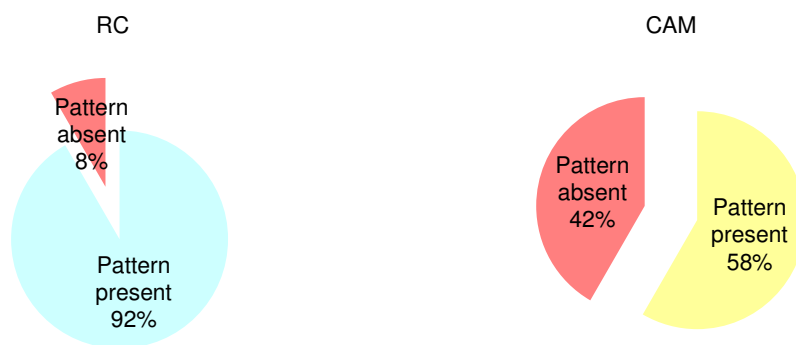


FIGURE IV-39. Presence of ascent based on percentage (%) of participants.

Passage

A total of 20 participants answered positively (i.e., yes), to the place-making pattern *Passage* being present at the Rothko Chapel. This number represents 83.3% of the total number of questionnaire participants. At the Contemporary Arts Museum, 14 participants answered positively (i.e., yes) to *Passage* being present. This number represents 58.3% of the total number of questionnaire participants (Figures IV-40 and 41).

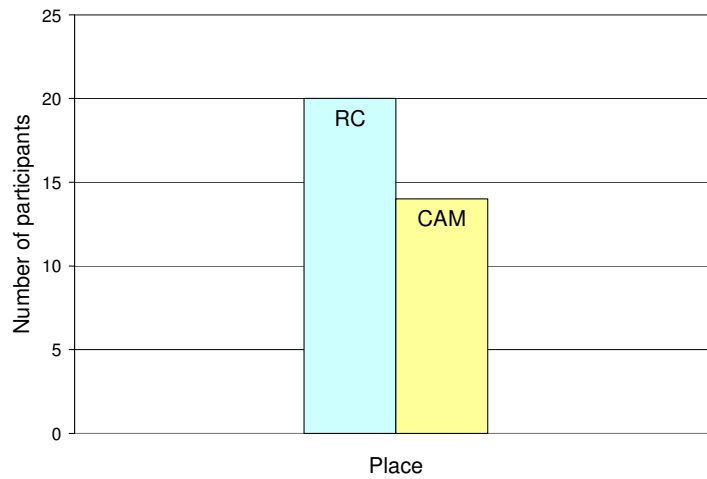


FIGURE IV-40. Presence of passage based on number (no.) of participants.

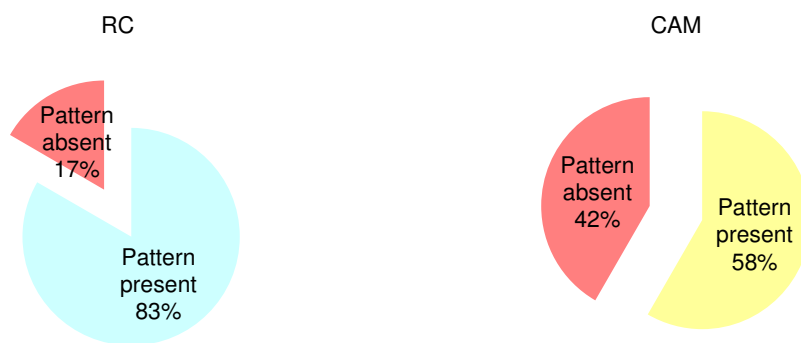


FIGURE IV-41. Presence of passage based on percentage (%) of participants.

Numeric Order

A total of 20 participants answered positively (i.e., yes), to the place-making pattern *Numeric Order* being present at the Rothko Chapel. This number represents 83.3% of the total number of questionnaire participants. At the Contemporary Arts Museum, 14 participants answered positively (i.e., yes) to *Numeric Order* being present. This number represents 58.3% of the total number of questionnaire participants (Figures IV-42 and 43).

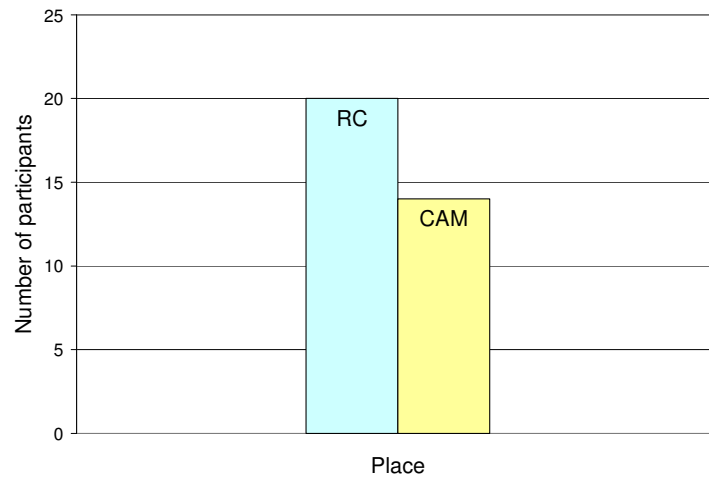


FIGURE IV-42. Presence of numeric order based on number (no.) of participants.

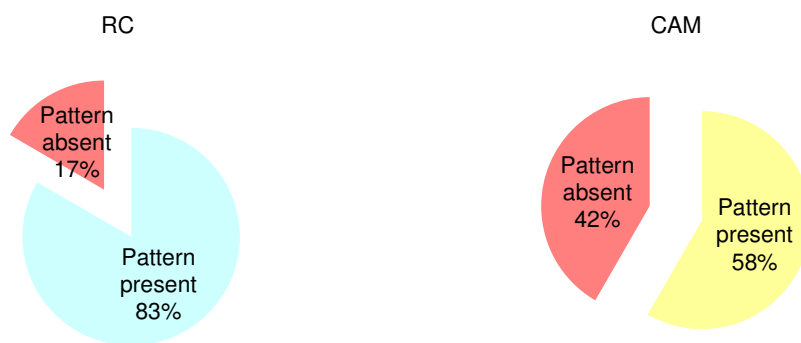


FIGURE IV-43. Presence of numeric order based on percentage (%) of participants.

Geometric Order

A total of 24 participants answered positively (i.e., yes), to the place-making pattern *Geometric Order* being present at the Rothko Chapel. This number represents 100% of the total number of questionnaire participants. At the Contemporary Arts Museum, 21 participants answered positively (i.e., yes) to *Geometric Order* being present. This number represents 87.5% of the total number of questionnaire participants (Figures IV-44 and 45).

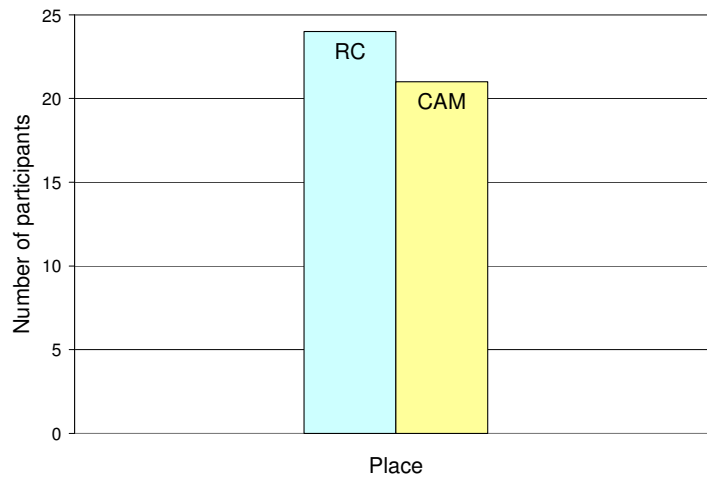


FIGURE IV-44. Presence of geometric order based on number (no.) of participants.



FIGURE IV-45. Presence of geometric order based on percentage (%) of participants.

Spatial Order

A total of 21 participants answered positively (i.e., yes), to the place-making pattern *Spatial Order* being present at the Rothko Chapel. This number represents 87.5% of the total number of questionnaire participants. At the Contemporary Arts Museum, 14 participants answered positively (i.e., yes) to *Spatial Order* being present. This number represents 58.3% of the total number of questionnaire participants (Figures IV-46 and 47).

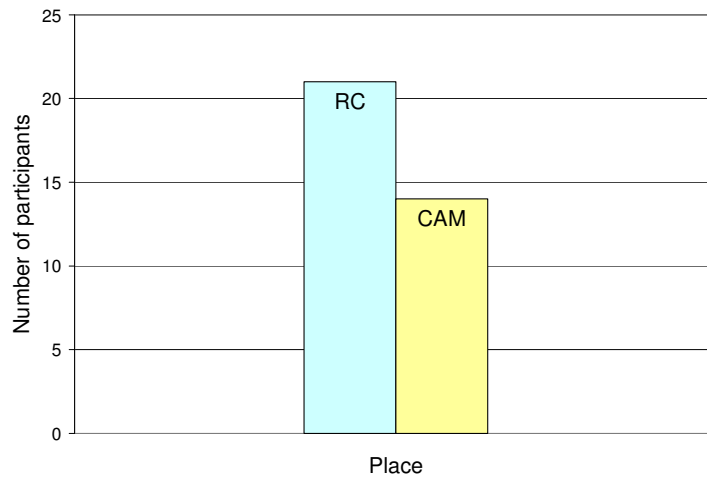


FIGURE IV-46. Presence of spatial order based on number (no.) of participants.

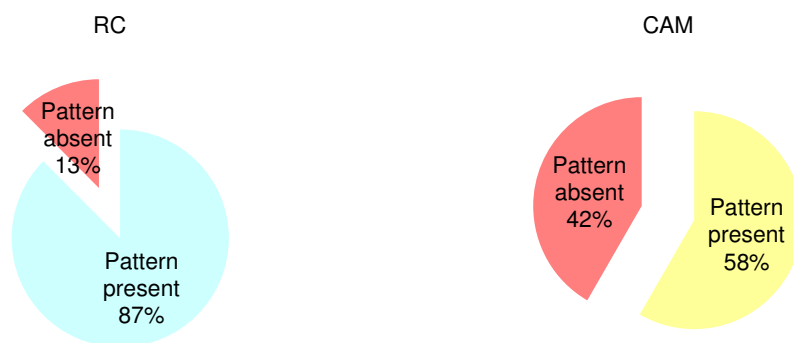


FIGURE IV-47. Presence of spatial order based on percentage (%) of participants.

Anthropomorphic Order

A total of 18 participants answered positively (i.e., yes), to the place-making pattern *Anthropomorphic Order* being present at the Rothko Chapel. This number represents 75% of the total number of questionnaire participants. At the Contemporary Arts Museum, 10 participants answered positively (i.e., yes) to *Anthropomorphic Order* being present. This number represents 41.6% of the total number of questionnaire participants (Figures IV-48 and 49).

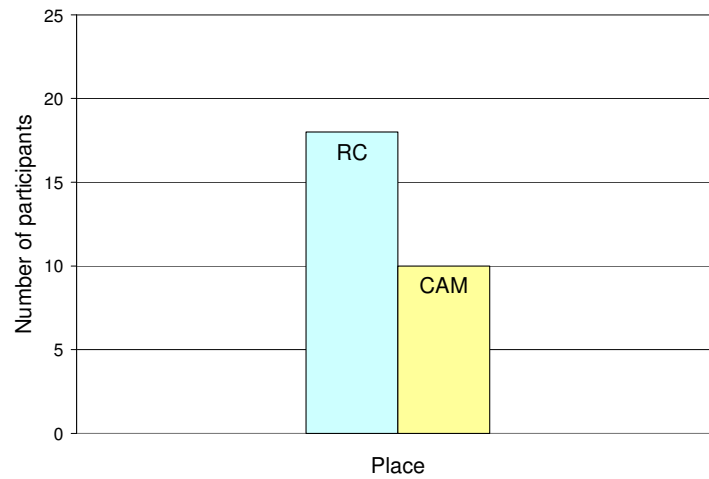


FIGURE IV-48. Presence of anthropomorphic order based on number (no.) of participants.

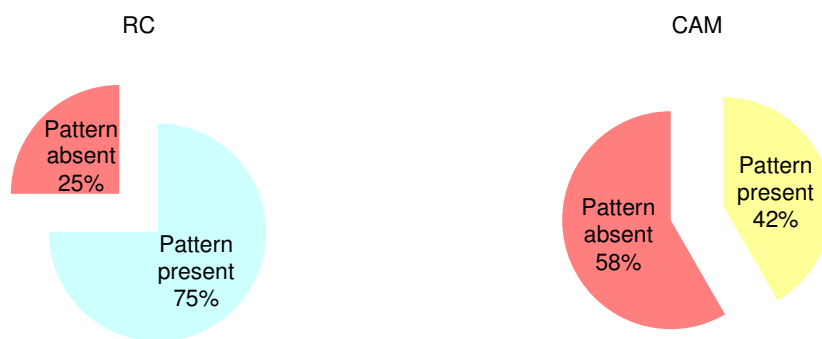


FIGURE IV-49. Presence of anthropomorphic order based on percentage (%) of participants.

Ordered Nature

A total of 23 participants answered positively (i.e., yes), to the place-making pattern *Ordered Nature* being present at the Rothko Chapel. This number represents 95.8% of the total number of questionnaire participants. At the Contemporary Arts Museum, 18 participants answered positively (i.e., yes) to *Ordered Nature* being present. This number represents 75% of the total number of questionnaire participants (Figures IV-50 and 51).

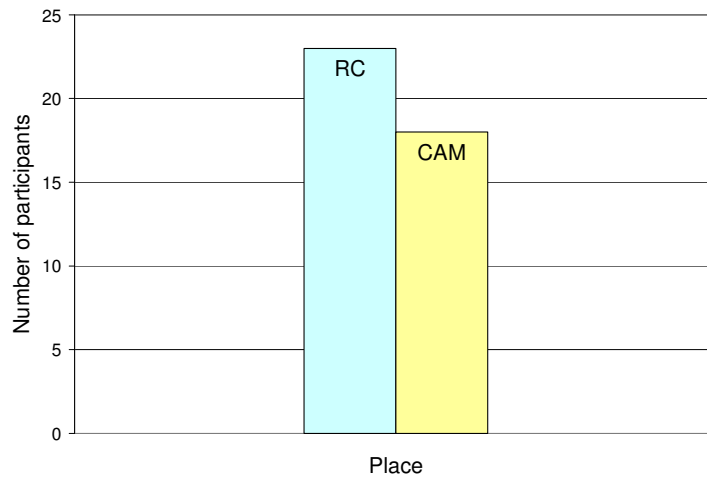


FIGURE IV-50. Presence of ordered nature based on number (no.) of participants.



FIGURE IV-51. Presence of ordered nature based on percentage (%) of participants.

Celestial Order

A total of 21 participants answered positively (i.e., yes), to the place-making pattern *Celestial Order* being present at the Rothko Chapel. This number represents 87.5% of the total number of questionnaire participants. At the Contemporary Arts Museum, 4 participants answered positively (i.e., yes) to *Celestial Order* being present. This number represents 16.6% of the total number of questionnaire participants (Figures IV-52 and 53).

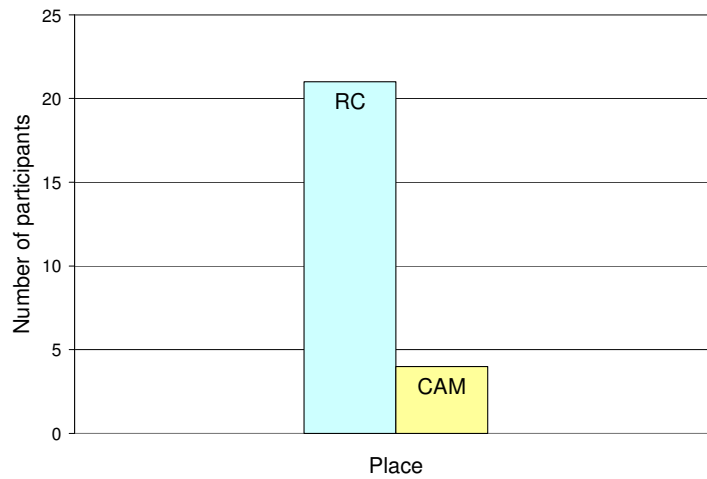


FIGURE IV-52. Presence of celestial order based on number (no.) of participants.

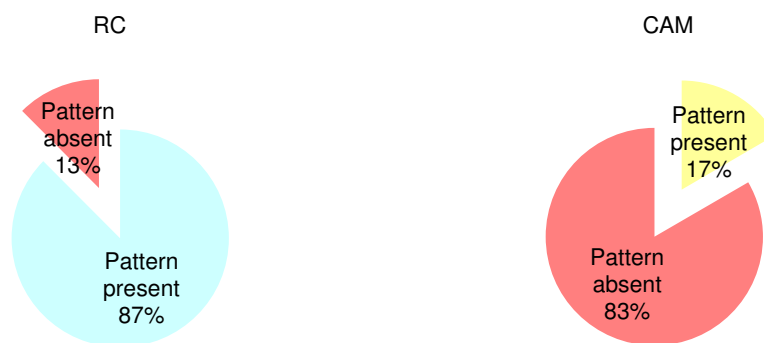


FIGURE IV-53. Presence of celestial order based on percentage (%) of participants.

Differentiating Boundaries

A total of 16 participants answered positively (i.e., yes), to the place-making pattern *Differentiating Boundaries* being present at the Rothko Chapel. This number represents 66.6% of the total number of questionnaire participants. At the Contemporary Arts Museum, 8 participants answered positively (i.e., yes) to *Differentiating Boundaries* being present. This number represents 33.3% of the total number of questionnaire participants (Figures IV-54 and 55).

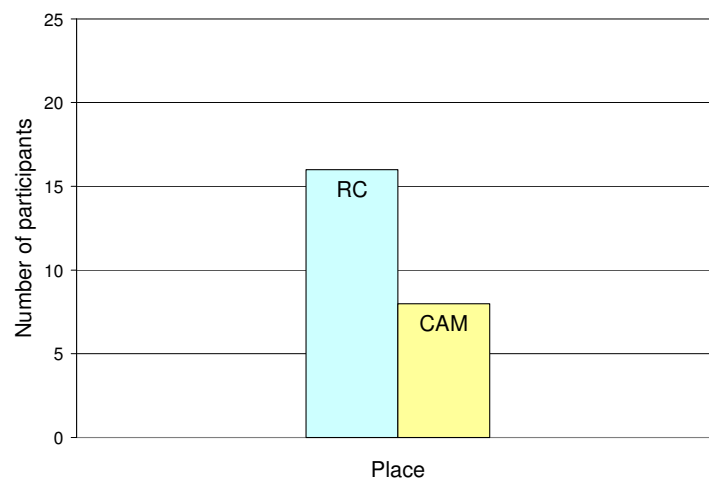


FIGURE IV-54. Presence of differentiating boundaries based on number (no.) of participants.



FIGURE IV-55. Presence of differentiating boundaries based on percentage (%) of participants.

Ordered Views

A total of 20 participants answered positively (i.e., yes), to the place-making pattern *Ordered Views* being present at the Rothko Chapel. This number represents 83.3% of the total number of questionnaire participants. At the Contemporary Arts Museum, 16 participants answered positively (i.e., yes) to *Ordered Views* being present. This number represents 66.6% of the total number of questionnaire participants (Figures IV-56 and 57).

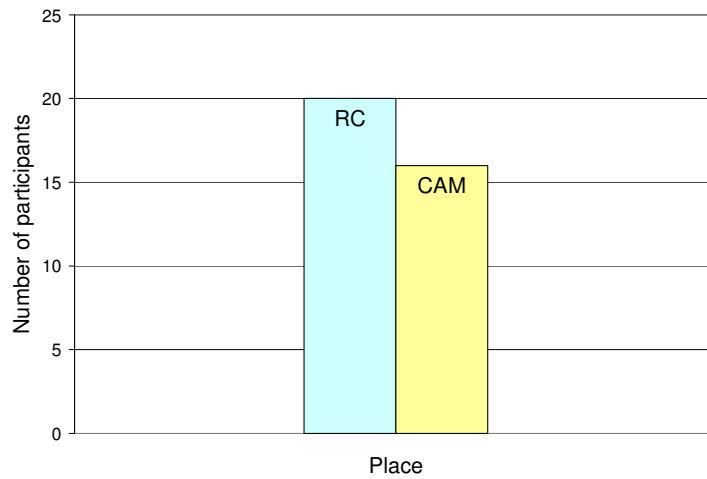


FIGURE IV-56. Presence of ordered views based on number (no.) of participants.

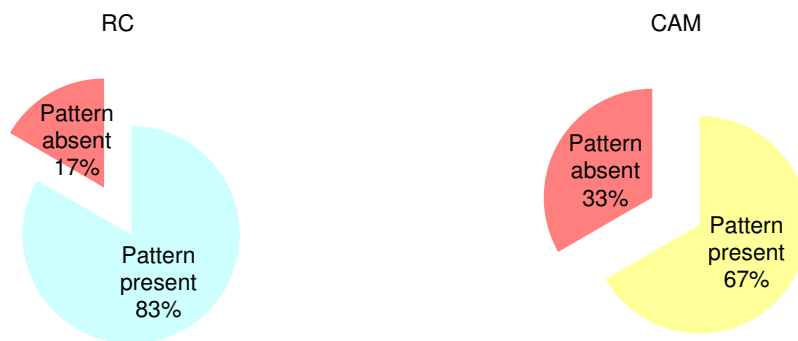


FIGURE IV-57. Presence of ordered views based on percentage (%) of participants.

Materiality

A total of 24 participants answered positively (i.e., yes), to the place-making pattern *Materiality* being present at the Rothko Chapel. This number represents 100% of the total number of questionnaire participants. At the Contemporary Arts Museum, 22 participants answered positively (i.e., yes) to *Materiality* being present. This number represents 91.6% of the total number of questionnaire participants (Figures IV-58 and 59).

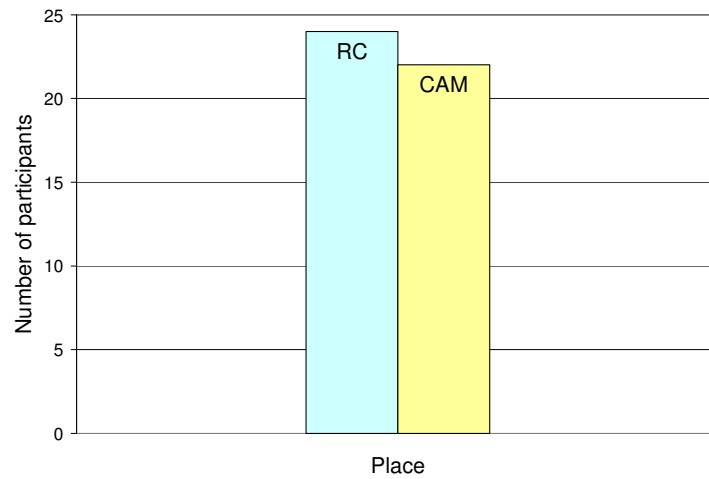


FIGURE IV-58. Presence of materiality based on number (no.) of participants.



FIGURE IV-59. Presence of materiality based on percentage (%) of participants.

Elementals

A total of 22 participants answered positively (i.e., yes), to the place-making pattern *Elementals* being present at the Rothko Chapel. This number represents 91.6% of the total number of questionnaire participants. At the Contemporary Arts Museum, 16 participants answered positively (i.e., yes) to *Elementals* being present. This number represents 66.6% of the total number of questionnaire participants (Figures IV-60 and 61).

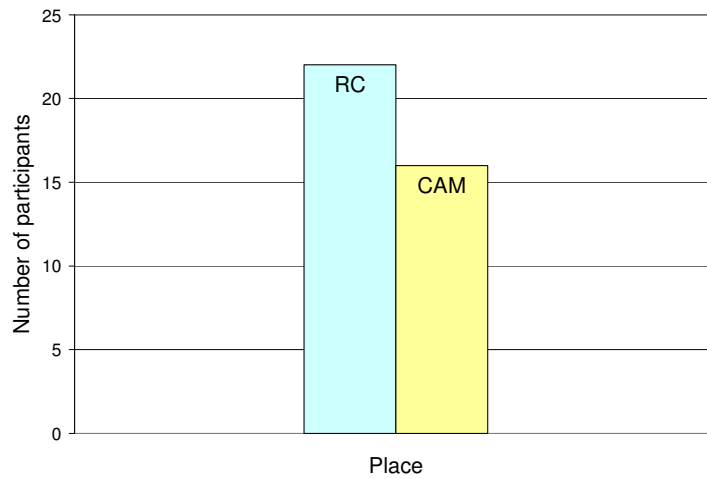


FIGURE IV-60. Presence of elementals based on number (no.) of participants.

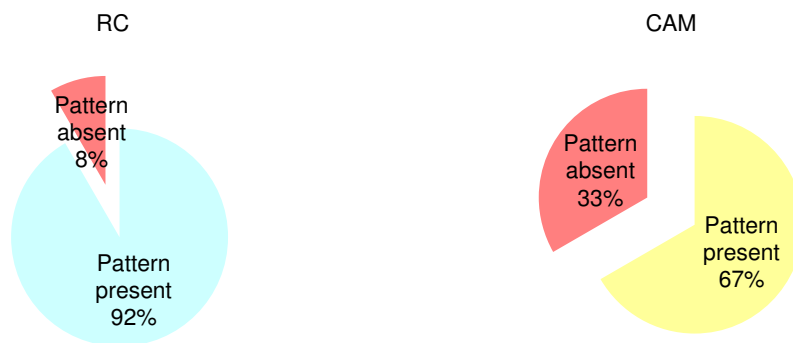


FIGURE IV-61. Presence of elementals based on percentage (%) of participants.

Light

A total of 24 participants answered positively (i.e., yes), to the place-making pattern *Light* being present at the Rothko Chapel. This number represents 100% of the total number of questionnaire participants. At the Contemporary Arts Museum, 15 participants answered positively (i.e., yes) to *Light* being present. This number represents 62.5% of the total number of questionnaire participants (Figures IV-62 and 63).

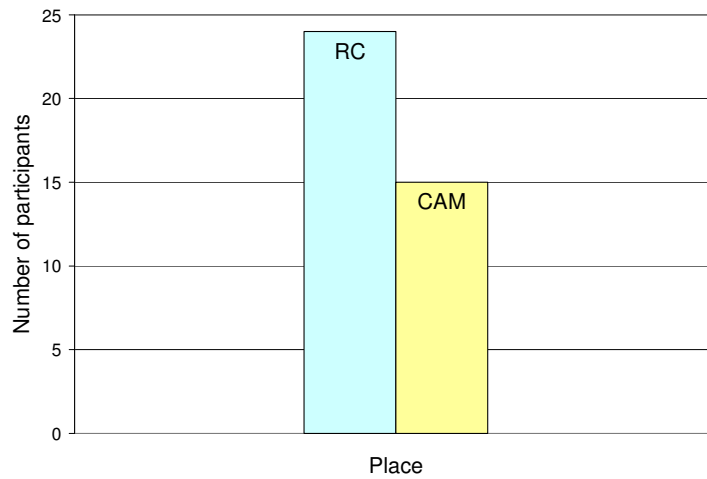


FIGURE IV-62. Presence of light based on number (no.) of participants.

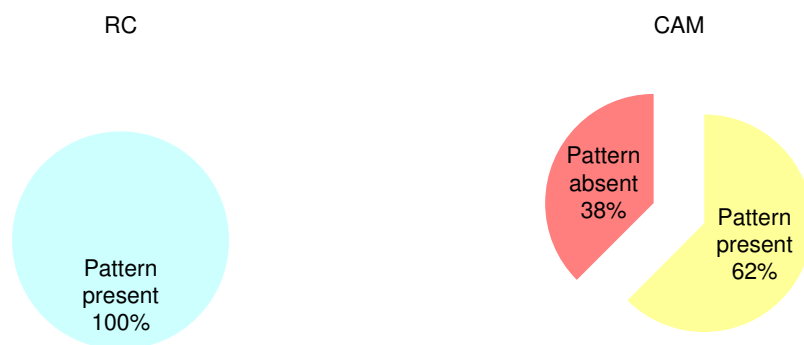


FIGURE IV-63. Presence of light based on percentage (%) of participants.

Ceremonial Order

A total of 24 participants answered positively (i.e., yes), to the place-making pattern *Ceremonial Order* being present at the Rothko Chapel. This number represents 100% of the total number of questionnaire participants. At the Contemporary Arts Museum, 6 participants answered positively (i.e., yes) to *Ceremonial Order* being present. This number represents 25% of the total number of questionnaire participants (Figures IV-64 and 65).

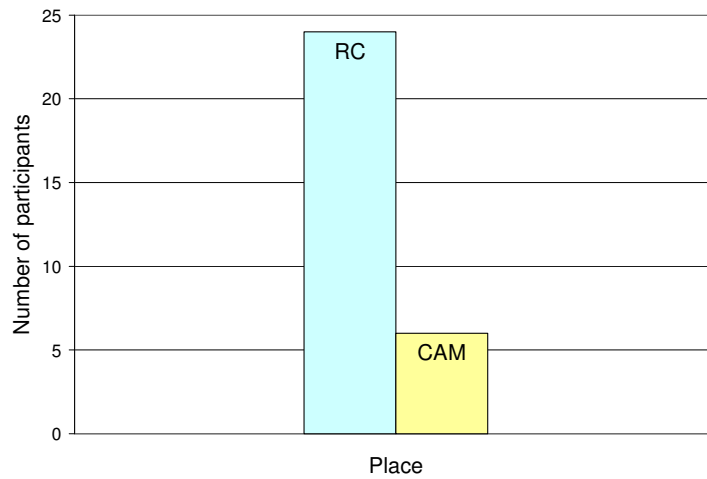


FIGURE IV-64. Presence of ceremonial order based on number (no.) of participants.



FIGURE IV-65. Presence of ceremonial order based on percentage (%) of participants.

Based on the opinion of questionnaire participants, the presence of the place-making patterns at the Rothko Chapel is shown in Figure IV-66. The presence of individual place-making patterns displayed in the figure is based on the percentage of participants that answered positively (i.e., yes), to the patterns being present at Rothko Chapel. The presence of individual place-making patterns (based on the percentage of participants that answered positively – yes, to the patterns being present at Rothko Chapel) can be arranged in hierarchical order as follows: 1) Bounding, Geometric Order, Materiality, Light, and Ceremonial Order; 2) Center and Ordered Nature; 3) Ascent and Elementals; 4) Spatial Order and Celestial Order; 5) Passage, Numeric Order, and Ordered Views; 6) Anthropomorphic Order; 7) Direction; 8) Descent and Differentiating Boundaries.

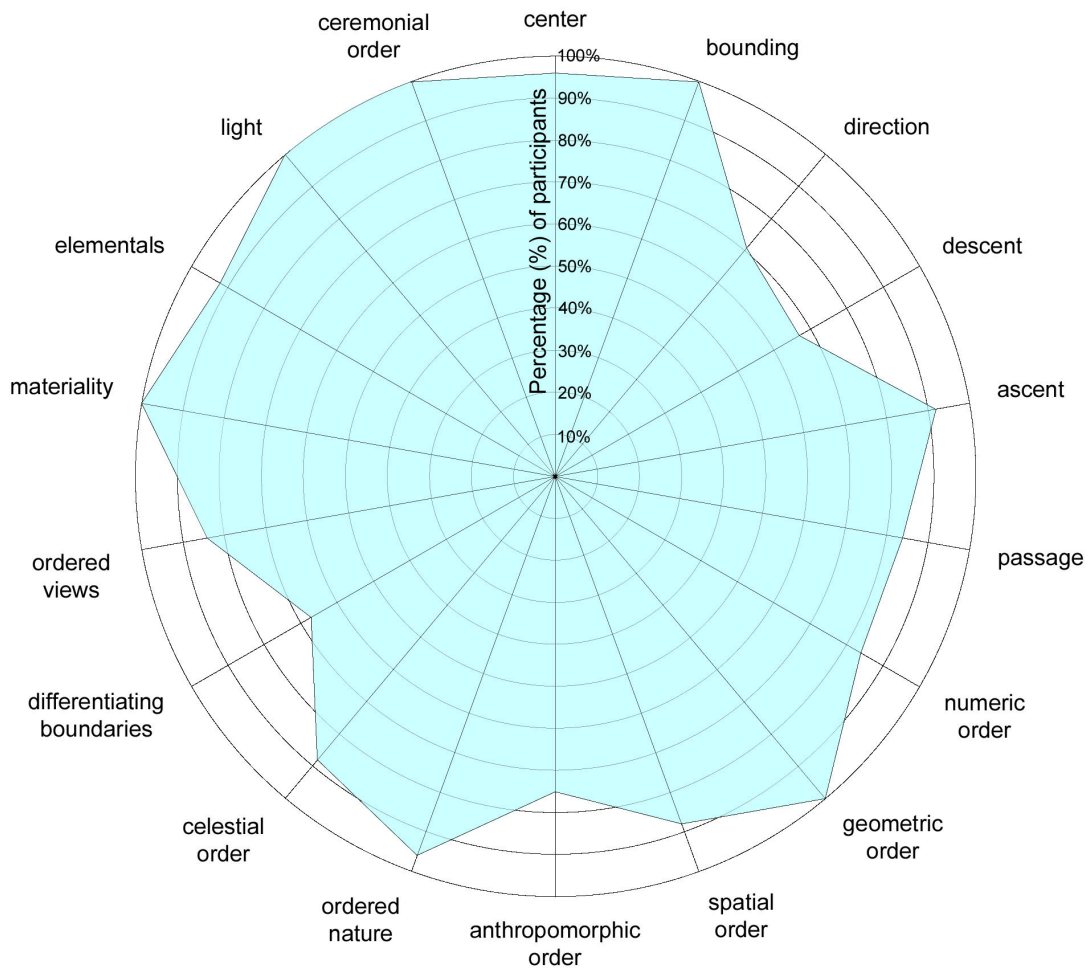


FIGURE IV-66. Presence of patterns at Rothko Chapel.

Based on the opinion of questionnaire participants, the presence of the place-making patterns at the Contemporary Arts Museum is shown in Figure IV-67. The presence of individual place-making patterns displayed in the figure is based on the percentage of participants that answered positively (i.e., yes), to the patterns being present at Contemporary Arts Museum. The presence of individual place-making patterns (based on the percentage of participants that answered positively – yes, to the patterns being present at the Contemporary Arts Museum) can be arranged in hierarchical order as follows: 1) Materiality; 2) Geometric Order; 3) Bounding; 4) Ordered Nature; 5) Descent, Ordered Views, and Elementals; 6) Light; 7) Ascent, Passage, Numeric Order, and Spatial Order; 8) Anthropomorphic Order; 9) Direction and Differentiating Boundaries; 10) Center and Ceremonial Order; 11) Celestial Order.

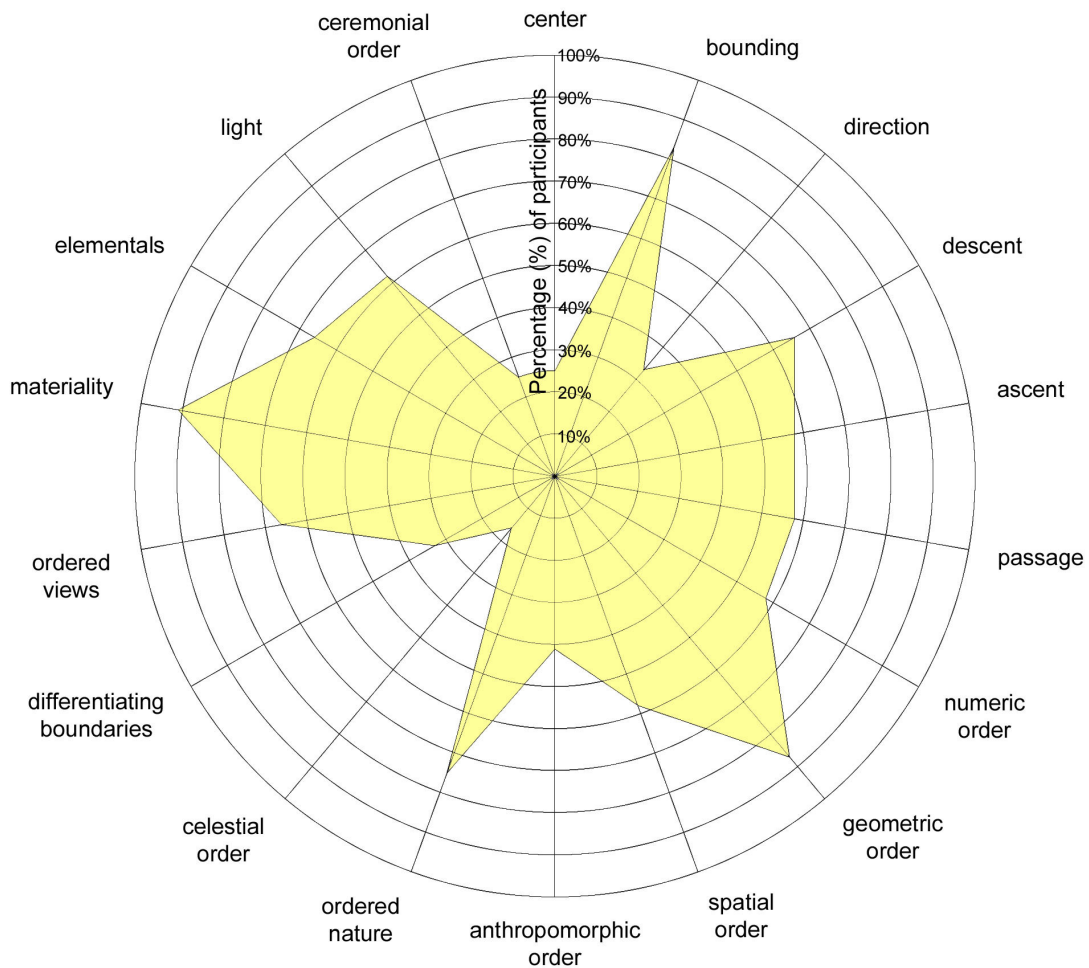


FIGURE IV-67. Presence of patterns at Contemporary Arts Museum.

Greater area coverage in Figure IV-66 (presence of place-making patterns at the Rothko Chapel) as compared to the area coverage in Figure IV-67 (presence of place-making patterns at the Contemporary Arts Museum) indicates that a greater number of participants were aware of the presence of the place-making patterns at the Rothko Chapel than at the contemporary Arts Museum.

4.4.2 Assessment of Pattern Quality at Selected Buildings

The quality of expression of individual place-making patterns from the CPPS for both the sacred and secular places, is shown in Table IV-4. The column under *Pattern list* displays individual place-making patterns. Three columns – *Number (no.)*, *Score* and *Mean* are shown under Rothko Chapel and Contemporary Arts Museum, each. The column under Number (no.) shows the total number of participants that answered positively (i.e., yes), to individual place-making patterns being present at the specified settings. The column under Score shows the sum of all values (scored on the 5 point scale for pattern quality) assigned by participants that answered positively (i.e., yes), to individual place-making patterns being present at the specified settings. The column under Mean represents the mean of the score for individual place-making patterns (i.e., score divided by number of participants that answered positively (i.e., yes), to that pattern being present at the specified settings).

TABLE IV-4. Number of questionnaire participants who agreed that place-making patterns from the CPPS were present, total and mean scores regarding the quality of expression of place-making patterns at the sacred and secular buildings.

Pattern list	Rothko Chapel			Contemporary Arts Museum		
	Number (no.)	Score	Mean	Number (no.)	Score	Mean
Center	23	100	4.34	6	15	2.5
Bounding	24	114	4.75	20	61	3.05
Direction	17	64	3.76	8	27	3.37
Descent	16	64	4.0	16	43	2.68
Ascent	22	97	4.4	14	38	2.71
Passage	20	77	3.85	14	49	3.5
Numeric Order	20	88	4.4	14	41	2.92
Geometric Order	24	110	4.58	21	73	3.47
Spatial Order	21	87	4.14	14	38	2.71
Anthropomorphic Order	18	64	3.55	10	19	1.9
Ordered Nature	23	94	4.08	18	37	2.05
Celestial Order	21	82	3.9	4	8	2.0
Differentiating Boundaries	16	53	3.31	8	19	2.37
Ordered Views	20	97	4.85	16	47	2.93
Materiality	24	98	4.08	22	73	3.31
Elementals	22	86	3.9	16	36	2.25
Light	24	109	4.54	15	34	2.26
Ceremonial Order	24	109	4.54	6	18	3.0

The difference in quality of expression of individual place-making patterns between the sacred and secular places has been compared in the bar charts that follow. Two bar charts for each place-making pattern – one based on the score and one based on the mean - compare the quality of expression of individual place-making patterns between the sacred and secular places. In both charts, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

Center

The quality of expression of the place-making pattern *Center* at the Rothko Chapel was scored at 100. This score, when divided by 23 (i.e., 23 participants answered positively - yes, to *Center* being present at the Rothko Chapel), yields a mean of 4.34. At the Contemporary Arts Museum, the quality of expression of *Center* was scored at 15. This score, when divided by 6 (i.e., 6 participants answered positively - yes, to *Center* being present at the Contemporary Arts Museum), yields a mean of 2.5 (Figures IV-68 and 69).

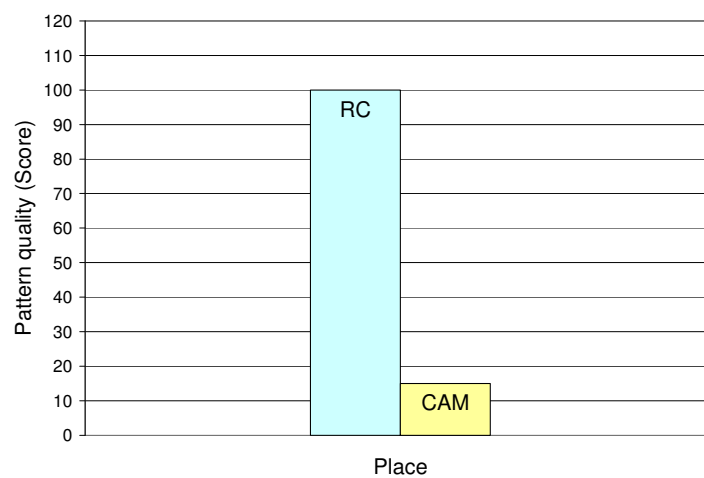


FIGURE IV-68. Quality of expression of center based on score.

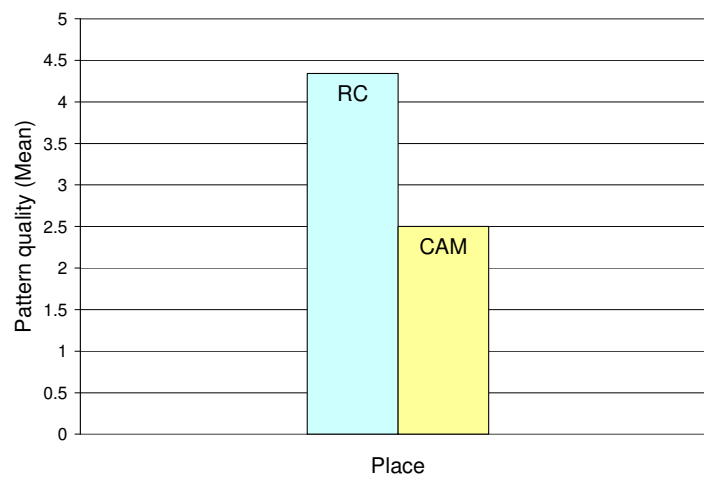


FIGURE IV-69. Quality of expression of center based on mean.

Bounding

The quality of expression of the place-making pattern *Bounding* at the Rothko Chapel was scored at 114. This score, when divided by 24 (i.e., 24 participants answered positively - yes, to *Bounding* being present at the Rothko Chapel), yields a mean of 4.75. At the Contemporary Arts Museum, the quality of expression of *Bounding* was scored at 61. This score, when divided by 20 (i.e., 20 participants answered positively - yes, to *Bounding* being present at the Contemporary Arts Museum), yields a mean of 3.05 (Figures IV-70 and 71).

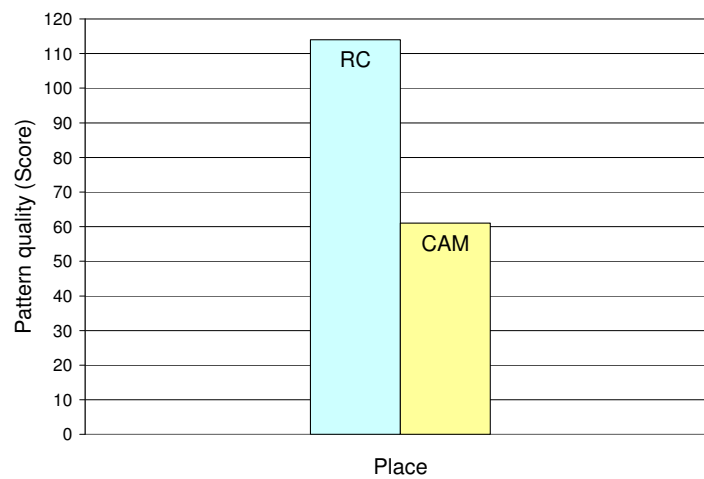


FIGURE IV-70. Quality of expression of bounding based on score.

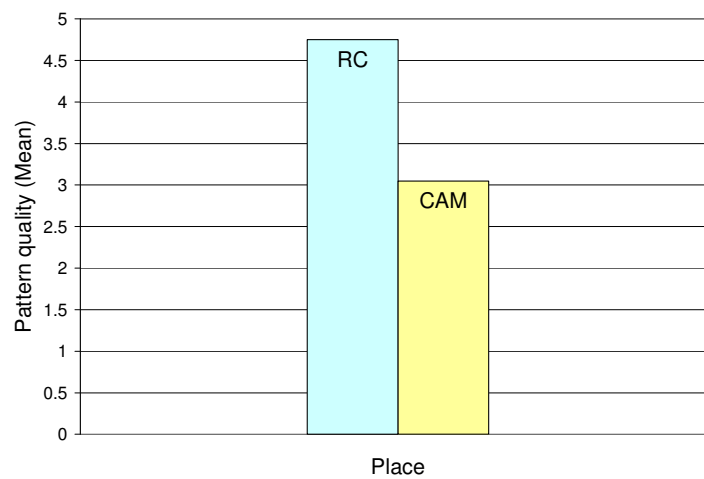


FIGURE IV-71. Quality of expression of bounding based on mean.

Direction

The quality of expression of the place-making pattern *Direction* at the Rothko Chapel was scored at 64. This score, when divided by 17 (i.e., 17 participants answered positively - yes, to *Direction* being present at the Rothko Chapel), yields a mean of 3.76. At the Contemporary Arts Museum, the quality of expression of *Direction* was scored at 27. This score, when divided by 8 (i.e., 8 participants answered positively - yes, to *Direction* being present at the Contemporary Arts Museum), yields a mean of 3.37 (Figures IV-72 and 73).

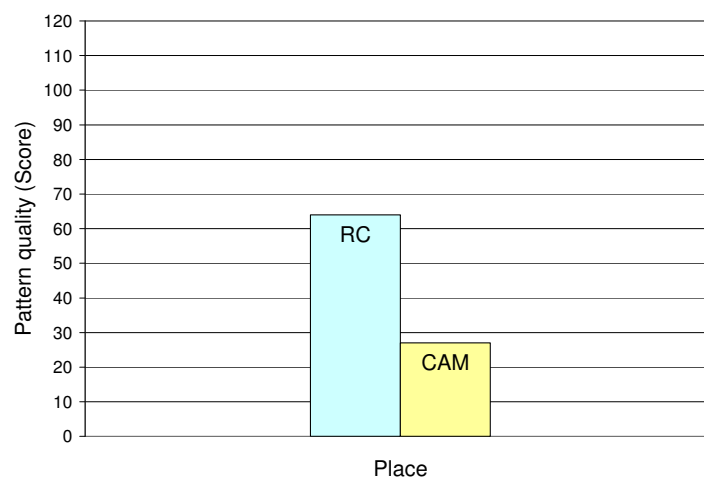


FIGURE IV-72. Quality of expression of direction based on score.

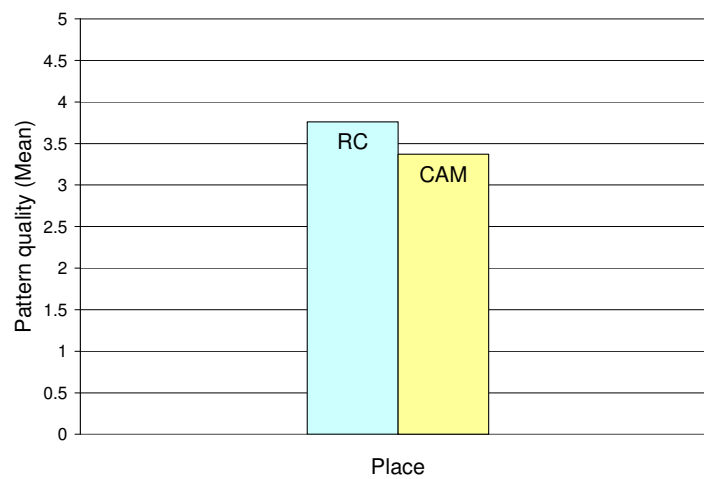


FIGURE IV-73. Quality of expression of direction based on mean.

Descent

The quality of expression of the place-making pattern *Descent* at the Rothko Chapel was scored at 64. This score, when divided by 16 (i.e., 16 participants answered positively - yes, to *Descent* being present at the Rothko Chapel), yields a mean of 4.0. At the Contemporary Arts Museum, the quality of expression of *Descent* was scored at 43. This score, when divided by 16 (i.e., 16 participants answered positively - yes, to *Descent* being present at the Contemporary Arts Museum), yields a mean of 2.68 (Figures IV-74 and 75).

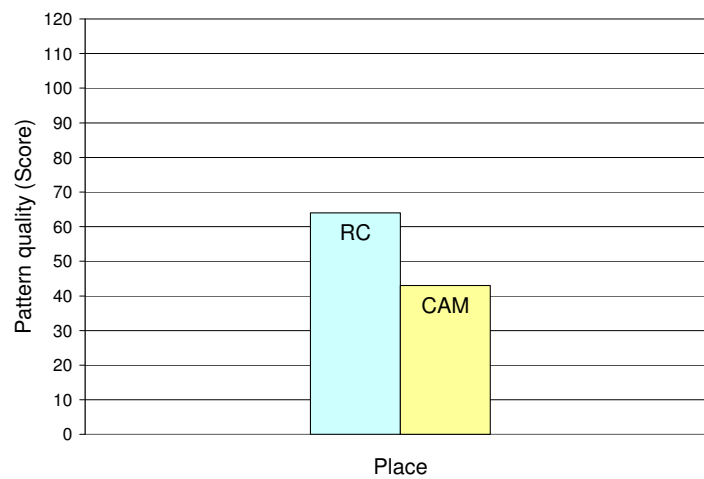


FIGURE IV-74. Quality of expression of descent based on score.

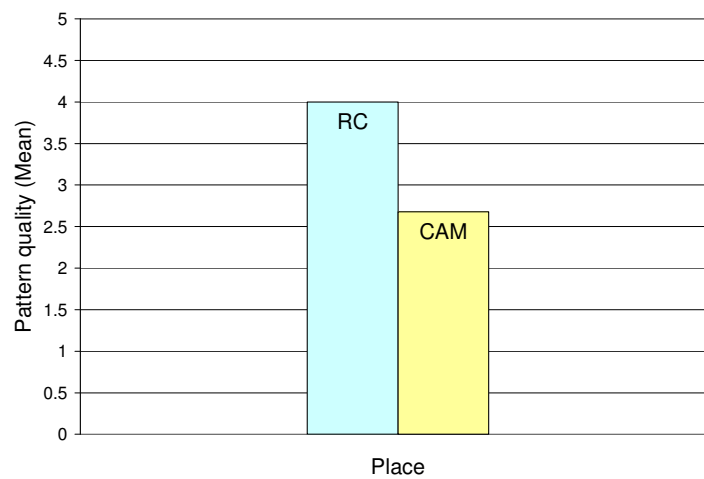


FIGURE IV-75. Quality of expression of descent based on mean.

Ascent

The quality of expression of the place-making pattern *Ascent* at the Rothko Chapel was scored at 97. This score, when divided by 22 (i.e., 22 participants answered positively - yes, to *Ascent* being present at the Rothko Chapel), yields a mean of 4.4. At the Contemporary Arts Museum, the quality of expression of *Ascent* was scored at 38. This score, when divided by 14 (i.e., 14 participants answered positively - yes, to *Ascent* being present at the Contemporary Arts Museum), yields a mean of 2.71 (Figures IV-76 and 77).

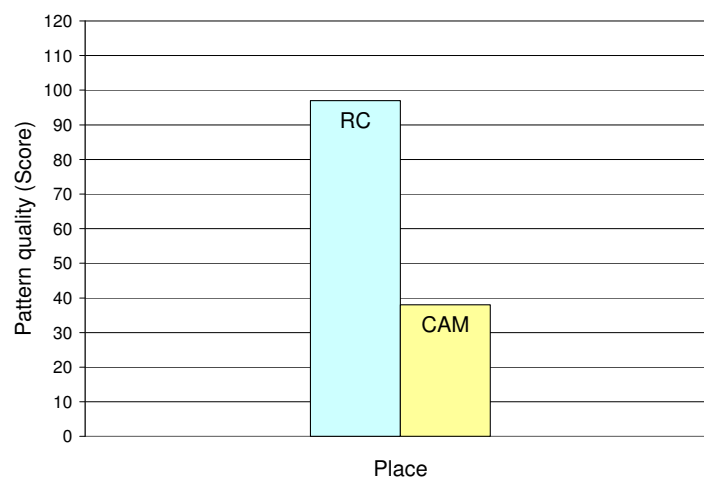


FIGURE IV-76. Quality of expression of ascent based on score.

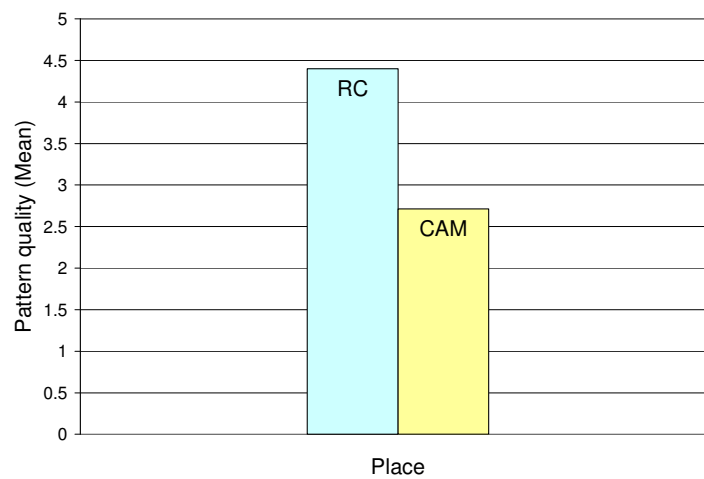


FIGURE IV-77. Quality of expression of ascent based on mean.

Passage

The quality of expression of the place-making pattern *Passage* at the Rothko Chapel was scored at 77. This score, when divided by 20 (i.e., 20 participants answered positively - yes, to *Passage* being present at the Rothko Chapel), yields a mean of 3.85. At the Contemporary Arts Museum, the quality of expression of *Passage* was scored at 49. This score, when divided by 14 (i.e., 14 participants answered positively - yes, to *Passage* being present at the Contemporary Arts Museum), yields a mean of 3.5 (Figures IV-78 and 79).

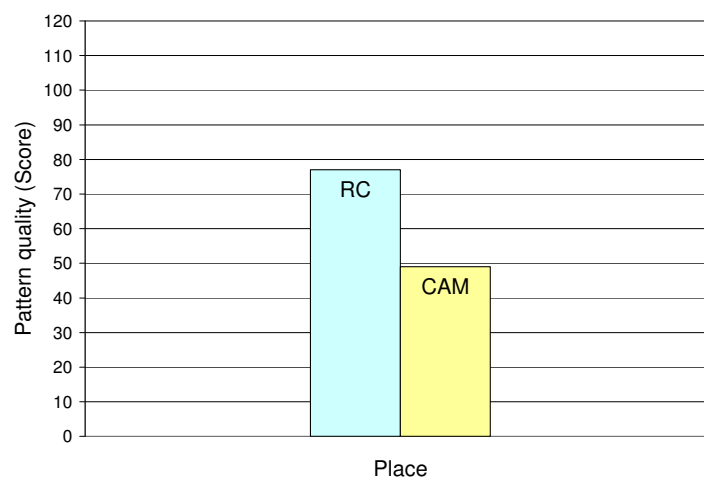


FIGURE IV-78. Quality of expression of passage based on score.

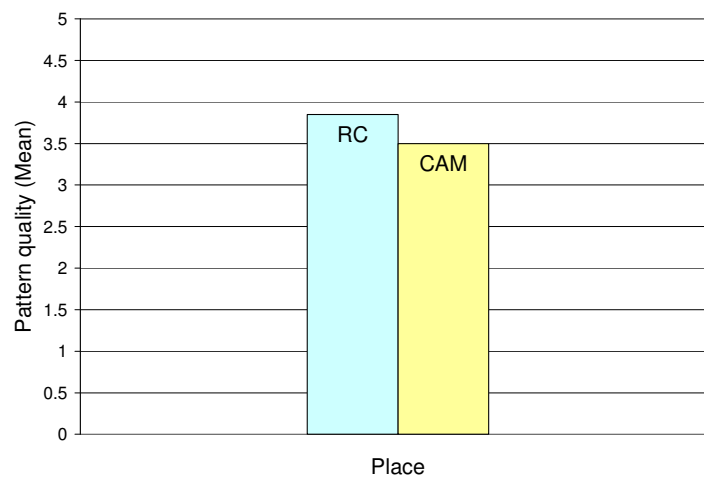


FIGURE IV-79. Quality of expression of passage based on mean.

Numeric Order

The quality of expression of the place-making pattern *Numeric Order* at the Rothko Chapel was scored at 88. This score, when divided by 20 (i.e., 20 participants answered positively - yes, to *Numeric Order* being present at the Rothko Chapel), yields a mean of 4.4. At the Contemporary Arts Museum, the quality of expression of *Numeric Order* was scored at 41. This score, when divided by 14 (i.e., 14 participants answered positively - yes, to *Numeric Order* being present at the Contemporary Arts Museum), yields a mean of 2.92 (Figures IV-80 and 81).

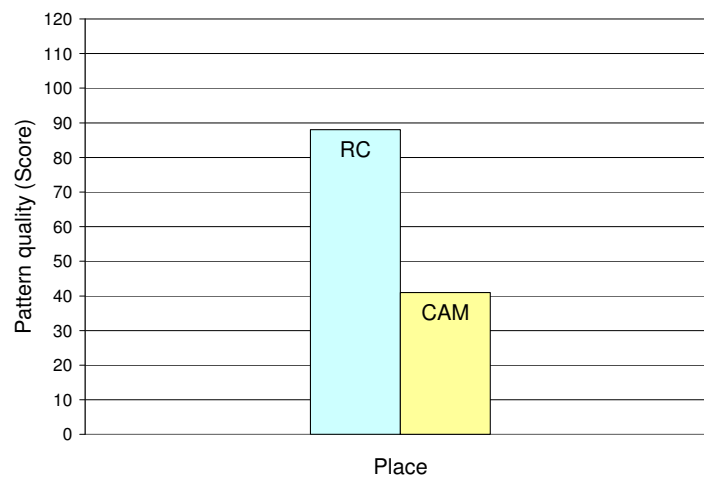


FIGURE IV-80. Quality of expression of numeric order based on score.

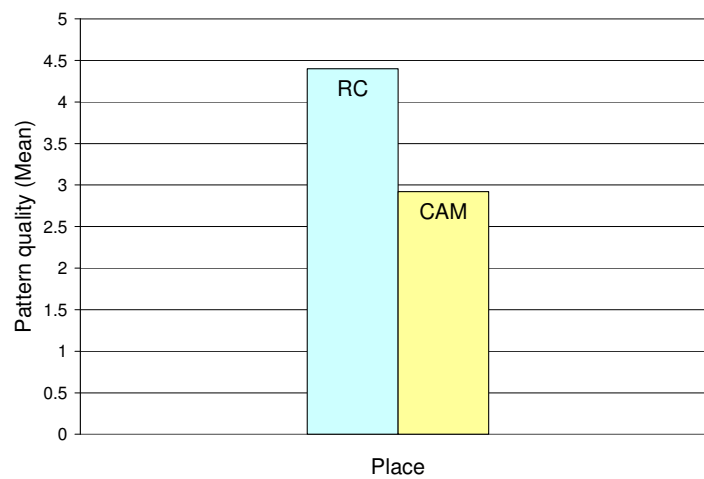


FIGURE IV-81. Quality of expression of numeric order based on mean.

Geometric Order

The quality of expression of the place-making pattern *Geometric Order* at Rothko Chapel was scored at 110. This score, when divided by 24 (i.e., 24 participants answered positively - yes, to *Geometric Order* being present at Rothko Chapel), yields a mean of 4.58. At the Contemporary Arts Museum, the quality of expression of *Geometric Order* was scored at 73. This score, when divided by 21 (i.e., 21 participants answered positively - yes, to *Geometric Order* being present at the Contemporary Arts Museum), yields a mean of 3.47 (Figures IV-82 and 83).

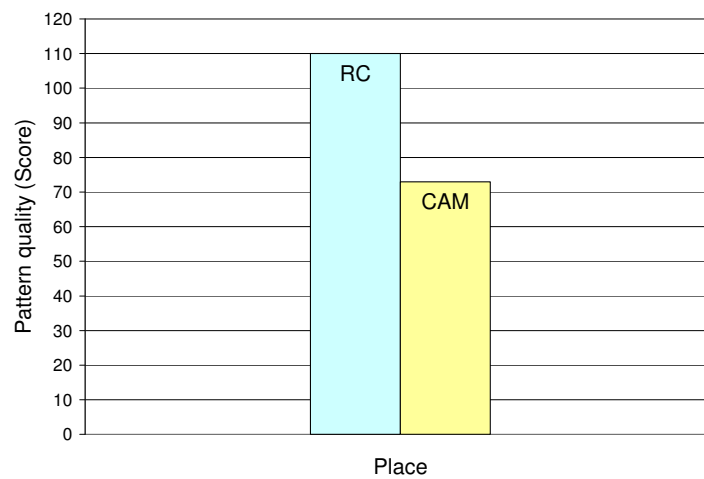


FIGURE IV-82. Quality of expression of geometric order based on score.

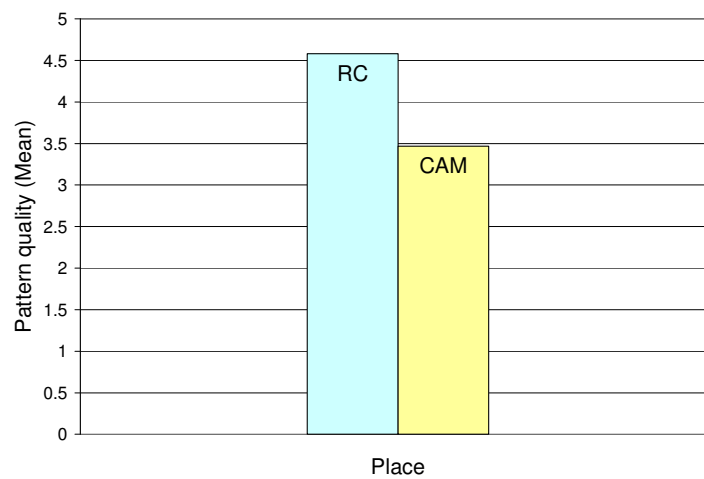


FIGURE IV-83. Quality of expression of geometric order based on mean.

Spatial Order

The quality of expression of the place-making pattern *Spatial Order* at the Rothko Chapel was scored at 87. This score, when divided by 21 (i.e., 21 participants answered positively - yes, to *Spatial Order* being present at the Rothko Chapel), yields a mean of 4.14. At the Contemporary Arts Museum, the quality of expression of *Spatial Order* was scored at 38. This score, when divided by 14 (i.e., 14 participants answered positively - yes, to *Spatial Order* being present at the Contemporary Arts Museum), yields a mean of 2.71 (Figures IV-84 and 85).

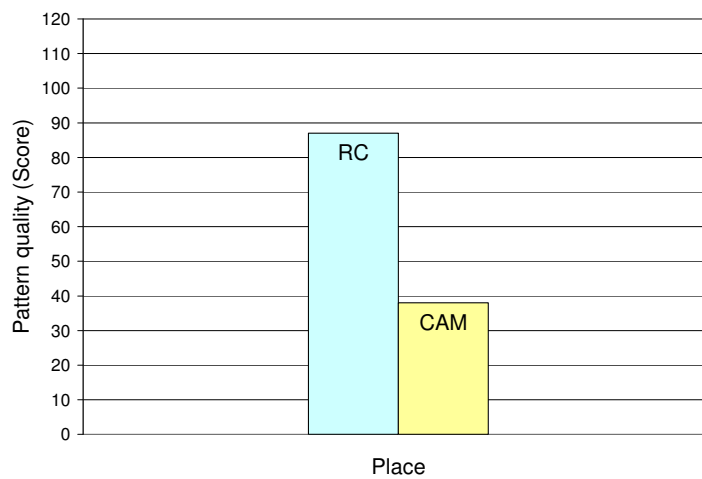


FIGURE IV-84. Quality of expression of spatial order based on score.

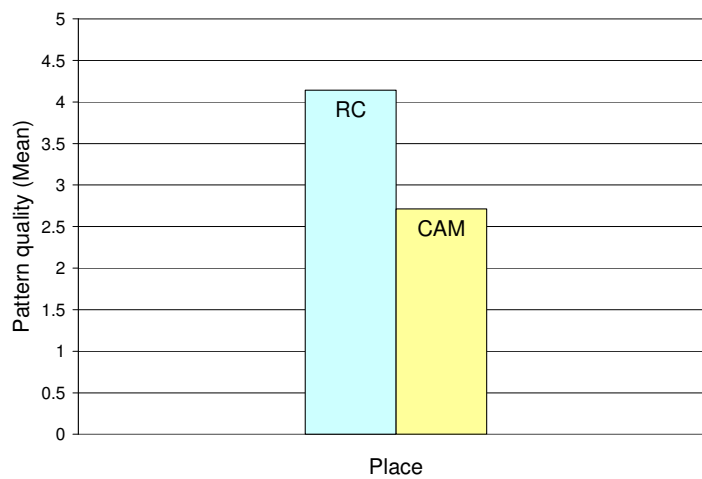


FIGURE IV-85. Quality of expression of spatial order based on mean.

Anthropomorphic Order

The quality of expression of *Anthropomorphic Order* at Rothko Chapel was scored at 64. This score, when divided by 18 (i.e., 18 participants answered positively - yes, to *Anthropomorphic Order* being present at Rothko Chapel), yields a mean of 3.55. At Contemporary Arts Museum, the quality of expression of *Anthropomorphic Order* was scored at 19. This score, when divided by 10 (i.e., 10 participants answered positively - yes, to *Anthropomorphic Order* being present at Contemporary Arts Museum), yields a mean of 1.9 (Figures IV-86 and 87).

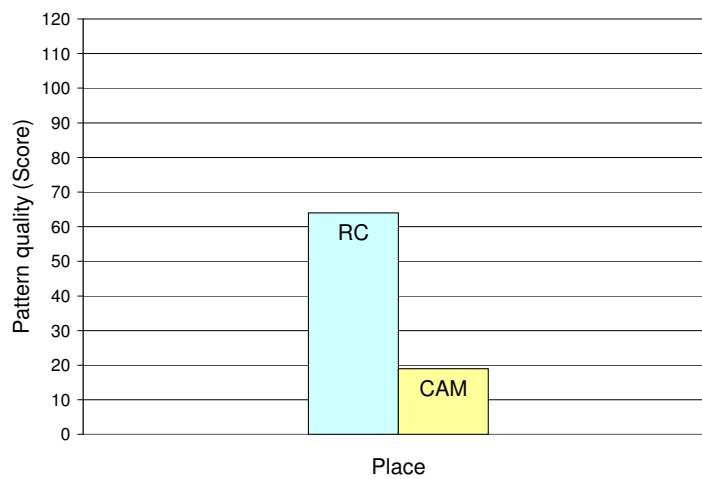


FIGURE IV-86. Quality of expression of anthropomorphic order based on score.

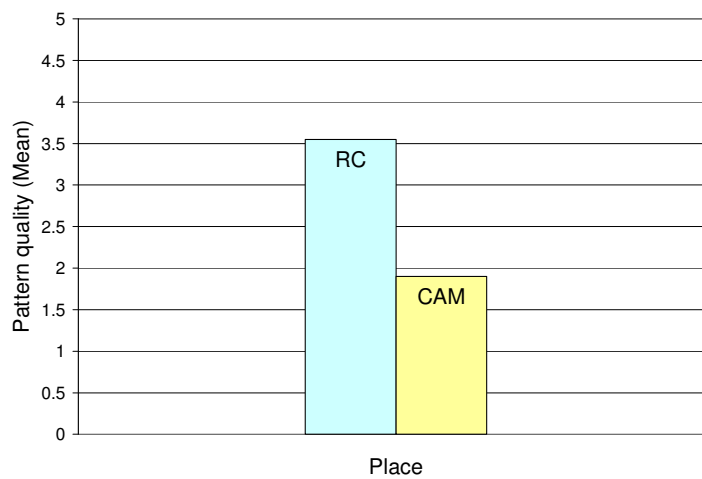


FIGURE IV-87. Quality of expression of anthropomorphic order based on mean.

Ordered Nature

The quality of expression of the place-making pattern *Ordered Nature* at the Rothko Chapel was scored at 94. This score, when divided by 23 (i.e., 23 participants answered positively - yes, to *Ordered Nature* being present at the Rothko Chapel), yields a mean of 4.08. At the Contemporary Arts Museum, the quality of expression of *Ordered Nature* was scored at 37. This score, when divided by 18 (i.e., 18 participants answered positively - yes, to *Ordered Nature* being present at the Contemporary Arts Museum), yields a mean of 2.05 (Figures IV-88 and 89).

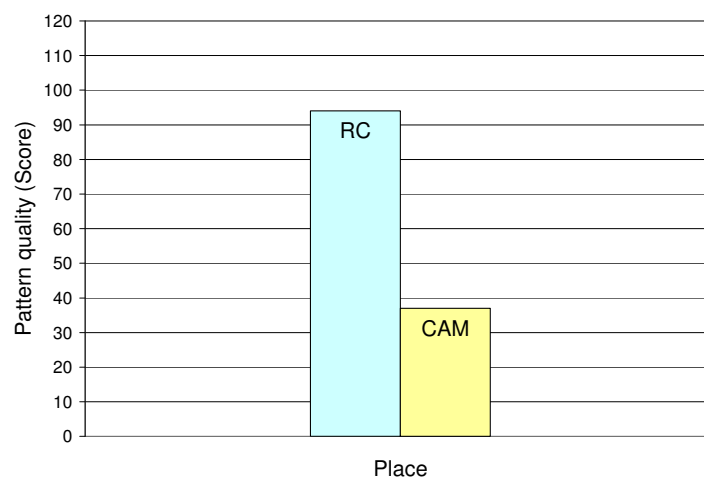


FIGURE IV-88. Quality of expression of ordered nature based on score.

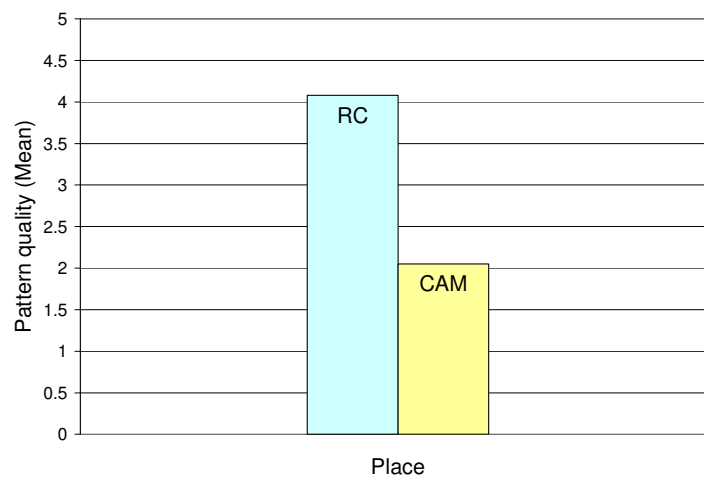


FIGURE IV-89. Quality of expression of ordered nature based on mean.

Celestial Order

The quality of expression of the place-making pattern *Celestial Order* at the Rothko Chapel was scored at 82. This score, when divided by 21 (i.e., 21 participants answered positively - yes, to *Celestial Order* being present at the Rothko Chapel), yields a mean of 3.9. At the Contemporary Arts Museum, the quality of expression of *Celestial Order* was scored at 8. This score, when divided by 4 (i.e., 4 participants answered positively - yes, to *Celestial Order* being present at the Contemporary Arts Museum), yields a mean of 2.0 (Figures IV-90 and 91).

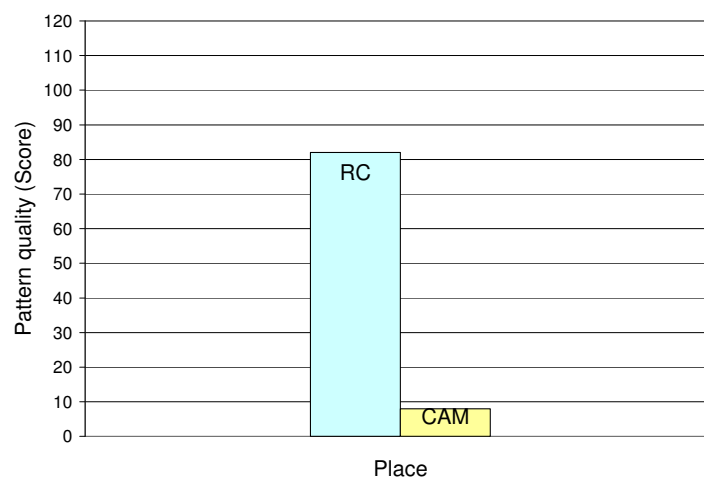


FIGURE IV-90. Quality of expression of celestial order based on score.

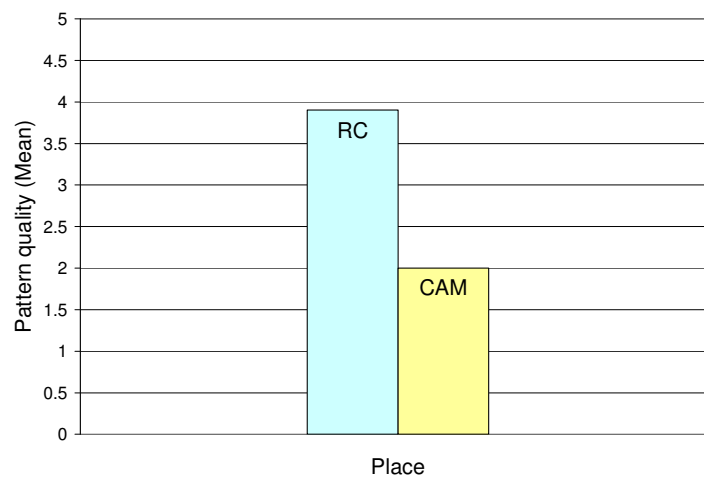


FIGURE IV-91. Quality of expression of celestial order based on mean.

Differentiating Boundaries

The quality of expression of *Differentiating Boundaries* at Rothko Chapel was scored at 53. This score, when divided by 16 (i.e., 16 participants answered positively - yes, to *Differentiating Boundaries* being present at Rothko Chapel), yields a mean of 3.31. At Contemporary Arts Museum, the quality of expression of *Differentiating Boundaries* was scored at 19. This score, when divided by 8 (i.e., 8 participants answered positively - yes, to *Differentiating Boundaries* being present at Contemporary Arts Museum), yields a mean of 2.37 (Figures IV-92 and 93).

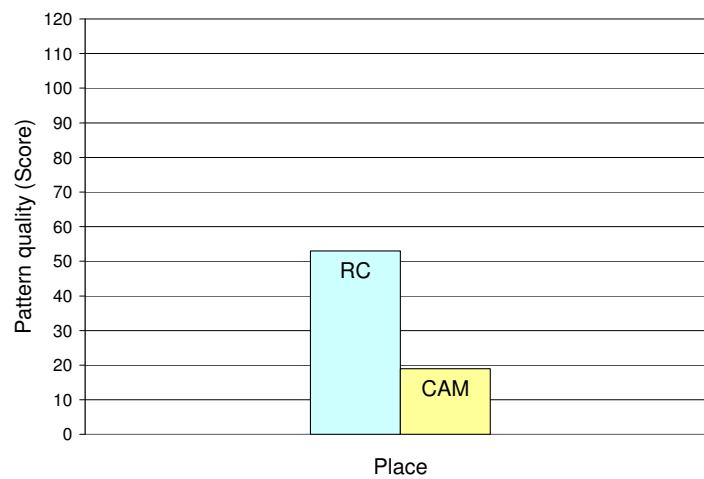


FIGURE IV-92. Quality of expression of differentiating boundaries based on score.

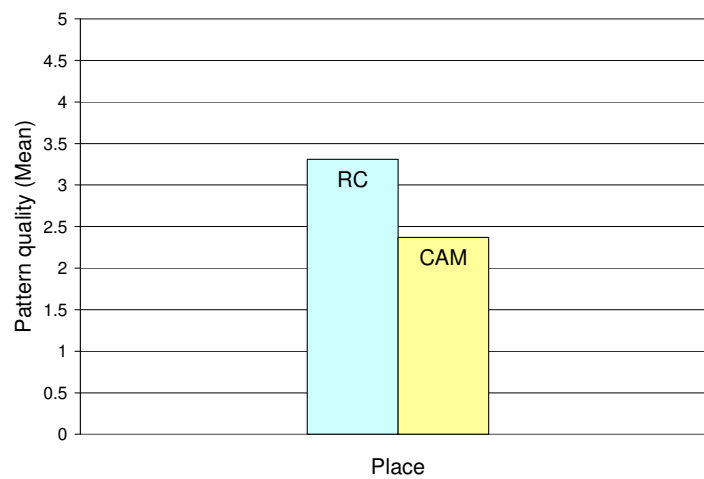


FIGURE IV-93. Quality of expression of differentiating boundaries based on mean.

Ordered Views

The quality of expression of the place-making pattern *Ordered Views* at the Rothko Chapel was scored at 97. This score, when divided by 20 (i.e., 20 participants answered positively - yes, to *Ordered Views* being present at the Rothko Chapel), yields a mean of 4.85. At the Contemporary Arts Museum, the quality of expression of *Ordered Views* was scored at 47. This score, when divided by 16 (i.e., 16 participants answered positively - yes, to *Ordered Views* being present at the Contemporary Arts Museum), yields a mean of 2.93 (Figures IV-94 and 95).

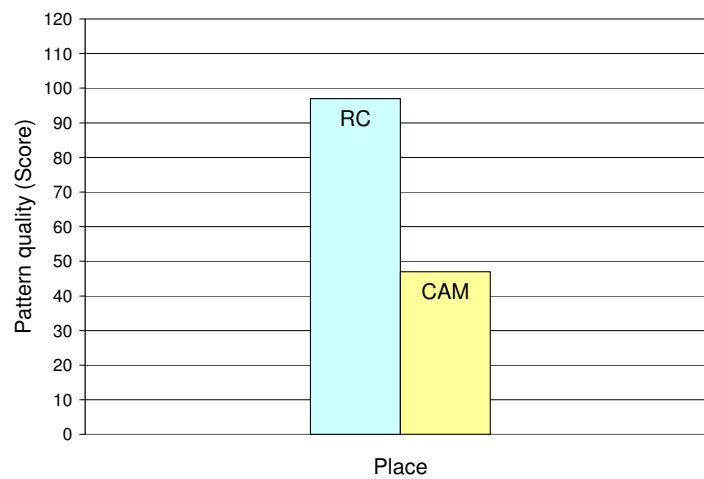


FIGURE IV-94. Quality of expression of ordered views based on score.

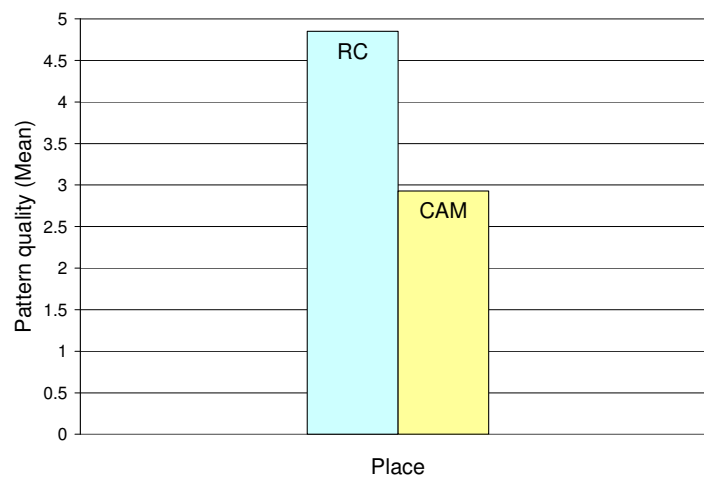


FIGURE IV-95. Quality of expression of ordered views based on mean.

Materiality

The quality of expression of the place-making pattern *Materiality* at the Rothko Chapel was scored at 98. This score, when divided by 24 (i.e., 24 participants answered positively - yes, to *Materiality* being present at the Rothko Chapel), yields a mean of 4.08. At the Contemporary Arts Museum, the quality of expression of *Materiality* was scored at 73. This score, when divided by 22 (i.e., 22 participants answered positively - yes, to *Materiality* being present at the Contemporary Arts Museum), yields a mean of 3.31 (Figures IV-96 and 97).

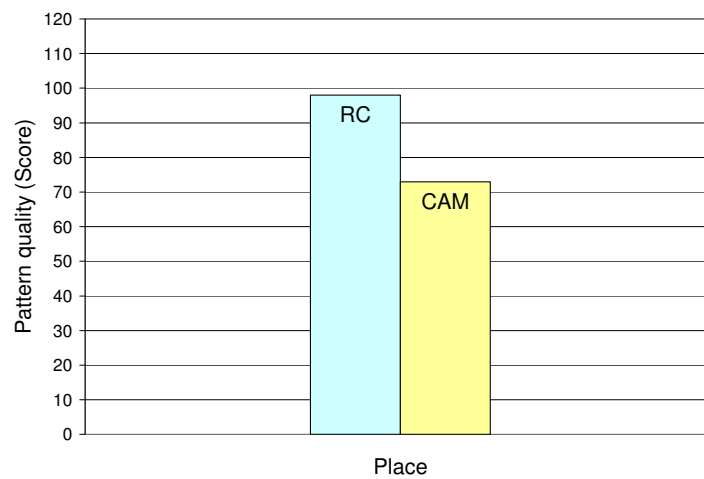


FIGURE IV-96. Quality of expression of materiality based on score.

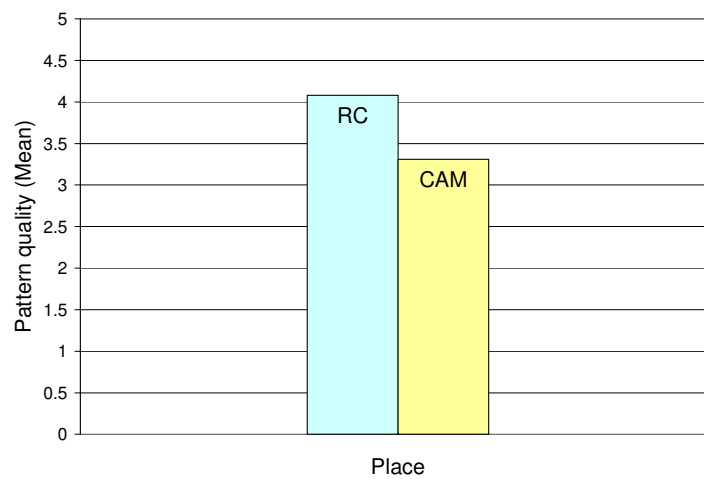


FIGURE IV-97. Quality of expression of materiality based on mean.

Elementals

The quality of expression of the place-making pattern *Elementals* at the Rothko Chapel was scored at 86. This score, when divided by 22 (i.e., 22 participants answered positively - yes, to *Elementals* being present at the Rothko Chapel), yields a mean of 3.9. At the Contemporary Arts Museum, the quality of expression of *Elementals* was scored at 36. This score, when divided by 16 (i.e., 16 participants answered positively - yes, to *Elementals* being present at the Contemporary Arts Museum), yields a mean of 2.25 (Figures IV-98 and 99).

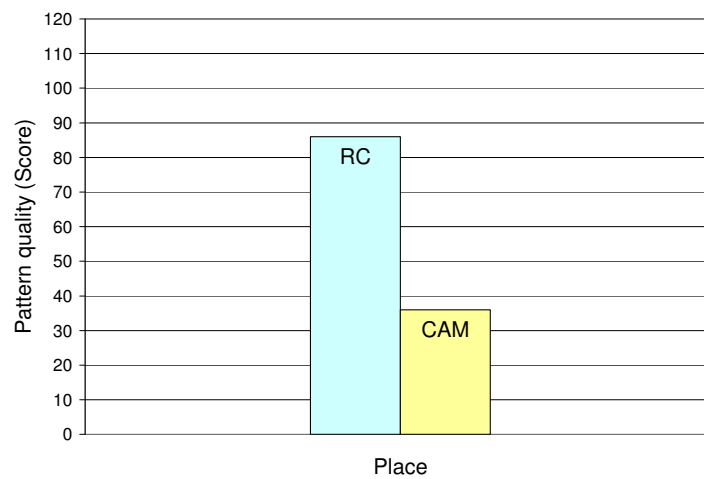


FIGURE IV-98. Quality of expression of elementals based on score.

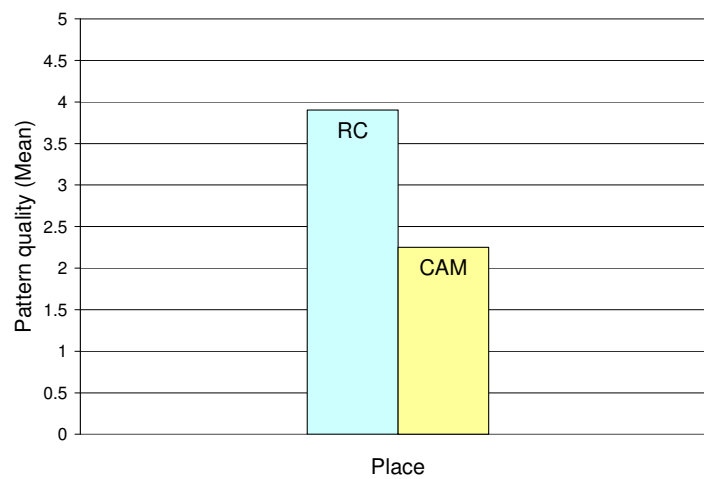


FIGURE IV-99. Quality of expression of elementals based on mean.

Light

The quality of expression of the place-making pattern *Light* at the Rothko Chapel was scored at 109. This score, when divided by 24 (i.e., 24 participants answered positively - yes, to *Light* being present at the Rothko Chapel), yields a mean of 4.54. At the Contemporary Arts Museum, the quality of expression of *Light* was scored at 34. This score, when divided by 15 (i.e., 15 participants answered positively - yes, to *Light* being present at the Contemporary Arts Museum), yields a mean of 2.26 (Figures IV-100 and 101).

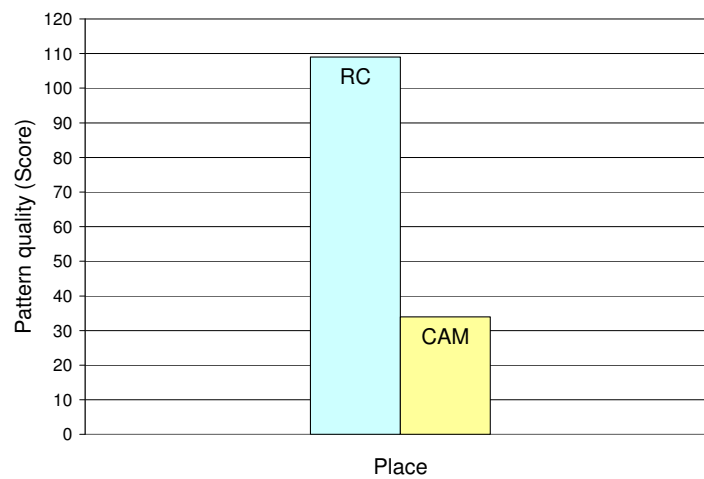


FIGURE IV-100. Quality of expression of light based on score.

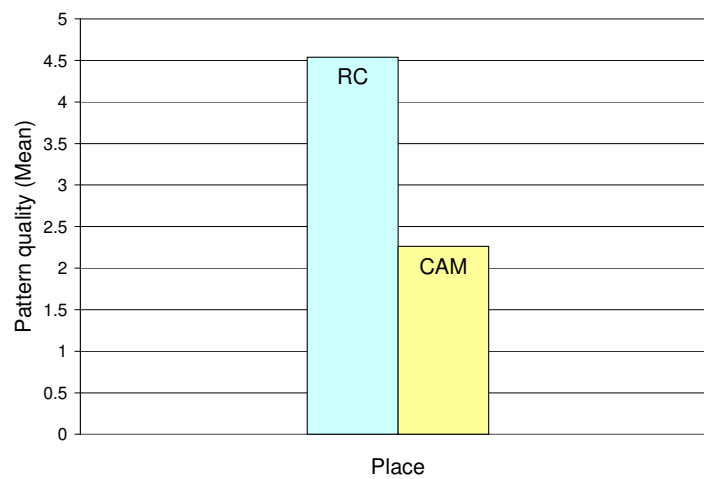


FIGURE IV-101. Quality of expression of light based on mean.

Ceremonial Order

The quality of expression of the place-making pattern *Ceremonial Order* at Rothko Chapel was scored at 109. This score, when divided by 24 (i.e., 24 participants answered positively - yes, to *Ceremonial Order* being present at Rothko Chapel), yields a mean of 4.54. At the Contemporary Arts Museum, the quality of expression of *Ceremonial Order* was scored at 18. This score, when divided by 6 (i.e., 6 participants answered positively - yes, to *Ceremonial Order* being present at the Contemporary Arts Museum), yields a mean of 3.0 (Figures IV-102 and 103).

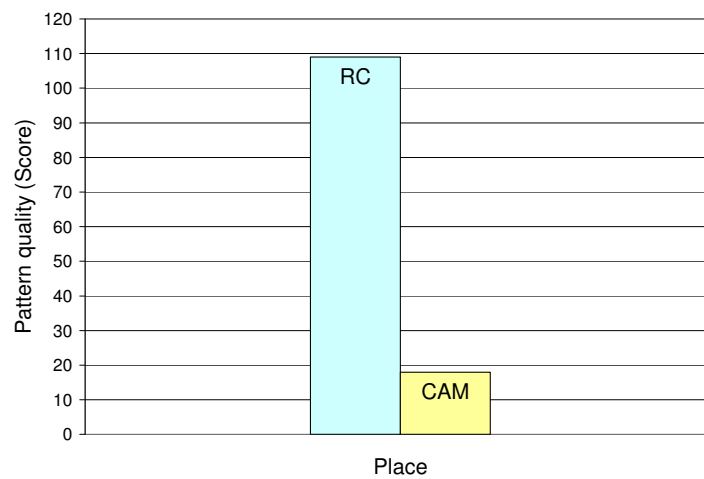


FIGURE IV-102. Quality of expression of ceremonial order based on score.

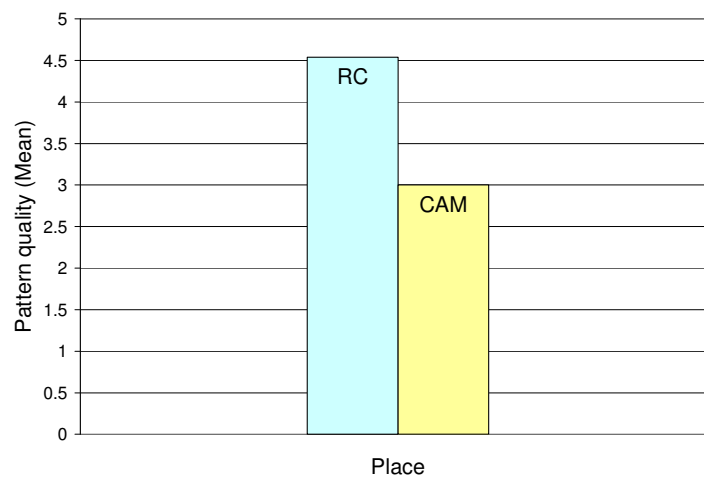


FIGURE IV-103. Quality of expression of ceremonial order based on mean.

Based on the opinion of questionnaire participants, the quality of expression of the place-making patterns at the Rothko Chapel is shown in Figure IV-104. The quality of expression of individual place-making patterns displayed in the figure is based on the mean of the score for the place-making patterns (i.e., score divided by number of participants that answered positively – yes, to individual place-making patterns being present at Rothko Chapel). The quality of expression of individual place-making patterns (based on the mean of the score for the place-making patterns at Rothko Chapel) can be arranged in hierarchical order as follows: 1) Bounding; 2) Geometric Order; 3) Light and Ceremonial Order; 4) Center; 5) Materiality; 6) Ordered Views; 7) Ascent and Ordered Nature; 8) Numeric Order; 9) Spatial Order; 10) Elementals; 11) Celestial Order; 12) Passage; 13) Direction, Descent, and Anthropomorphic Order.

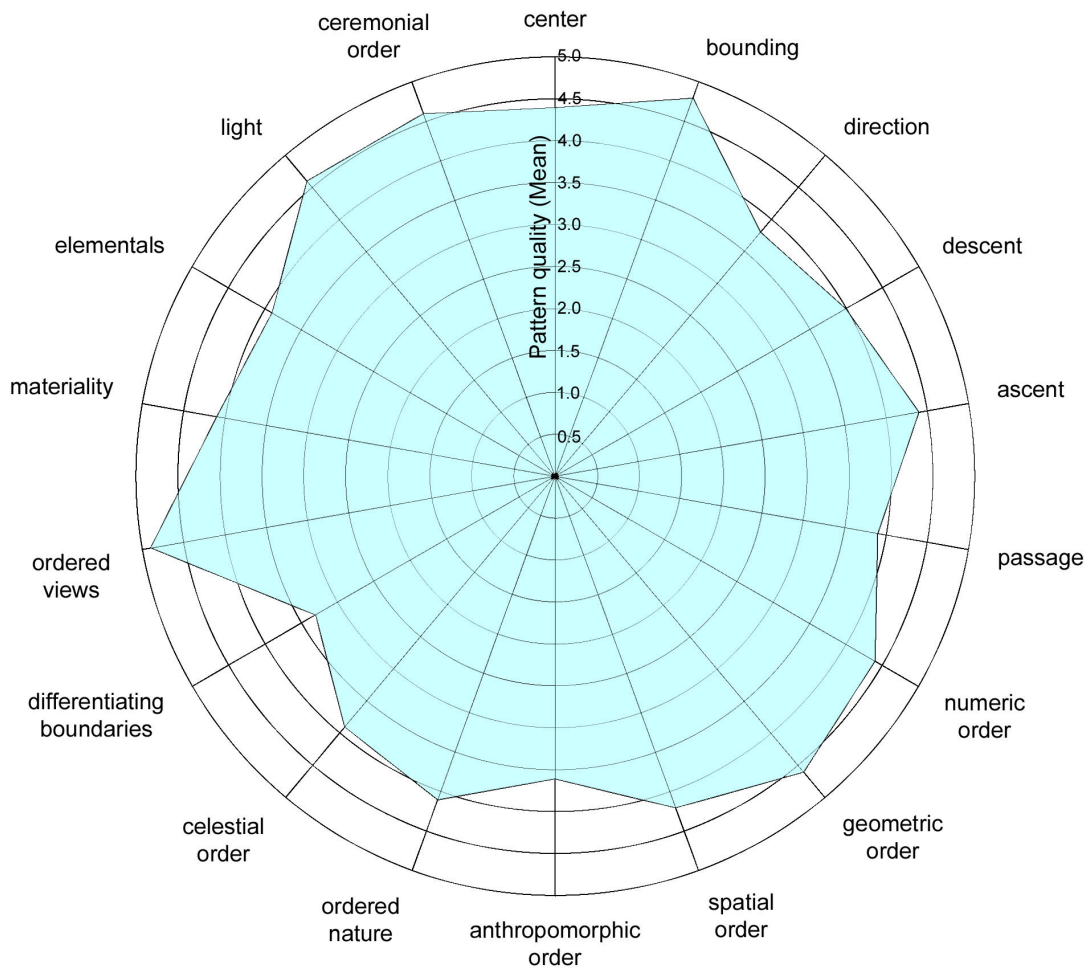


FIGURE IV-104. Quality of expression of patterns at Rothko Chapel.

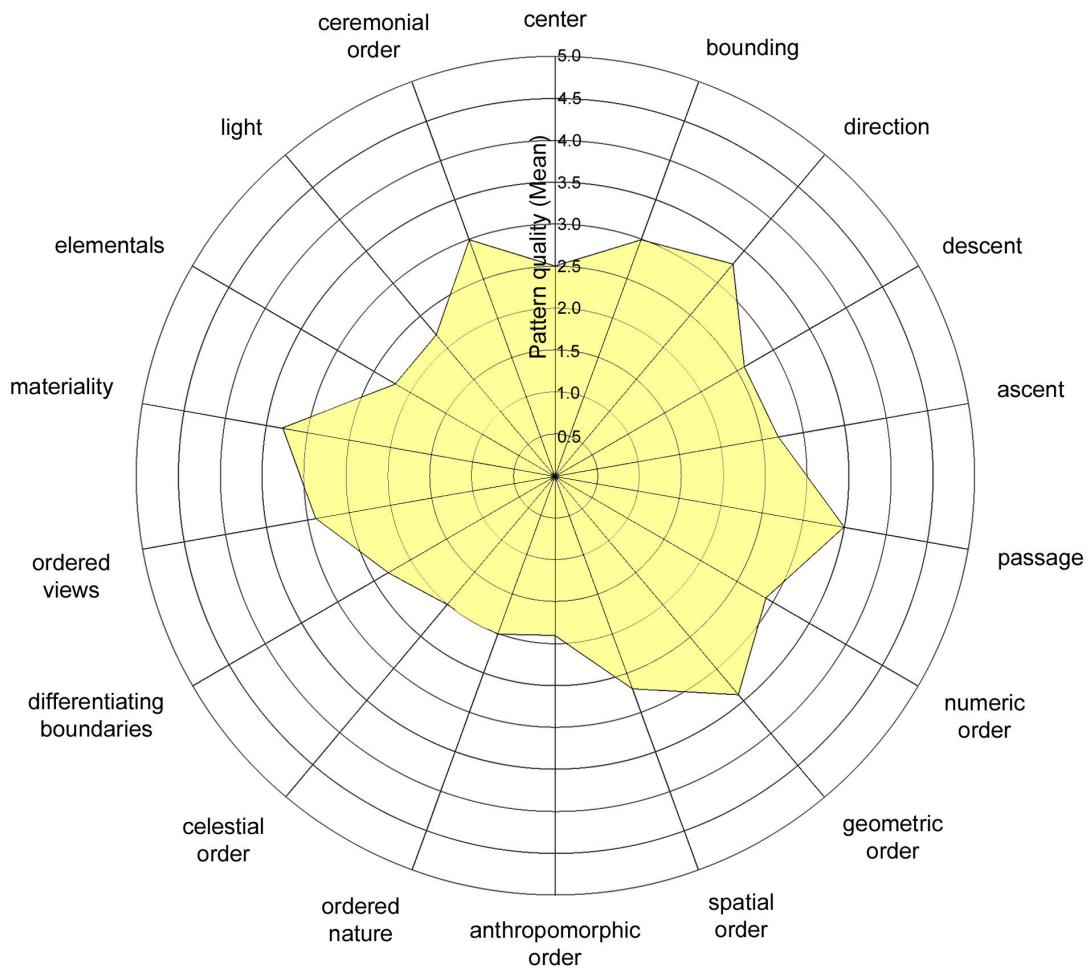


FIGURE IV-105. Quality of expression of patterns at Contemporary Arts Museum.

Based on the opinion of questionnaire participants, the quality of expression of the place-making patterns at the Contemporary Arts Museum is shown in Figure IV-105. The quality of expression of individual place-making patterns displayed in the figure is based on the mean of the score for the place-making patterns (i.e., score divided by number of participants that answered positively – yes, to individual place-making patterns being present at Contemporary Arts Museum). The quality of expression of individual place-making patterns (based on the mean of the score for the place-making patterns at Contemporary Arts Museum) can be arranged in hierarchical order as follows: 1) Materiality and Geometric Order; 2) Bounding; 3) Passage; 4) Ordered Views; 5) Descent; 6) Numeric Order; 7) Ascent and Spatial Order; 8) Ordered Nature; 9) Elementals; 10) Light; 11) Direction; 12) Anthropomorphic Order and Differentiating Boundaries;

13) Ceremonial Order; 14) Center; 15) Celestial Order. Greater area coverage in Figure IV-104 (quality of expression of place-making patterns at the Rothko Chapel) as compared to the area coverage in Figure IV-105 (quality of expression of place-making patterns at the Contemporary Arts Museum) indicates that the Rothko Chapel has a greater quality of expression of the place-making patterns than the Contemporary Arts Museum.

4.4.3 Comments Associated with Pattern Presence and Pattern Quality

Comments associated with the presence and quality of expression of place-making patterns at the sacred and secular buildings are summarized below. The summary assesses differences in the presence and quality of expression of individual place-making patterns from the CPPS at the sacred and secular buildings. Comments associated with pattern presence and pattern quality for the sacred and secular places are displayed separately, i.e., the comments for each place-making pattern are displayed sequentially in two distinct categories, one for each setting as follows: *first*, presence and quality of expression of specific pattern at Rothko Chapel; and *second*, presence and quality of expression of specific pattern at Contemporary Arts Museum.

Presence and Quality of Expression of Center at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Center* was experienced through the following features: octagonal plan of the chapel; inner chapel spatial center; arrangement of centralized furniture; symmetrical enclosures; centralized skylight in the ceiling. Nine participant comments were recorded. All nine participants felt that the quality of expression of *Center* was high.

The center is an imaginary focal point on the ground and in the ceiling. It is a powerful geometrical center. Everything is arranged around this point.

The center is very distinct. There is no mistaking it.

I see the oculus above, as the real center. It is strong due to its brightness.

The octagonal plan of the chapel defines the center. The modified octagon resembles wholeness and is a true demonstration of ba-gua in Feng Shui.

The intensity and meaning of the center lies in the focal point and geometric center of the ceiling. The arrangement of wooden benches at the center helps define the spatial center.

Centralized skylight indicates strict geometry and centralized form.

The strong octagonal geometry creates a strong focal point.

By being surrounded by the symmetrical enclosure, the viewer himself is centered.

The light from above strengthens inward focus and the center. The symmetric shape of building implies center.

Presence and Quality of Expression of Center at Contemporary Arts Museum

At the Contemporary Arts Museum, four participant comments were recorded. All four participants felt that the presence of the place-making pattern *Center* was not experienced.

The building has no centralized focal point.

*No seeming center.
No center is experienced*

This building has a condensed and intense bombardment of activity. There is no center here.

Presence and Quality of Expression of Bounding at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Bounding* was experienced through the following features: walls; floor; ceiling; restricted views to the exterior; paintings. Seven participant comments were recorded. All seven participants felt that the quality of expression of *Bounding* was high.

It is a completely bound envelop and place. There is no connection to the exterior.

Total enclosure, without views to the outside – very strong bounding.

This is a somber and quiet place, well defined and contained by its walls and ceiling.

The quality of the walls and ceiling planes give a certain life to the space. They embody the space.

The space is intended to be an introspective space and works perfectly with the aid of the strong boundaries. The almost

absent views to the exterior and the small sliver of this connection up in the ceiling provide this space with very strong bounding qualities – the absence of distractions when searching within your soul.

Staunch walls, floor, and ceiling act as strong boundaries.

*Paintings reinforce and intensify the experience of bounding.
Lack of views to the outside help to bound this space.*

Presence and Quality of Expression of Bounding at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Bounding* was experienced through the following features: restricted views to the exterior; roof trusses defining ceiling; walls; floor; and uniqueness of materiality. Seven participant comments were recorded. Three participants felt that the quality of expression of *Bounding* was high, while four participants felt that it was low.

Bounding makes the function of the place very evident, at least from the interior, forcing the visitor to experience only the displayed art, with no connection or windows to the exterior. It is bounded, but one is less aware of the bounding.

Roof trusses define the ceiling boundary. Strong roof boundary.

Boundary is present in this building, but seems to be lost in translation, perhaps because it is an exhibition space.

Unique material used for bounding – strong.

One is hardly aware of bounding here, although it is present.

Bounding by perimeter wall and floor is weak.

Presence and Quality of Expression of Direction at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Direction* was experienced through the following features: orientation of site and building to cardinal points; orientation of building entrance with plaza and obelisk; orientation of obelisk with the sky; orientation of light entering the skylight from above; symmetrical building form. Ten participant comments were recorded. Eight participants felt that the quality of expression of *Direction* was high, while two participants felt it was low.

Pool and Plaza is on south side. Direction is evident.

It has direction within the site. Direction arises due to the skylight and its overall symmetrical form.

Direction is present in the form of light above. There seems to be vertical direction here.

The site and building are very oriented to the points of a compass. It does not seem random, skewed or meaningless.

The building entrance, pool, and obelisk – all provide a clear sense of direction.

An appropriate, humble yet strong entrance to a sacred space on an axis.

The direction here seems to be upwards. Strong vertical direction.

The building could have been placed more at the center of the site, rather than on the edge to one side. Direction is weak. Direction is seen, both inside and outside. The orientation of the obelisk with the sky and with the entrance of the building show strong direction.

I cannot tell if the building is oriented with the cardinal points, but it is definitely oriented with the site and landscape features. It does not show as strongly, though.

Presence and Quality of Expression of Direction at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Direction* was experienced through the following features: orientation of the edges of the building with site boundaries; oblique orientation of the walls of the building; pointed edges of building. Six participant comments were recorded. Three participants felt that the presence of *Direction* was not experienced, while three participants felt that the quality of expression of direction was low.

Direction is difficult to evaluate here. Somewhat present maybe – edges of building with site boundaries.

Oblique orientation of the walls of the building, implies some direction. Hardly noticeable.

On account of its contemporary style, I sense that compass orthogonality would be regarded as outdated here and therefore undesirable.

Evident slightly outside due to pointed edges of building, but not inside.

The geometry is too acute to be at ease. Direction is absent.

Direction in the conventional sense is not present here.

Presence and Quality of Expression of Descent at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Descent* was experienced through the following features: cave-like darkness inside the chapel; source of light from skylight making one look upwards; downward contour of the ceiling; black floor color; water pool; verticality and reflection of the obelisk in the pool. Seven participant comments were recorded. Six participants felt that the quality of expression of *Descent* was high, while one participant felt that it was low.

*There are no stairs, but I feel as if I am deep underground.
Great sense of grounding.*

*It is completely subjective and powerful, one feels as if
descending, even though we are on the same floor level.*

*There seems to be no visual indicator of descent, but it seems to
be present nonetheless as one tends to keep looking upward
because that is the only source of light. Descent is weak.*

*It's cave-like. The darkness inside and the black color of the floor
imply strong grounding.*

The water pool outside helps a lot to ground this place.

*The sculpture outside the chapel has a very strong descent
pattern. Not only does it point downwards to the bowels of the
earth, it is also reflected in the water body, thrusting its
ephemeral self into the ground.*

*The broken obelisk and the downward contour of the ceiling
show effective descent.*

Presence and Quality of Expression of Descent at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Descent* was experienced through the following features: basement at lower level; descending stairs; lower level clerestory windows; connection of building to ground; plinth defining building base. Ten participant comments were recorded. Five participants felt that the quality of expression of *Descent* was high, while five participants felt that it was low.

*Descending stairs and low clerestory windows provide glimpses
into basement. Good descent.*

Descent is present but mostly utilitarian.

Goes down to another gallery – so descent is present and strongly sensed.

Mixed feelings - there's a basement and a prominent open stair, but not much to see or do downstairs. A mostly empty gallery.

Building is well connected to the ground.

Building on plinth, effective in defining base.

*There is a basement floor but one does not experience any of the qualities that you would attribute to this pattern.
Two distinct levels. Descent is strong.*

An empty gesture. Functional.

Yes, but only programmatically.

Presence and Quality of Expression of Ascent at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Ascent* was experienced through the following features: light entering the skylight in the ceiling; ascending ceiling planes; vertical reveals in the walls; verticality of the obelisk; vertical paintings; geometry of the Chapel. Eight participant comments were recorded. All eight participants felt that the quality of expression of *Ascent* was high.

The opening to the sky above – just a very thin ring above, marks the ascent feature. It is beautiful.

Oculus overhead – source of light – and ascending ceiling planes contribute to a powerful sense of ascent.

Vertical paintings and skylight draw one upwards.

The shielded skylight as the only light source is very powerful.

The most obvious of all patterns in this chapel is the connection to the sky above – underlined and emphasized by the geometry of the Chapel and the reveals in the walls leading to the top.

When one is on the inside – the skylight in the ceiling.

The broken obelisk sculpture creates a strong vertical thrust, along with the center skylight.

Dark boundary with centralized light from above. Very effective.

Presence and Quality of Expression of Ascent at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Ascent* was experienced through the following features: verticality of entry; verticality of siding on the exterior; high trussed ceilings; hanging exhibits; basement clerestory windows. Seven participant comments were recorded, one participant felt that the presence of *Ascent* was not experienced, one participant felt that the quality of expression of *Ascent* was high, while five participants felt that it was low.

Ascent is seen somewhat at the entrance and in the vertical rhythm of metal siding.

No Ascent. The building is very horizontal.

Not much overhead but, the space frame structure – the largest single expanse of material, punctuated by a few hanging exhibits – up there, but not really ascending or uplifting. Strong ascent is seen in vertical siding on the exterior.

Verticality of entry provides ascent. Not very effective.

There are high trussed ceilings that show some ascent.

Basement clerestory windows represent ascent, but it is only programmatic.

Presence and Quality of Expression of Passage at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Passage* was experienced through the following features: main entrance of the Chapel; entrance foyer; inner portals of Chapel; vestibules between main entrance and inner portals of Chapel; main passage on the exterior of the chapel. Seven participant comments were recorded. Six participants felt that the quality of expression of *Passage* was high, while one participant felt that it was low.

The main entrance is so simple and very strong. The importance of the inner portals is heightened since they are the only voids leading to the inner space. The lobby is very public, but everything changes once you enter the inner chapel.

Would prefer central access, not two access points. Weak passage.

Passage through 2 vestibules is straightforward and utilitarian, but also very meaningful. It is a means of separating and isolating the main space.

The inner passages and outer main entrance offer a great transition.

Series of spaces – front door place, transitional entry place, inner sacred place, are carefully scaled and crafted. They offer a profound balance while transiting.

One passage here is the small vestibule-like-spaces between the front foyer and the chapel. This passage is pronounced and has quite a significant effect on my experience of the main chapel space. The main passage on the exterior of the chapel, if coming around the side of the water body is strong, beautiful and transitory.

Main entrance and entry vestibule truly prepare you for passage into inner space psychologically.

Presence and Quality of Expression of Passage at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Passage* was experienced through the following features: tall narrow main entrance; low-height entrance foyer; contrast in transition space between tall narrow main entrance and low-height entrance foyer; threshold of dark exhibit room in the basement. Eleven participant comments were recorded. Five participants felt that the quality of expression of *Passage* was high, while six participants felt that it was low.

Could not even find the entrance - It is hidden and mediocre.

Tall opening accentuates entrance experience by making the entrance feel narrower. Then ceiling height seems compressed in the foyer. Great Passage.

The entrance is differentiated very strongly, clashing with the rest of the building envelope. It being so narrow marks the distinction divided by the exterior and interior even more. Also, the threshold to pass into the dark exhibit room in the basement shows good passage.

Couldn't even see the entrance. Weak.

Well-camouflaged entry seems contrived, almost capricious.

I like the narrow entry that explodes into the interior.

Low lobby height is effective.

I like the discontinuity of the passage – tall entry and low lobby.

The transitory entrance is just that – a functional space devoid of any character except for its use.

Very uncentralized use of threshold is approximately equal to hidden. Passage is weak.

Very controlled entrance and abrupt approach. Does not offer passage in its true sense.

Presence and Quality of Expression of Numeric Order at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Numeric Order* was experienced through the following features: octagonal plan; six portals; inner Chapel doors opposing each other; three panels – possible reference to trinity; fourteen panels/paintings arranged around octagon; repetition/re-occurrence of panels/paintings. Eleven participant comments were recorded. All eleven participants felt that the quality of expression of *Numeric Order* was high.

Chapel is very much about the re-occurrence of numbers.

The three panels could be a reference to trinity. Six portals, fourteen panels, octagonal shape imply true numeric order.

The repetition of panels, doors opposing each other, the numbers four and eight bring great order to the space.

Its numeric order is inherent in its octagonal geometry.

The paintings and octagon layout create good numeric order.

There is significant numeric order.

The eight sides dominate the space and display strong numeric order.

Strong geometry – repeated elements.

There is meaning in the geometric form of the chapel and the number of panels on the walls.

The geometry of the octagonal plan is powerful.

Octagon and its historical significance in architectural and liturgical aspects dominate this building.

Presence and Quality of Expression of Numeric Order at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Numeric Order* was experienced through the following features: triangular elements - building footprint, ceiling trusses, angled windows, projection over main entrance; regularity of trusses; four wall planes. Five participant comments were recorded. One participant felt that the presence of numeric order was not experienced, one participant felt that the quality of expression of *Numeric Order* was high, while three participants felt that it was low.

Triangles are prevalent, but the triangle is not significant. The connection between triangles and contemporary art is not immediately apparent. Triangular elements are seen in the building footprint, ceiling trusses, angled windows, and projection over main entrance. It's a little confusing and maybe far-fetched as far as numeric order is concerned.

The triangular footprint emphasizes the corners. It feels chaotic, since it is a singular form, but an irregular one. Overall numeric order is weak.

Everything seems out of order with the exception of the trusses which are somewhat regular and may imply numeric order.

The four wall planes show strong numeric order.

No numeric order sensed.

Presence and Quality of Expression of Geometric Order at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Geometric Order* was experienced through the following features: octagonal form of the Chapel; niches in the wall; shadows cast on walls; octagonal dropped ceiling. Eight participant comments were recorded. All eight participants felt that the quality of expression of *Geometric Order* was high.

Octagonal geometry is very well defined.

The octagon creates a very radial arrangement, emphasizes the center of it, and makes each wall essential to the composition. The far niches and the shadows mark the geometry as well as the octagonal dropped ceiling very sharply.

Geometry of form is even more significant than numeric order.

The octagon dominates inside. Very powerful.

It's very definition in form.

Yes, there is geometry to this space and I think it contributes immensely towards the other patterns as well.

Basic to the design and very strongly sensed.

Very defined order, logically shaped in balance and harmony.

Presence and Quality of Expression of Geometric Order at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Geometric Order* was experienced through the triangular shape of building; irregularity of building shape; parallelogram shape of the building; exterior of building expressing cubic and rectilinear geometry. Nine participant comments were recorded. Four participants felt that the quality of expression of *Geometric Order* was high, while five participants felt that it was low.

Contrast with circular pool and wavy terrace edge, helps emphasize the triangles. Good sense of geometric order.

The irregularity of the shape provides strong geometric order.

The building is either triangular or diamond shaped – cannot really tell though. Weak geometry.

A parallelogram – different but not necessarily significant.

Shape of the building pervades inside and out. Strong.

Geometry is effectively communicated.

The geometrical layout is somewhat haphazard, but this is probably because the intent is to provide a meandering and exploratory path through the exhibits.

On the exterior – cubic and rectilinear geometry is present to some extent.

There is a sense of geometric order but it is not great or clearly defined.

Presence and Quality of Expression of Spatial Order at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Spatial Order* was experienced through the following features: singularity of space; octagonal form of Chapel; geometrical planes of Chapel; symmetrical, orthogonal, central, diagonal, and pyramidal characteristics of Chapel; circular/radial order inside Chapel defining center; space between vestibules and Chapel; rectangular entrance foyer; relationship, transition, rhythm and gradual extension of spatial sequence between inside and outside – pond – sculpture – entry – Chapel. Nine

participant comments were recorded. All nine participants felt that the quality of expression of *Spatial Order* was high.

Strong Symmetrical spatial arrangement.

Quite clear between the vestibule and the chapel. Once inside the chapel, the order is circular, you either experience the center or you are at the radial points of the octagon. Extreme order.

Very powerful symmetry, orthogonality, centrality, diagonality, pyramidal shape – all working together to reinforce each other.

Strong pure geometric planes reveal spatial order.

Rectangular when you enter and the octagonal geometry for the chapel create a very strong sense of hierarchy.

Rhythm of sequence is felt strongly at pond, sculpture, entry and chapel.

Spatial order is high and extends gradually outward to the garden.

It is one space that has meaningful variations. The outside landscape is an extension of the inside of the chapel.

Indoor space/outdoor space – the relationship and transition are strong.

Presence and Quality of Expression of Spatial Order at Contemporary Arts Museum

At the Contemporary Arts Museum, seven participant comments were recorded. All seven participants felt that the presence of the place-making pattern *Spatial Order* was not experienced.

This space lacks spatial order of any kind.

Very rapid progression - the gallery space opens rapidly upon entry. No hierarchy or order at all.

Space is random and non-determinable.

It's basically all one space. No hierarchy.

Free-flowing space with no apparent order.

Spatial relationships are disorderly. Hierarchy of spaces absent.

Cannot be identified.

Presence and Quality of Expression of Anthropomorphic Order at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Anthropomorphic Order* was experienced through the following features: high ceilings; large inner space; door and furniture heights; 1:1 or 1:2 proportioning system; paintings expressing profiles of human form; octagonal shape of plan; building proportions; gradual increase in ceiling height from main entrance to inside Chapel. Eight participant comments were recorded. All eight participants felt that the quality of expression of *Anthropomorphic Order* was high.

High ceiling and large inner space – feel dwarfed. Divine scale.

It can be perceived by the heights at door thresholds and the furniture, which make it a very human scale building.

Can't really tell but has a good feel, as though proportions are between 1:1 or 1:2.

Scale is humane and very comfortable – not monumental, not claustrophobic – not too large or too small.

The space is well proportioned for the individual or a crowd.

The space is anthropomorphic in many ways. It is proportioned to be comfortable to a smaller and closer group of people. The dark paintings bring out the profiles of human form with stark clarity.

This anthropomorphic proportioning lends itself automatically to sacred space.

Octagonal shape of plan and high ceilings feel very human and god-like simultaneously. Heights increase gradually from main entrance to inside of Chapel.

Presence and Quality of Expression of Anthropomorphic Order at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Anthropomorphic Order* was experienced through the following features: guard and stair railings; lobby furniture; height of entrance door; lobby height; canopy/overhang. Four participant comments were recorded. Two participants felt that the presence of anthropomorphic order was not experienced, while two participants felt that the quality of expression of *Anthropomorphic Order* was low.

Guard and stair railings and lobby desk indicate anthropomorphic order. Very weak.

It is only present to some extent at the entrance door and lobby with its height and lower canopy/overhang.

No element seems to be derived from human body.

Anti-human order is no order.

Presence and Quality of Expression of Ordered Nature at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Ordered Nature* was experienced through the following features: reflecting water pool with the obelisk; bamboo screening; groomed ground cover; sunlight and shadows cast in the inner Chapel. Twelve participant comments were recorded. All twelve participants felt that the quality of expression of *Ordered Nature* was high.

*Good Landscape.
Outdoor space is relaxing.*

Bamboo screening provides privacy and comfort at reflecting pool.

It is experienced on the exterior and helps hide and setback the chapel so that you feel you are approaching a different type of building.

Ordered Nature is experienced on the exterior and expresses soothing qualities.

Well groomed grounds, strong axial pool and sculpture. Not overwrought or precious.

The chapel's relationship with the obelisk and pool is simple yet profound.

Experienced indoor through controlled sunlight that is allowed into the inner chapel and the manner in which the shadows change the nature of the space through the course of a day. Also seen through the controlled and bound water pool and the rigid lines of the sculpture thrust into it – very male and female.

Linear line of bamboo trees provides a great walled-in garden effect.

The garden and pool is integrated effectively into the design of the chapel.

*The pool is very effective.
Reflecting pool and upright obelisk set a somber mood for the experience of the Chapel.*

Presence and Quality of Expression of Ordered Nature at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Ordered Nature* was experienced through the following features: ground vegetation; hedges; oak trees; metal tree sculpture; water fountain. Eight participant comments were recorded. All eight participants felt that the quality of expression of *Ordered Nature* was low.

Barely noticeable.

A little bit at the entrance.

Limited amount of area for landscape.

What landscaping there is, is relatively ordinary and arranged – but it does not seem to reinforce the experience.

Landscaping is mediocre. The metal tree sculpture implies nature but is awful.

Ground vegetation and oak trees provide some landscape feel to the form of the building.

There is a water fountain and some hedges, but you hardly notice this as the sound and movement of vehicles along the road negate the experience.

Yes, but only a gesture.

Presence and Quality of Expression of Celestial Order at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Celestial Order* was experienced through the following features: light entering the skylight; sloped ceiling. Eight participant comments were recorded. Seven participants felt that the quality of expression of *Celestial Order* was high, while one participant felt that it was low.

Cannot really see the sky, but the skylight implies the presence of some celestial order.

Dramatic mood change occurs inside the chapel on partly cloudy days due to celestial order seen through the skylight – effective.

Strong celestial order perceived through the ring of light above the drop ceiling and at its center.

I visit the chapel once a week and celestial order is apparent and always evident through the light entering above from the roof.

Bright oculus and sloped ceiling are very effective in conveying celestial order.

The connection to the sky inside the sacred space is powerful.

Very subtle but very strong celestial order is experienced.

Skylight and dropped ceiling communicate great sense of celestial order.

Presence and Quality of Expression of Celestial Order at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Celestial Order* was experienced through the following features: tall opening at the entrance; basement clerestory windows. Four participant comments were recorded. Two participants felt that the presence of *Celestial Order* was not experienced, while two participants felt that the quality of expression of celestial order was low.

Celestial order is only limited to the lobby area due to the tall opening at the entrance. It is difficult to evaluate though on an overcast day.

Not really experienced.

Lower floors show some celestial order due to clerestory windows.

Not perceivable from inside.

Presence and Quality of Expression of Differentiating Boundaries at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Differentiating Boundaries* was experienced through the following features: south oriented entrance; singular wide niche in octagonal plan; differences in length, size and shape of walls and paintings; difference between wall color and painting color; skylight in ceiling differentiating celestial boundary. Five participant comments were recorded. All five participants felt that the quality of expression of *Differentiating Boundaries* was high.

Entrance is on the south side. Good differentiation.

The fact that only one wall of the octagon works as a wide niche makes it a different and emphasizes its importance. It breaks the monotony and helps with differentiating the boundaries.

Boundary differentiation effectively achieved through length, size and shape of walls and paintings.

One can tell the celestial boundary by sunlight from above.

Difference in wall sizes, and wall-painting color. The walls are solid, while the paintings are voids.

Presence and Quality of Expression of Differentiating Boundaries at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Differentiating Boundaries* was experienced through the following features: difference between wall plane with entrance and other three planes; difference between ceiling and wall planes. Five participant comments were recorded. Two participants felt that the presence of differentiating boundaries was not experienced, while three participants felt that the quality of expression of *Differentiating Boundaries* was low.

It is certainly lacking aesthetic appeal. No differentiating boundaries are seen.

Various interior walls seem random in direction – probably oriented due to curatorial needs rather than to enhance spatial experience. But these are not the actual boundaries of the building.

Somewhat experienced - but no orientation to cardinal directions.

I see some boundary differentiations between the wall planes and the ceiling - nothing more than that.

The narrow entrance through a slot in the wall is the only feature that differentiates the four vertical planes – passable perhaps.

Presence and Quality of Expression of Ordered Views at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Ordered Views* was experienced through the following features: absence of views; wall planes without openings; singular view of diffused light entering the skylight in the ceiling; entrance sequence – displays visual connectivity up to main Chapel space. Eight participant comments were recorded. All eight participants felt that the quality of expression of *Ordered Views* was high.

It is a very introspective type of place, emphasizing the inside, only view is toward the sky, but not directly just a very thin band of light - highly effective.

The wall planes completely eliminate views. Very strong and controlled

No views are ordered views.

Views totally restricted. Space contains the sacred experience.

Entrance sequence - displays visual connectivity up to main Chapel space and the lack of windows are appropriate and needed for ordering views.

The absence of windows, along with the center skylight create an appropriate environment for meditation and prayer.

Absence of views is powerful

Views do not exist – the perception of diffused light on the ceiling focuses one to experience the inward self.

Presence and Quality of Expression of Ordered Views at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Ordered Views* was experienced through the following features: absence of views at eye level; controlled view of exterior at entrance; absence of views due to building enclosure; controlled views through basement clerestory windows. Eight participant comments were recorded. Two participants felt that the quality of expression of *Ordered Views* was high, while six participants felt that it was low.

Basement conveys a weak sense of ordered views.

The fact that there are no windows at the eye level makes the experience strong - the only view being to and from the entrance.

Clerestory windows in basement do not offer views of any visual interest.

Very limited views – only out towards the entrance – trifle.

The building has strong ordered views on account of the enclosure obstructing all views to the outside.

Views through basement windows are entirely within secular context and superficial.

Window openings are there in basement , but I do not know if they are sacred – they seem more mundane or placed programmatically

Weak sense of ordered views present at basement windows.

Presence and Quality of Expression of Materiality at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Materiality* was experienced through the following features: massive and reflective/coarse gray walls; simplicity of materiality

palate; dark color of materiality; chunky wood furniture; differences in ground-walls-ceiling materiality. Eight participant comments were recorded. All eight participants felt that the quality of expression of *Materiality* was high.

Quite somber mood created – reflective/coarse gray walls have softening effect.

Very heavy and dark chapel materiality, chunky wood furniture, both inside and outside and clear distinction between ground, walls and ceiling work perfect. The drop-ceiling element seems to be floating - extreme materiality.

Utterly simple palate of materials is eloquent in its simplicity.

Simplicity – good planar definition

Massive feel of wall enclosures connotes permanence and comfort.

The stark gray walls work the best for the soul searching in this chapel. The change in material as it leads to the opening in the ceiling indicates the natural direction of the eye.

The materials for this building appear to be chosen meaningfully.

Materials and colors very appropriate for surroundings – everything flows well together.

Presence and Quality of Expression of Materiality at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Materiality* was experienced through the following features: metal siding; steel space frames; pine floor; concrete; glass. Twelve participant comments were recorded. Three participants felt that the quality of expression of *Materiality* was high, while nine participants felt that it was low.

Not good use of materials – industrial feel.

Streamlined, metal has contemporary feel and contrasts with surroundings – shiny and striking enclosure – being different is not always good.

Metal siding draws too much attention – edgy feel.

The careful choice of material for this building makes it unique on its exterior, and makes it disappear on the interior, giving more importance to what the building houses than to itself.

Use of quality of materials is weak.

Strong impressions of space frame, pine floor.

Roof structure dominates, in a good way.

Formal order of materiality – yes. Permanence of materials – no. Vapid.

Consistent with vocabulary of contemporary art. Expensive materials but meaningless and non-human.

Wood floors are least conducive to a museum experience, making too much noise as you walk along.

Several different materials - wood, steel, glass, concrete, glass = good variety, but weak relations.

Stainless steel looks and feels alien to the interior – causes discomfort.

Presence and Quality of Expression of Elementals at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Elementals* was experienced through the following features: chapel walls, floor tiles, and gravel – representing earth; light entering skylight – representing fire; pool – representing water; water ripples and movement of bamboo groove – representing wind. Ten participant comments were recorded. All ten participants felt that the quality of expression of *Elementals* was high.

Light and water. Gravel tiles suggest bowels of earth. The Chapel is about celebration of elementals

Earth present by the selection of slate flooring. Water pool on the outside as cleansing element. Absence of fire - even though the form of the chapel may suggest that people could gather around the center, where a fire was extinguished. Everything is so simple – minimalist – it makes each element very important.

Yes, outside water very strong.

Simplicity and softness/movement of bamboo groove is important to experience of wind. Chapel walls show solidity of earth.

Great pool and sculpture outside.

Sense of 4 elementals are highly respected and dominant.

Actual fire is missing, but present perhaps in the form of light which is very powerful inside.

Light implying fire and pool implying water are powerful elements, integral to the design.

Asphalt block floor shows earth, light shows fire, and pool shows water. Ripples in pool imply wind. Great elemental use.

Water in pond, gravel, floor pavers inside – good use of elementals.

Presence and Quality of Expression of Elementals at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Elementals* was experienced through the following features: wood floor – earth; fountain – water; air duct – wind. Six participant comments were recorded. One participant felt that the presence of elementals was not experienced, one participant felt that the quality of expression of *Elementals* was high, while four participants felt that it was low.

Water fountain in front, but you can't access or enjoy it.

Most striking elemental was the fountain and large – diameter air duct in the corner and just under the roof structure. Duct is more functional than expressing the elemental though.

Wood floor especially effective in conveying earth.

Elementals do not enhance the place.

None.

Weak.

Presence and Quality of Expression of Light at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Light* was experienced through the following features: skylight in the ceiling; high contrast of light and shadows. Eight participant comments were recorded. All eight participants felt that the quality of expression of *Light* was high.

Extremely controlled, dictates the ambiance of the space. Its use is above a utilitarian one. The high contrast of shadows at the door height, niches and ring on the ceiling, make light an essential element of the space.

Almost a focus on light.

On a scale of one to five it's a 10.

Somber, subdued, contrasting light is key to the experience here.

I've always thought the quality of light was very good.

Very effective.

I noticed the subtle contrast between the front entrance spaces and the chapel in terms of light. The inner space has powerful contrast in terms of light and shadow.

The light source of the sun is diffused inside the chapel. It is relaxing and beautiful.

Presence and Quality of Expression of Light at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Light* was experienced through the following features: vertical opening at entrance lobby; basement clerestory windows. Six participant comments were recorded. Two participants felt that the quality of expression of *Light* was high, while four participants felt that it was low.

Light is controlled and restricted. Entrance lobby is well lit by vertical opening at entrance. Lobby has great sense of light.

Just a utilitarian sense of light - no meaning behind it. The clerestory windows on the underground level connect you to the exterior and allow for natural light. It is functional.

Not much of it - not exceptionally noticeable.

Adequate but not special in any sense.

Downstairs spaces offer great light for a basement.

Weak

Presence and Quality of Expression of Ceremonial Order at Rothko Chapel

At the Rothko Chapel, the presence of the place-making pattern *Ceremonial Order* was experienced through the following features: arrangement of benches at the center of the Chapel; presence of floor mats; singularity of light source; paintings; octagonal geometry expressing circumambulation around Chapel; simplicity and unifying character of space; building's inherent function as Chapel and gathering space. Six participant comments were recorded. All six participants felt that the quality of expression of *Ceremonial Order* was high.

The disposition and provision of benches at the center, the presence of floor mats for meditation. The space itself is a place for gathering.

It is a simple unifying space for meditation, prayer, and celebrations. Very powerful ceremonial order.

Octagon, single light source, and the paintings – all have great power.

The ceremonial order here is a corollary of it being a chapel – synonymous with ceremony the octagonal geometry contributes to the ceremony of circumambulation around the chapel space.

That's what the space is all about.

Chapel is based on ceremonial order.

Presence and Quality of Expression of Ceremonial Order at Contemporary Arts Museum

At the Contemporary Arts Museum, the presence of the place-making pattern *Ceremonial Order* was experienced through the following features: descending stairs leading to basement; square-shaped enclosed theater space in basement. One participant comment was recorded. The participant felt that the quality of expression of *Ceremonial Order* was low.

Descending stairs leading to basement and square-shaped enclosed theater space in basement show some ceremonial order – very weak gesture though.

Results pertaining to comments associated with the presence and quality of expression of place-making patterns at the Rothko Chapel and Contemporary Arts Museum are summarized in Tables IV-5 and 6. The column under *Pattern list* displays individual place-making patterns. The column under *Pattern experienced by participants through* identifies how, or ways in which individual place-making patterns were experienced to be present at the sacred and secular buildings. The column under *Total number of comments recorded* shows the total number of comments that were recorded by participants at the sacred and secular buildings. The four columns *Pattern is present*, *Pattern is absent*, *Pattern quality is high*, and *Pattern quality is low* under *Number of comments suggesting that* show whether participant comments suggested that individual place-making patterns were present or absent and whether their quality of expression was high or low.

TABLE IV-5. Summary of comments associated with the presence and quality of expression of place-making patterns at Rothko Chapel.

Rothko Chapel						
Pattern list	Pattern experienced by participants through	Total number of comments recorded	Number of comments suggesting that			
			Pattern is present	Pattern is absent	Pattern quality is high	Pattern quality is low
Center	Octagonal plan of the chapel; inner chapel spatial center; arrangement of centralized furniture; symmetrical enclosures; centralized skylight in the ceiling.	9	9	0	9	0
Bounding	Walls; floor; ceiling; restricted views to the exterior; paintings.	7	7	0	7	0
Direction	Orientation of site and building to cardinal points; orientation of building entrance with plaza and obelisk; orientation of obelisk with the sky; orientation of light entering the skylight from above; symmetrical building form.	10	10	0	8	2
Descent	Cave-like darkness inside the chapel; source of light from skylight making one look upwards; downward contour of the ceiling; black floor color; water pool; verticality and reflection of the obelisk in the pool.	7	7	0	6	1
Ascent	Light entering the skylight in the ceiling; ascending ceiling planes; vertical reveals in the walls; verticality of the obelisk; vertical paintings; geometry of the Chapel.	8	8	0	8	0
Passage	Main entrance of the Chapel; entrance foyer; inner portals of Chapel; vestibules between main entrance and inner portals of Chapel; main passage on the exterior of the chapel.	7	7	0	6	1
Numeric Order	Octagonal plan; six portals; inner Chapel doors opposing each other; three panels – possible reference to trinity; fourteen panels/paintings arranged around octagon; repetition/re-occurrence of panels/paintings.	11	11	0	11	0
Geometric Order	Octagonal form of the Chapel; niches in the wall; shadows cast on walls; octagonal dropped ceiling.	8	8	0	8	0
Spatial Order	Singularity of space; octagonal form of Chapel; geometrical planes of Chapel; symmetrical, orthogonal, central, diagonal, and pyramidal characteristics of Chapel; circular/radial order inside Chapel defining center; space between vestibules and Chapel; rectangular entrance foyer; relationship, transition, rhythm and gradual extension of spatial sequence between inside and outside – pond – sculpture – entry – Chapel.	9	9	0	9	0
Anthropomorphic Order	High ceilings; large inner space; door and furniture heights; 1:1 or 1:2 proportioning system; paintings expressing profiles of human form; octagonal shape of plan; building proportions; gradual increase in ceiling height from main entrance to inside Chapel.	8	8	0	8	0
Ordered Nature	Reflecting water pool with the obelisk; bamboo screening; groomed ground cover; sunlight and shadows cast in the inner Chapel.	12	12	0	12	0
Celestial Order	Light entering the skylight; sloped ceiling.	8	8	0	7	1
Differentiating Boundaries	South oriented entrance; singular wide niche in octagonal plan; differences in length, size and shape of walls and paintings; difference between wall color and painting color; skylight in ceiling differentiating celestial boundary.	5	5	0	5	0
Ordered Views	Absence of views; wall planes without openings; singular view of diffused light entering the skylight in the ceiling; entrance sequence – displays visual connectivity up to main Chapel space.	8	8	0	8	0

TABLE IV-5 Continued

Rothko Chapel						
Pattern list	Pattern experienced by participants through	Total number of comments recorded	Number of comments suggesting that			
			Pattern is present	Pattern is absent	Pattern quality is high	Pattern quality is low
Materiality	Massive and reflective/coarse gray walls; simplicity of materiality palate; dark color of materiality; chunky wood furniture; differences in ground-walls-ceiling materiality.	8	8	0	8	0
Elementals	Chapel walls, floor tiles, and gravel – representing earth; light entering skylight – representing fire; pool – representing water; water ripples and movement of bamboo groove – representing wind.	10	10	0	10	0
Light	Skylight in the ceiling; high contrast of light and shadows.	8	8	0	8	0
Ceremonial Order	Arrangement of benches at the center of the Chapel; presence of floor mats; singularity of light source; paintings; octagonal geometry expressing circumambulation around Chapel; simplicity and unifying character of space; building's inherent function as Chapel and gathering space.	6	6	0	6	0

TABLE IV-6. Summary of comments associated with the presence and quality of expression of place-making patterns at Contemporary Arts Museum.

Contemporary Arts Museum						
Pattern list	Pattern experienced by participants through	Total number of comments recorded	Number of comments suggesting that			
			Pattern is present	Pattern is absent	Pattern quality is high	Pattern quality is low
Center	Pattern not experienced by participants.	4	0	4	0	0
Bounding	Restricted views to the exterior; roof trusses defining ceiling; walls; floor; and uniqueness of materiality.	7	7	0	3	4
Direction	Orientation of the edges of the building with site boundaries; oblique orientation of the walls of the building; pointed edges of building.	6	3	3	0	3
Descent	Basement at lower level; descending stairs; lower level clerestory windows; connection of building to ground; plinth defining building base.	10	10	0	5	5
Ascent	Verticality of entry; verticality of siding on the exterior; high trussed ceilings; hanging exhibits; basement clerestory windows.	7	6	1	1	5
Passage	Tall narrow main entrance; low-height entrance foyer; contrast in transition space between tall narrow main entrance and low-height entrance foyer; threshold of dark exhibit room in the basement.	11	11	0	5	6
Numeric Order	Triangular elements - building footprint, ceiling trusses, angled windows, projection over main entrance; regularity of trusses; four wall planes.	5	4	1	1	3
Geometric Order	Triangular shape of building; irregularity of building shape; parallelogram shape of the building; exterior of building expressing cubic and rectilinear geometry.	9	9	0	4	5
Spatial Order	Pattern not experienced by participants.	7	0	7	0	0
Anthropomorphic Order	Guard and stair railings; lobby furniture; height of entrance door; lobby height; canopy/overhang.	4	2	2	0	2
Ordered Nature	Ground vegetation; hedges; oak trees; metal tree sculpture; water fountain.	8	8	0	0	8
Celestial Order	Tall opening at the entrance; basement clerestory windows.	4	2	2	0	2
Differentiating Boundaries	Difference between wall plane with entrance and other three planes; difference between ceiling and wall planes.	5	3	2	0	3
Ordered Views	Absence of views at eye level; controlled view of exterior at entrance; absence of views due to building enclosure; controlled views through basement clerestory windows.	8	8	0	2	6
Materiality	Metal siding; steel space frames; pine floor; concrete; glass.	12	12	0	3	9
Elementals	Wood floor – earth; fountain – water; air duct – wind.	6	5	1	1	4
Light	Vertical opening at entrance lobby; basement clerestory windows.	6	6	0	2	4
Ceremonial Order	Descending stairs leading to basement; square-shaped enclosed theater space in basement.	1	1	0	0	1

4.4.4 Assessment of Sacredness of Selected Buildings

The sacredness of the selected buildings is shown in Table IV-7. The column under *Place* displays the selected buildings, i.e., Rothko Chapel and Contemporary Arts Museum. Two columns – *Number (no.)* and *Percentage (%)* are shown for each place. The column under

Number (no.) shows the total number of participants that answered positively (i.e., yes), to the given place being experienced as sacred. The Percentage (%) column represents the percentage of participants that answered positively (i.e., yes), to the given place being experienced as sacred.

TABLE IV-7. Number/percentage of questionnaire participants who agreed that the selected buildings were sacred.

Place	Number (no.)	Percentage (%)
Rothko Chapel	23	95.8%
Contemporary Arts Museum	2	8.3%

The assessment of sacredness of the selected buildings has been compared in the bar chart (Figure IV-106) and pie charts (Figure IV-107) that follow. The bar chart compare the number (no.) of participants that answered positively (i.e., yes), to the given place being experienced as sacred, while the pie charts compare the percentage (%) of participants that answered positively (i.e., yes), to the given place being experienced as sacred. In both types of charts, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

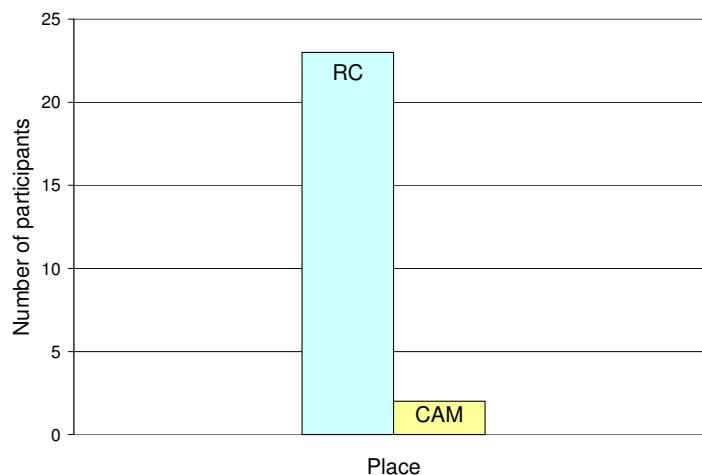


FIGURE IV-106. Sacredness of place based on number (no.) of participants.



FIGURE IV-107. Sacredness of place based on percentage (%) of participants.

4.4.5 Comments Associated with Sacredness of Selected Buildings

Comments associated with the sacredness of the selected buildings are analyzed below. The analysis assesses whether the selected buildings were experienced to be sacred or secular. The analysis of comments associated with the sacredness of each place is displayed separately, i.e., the analysis of comments for each place is displayed in distinct categories, one for each setting as follows: *first*, sacredness experienced at Rothko Chapel; and *second*, sacredness experienced at Contemporary Arts Museum.

Sacredness Experienced at Rothko Chapel

At the Rothko Chapel, sacredness was experienced due to – separation of inner space from outside world, quietness of space, simplicity of formal elements of building, symmetry of form, humanized proportions of building, materials, paintings, quality of light, progression of spaces – garden to inner meditative space, chapel activities. Ten participant comments were recorded. Nine participants felt that the Rothko Chapel was experienced as being sacred, while one participant felt that it was not.

Creates introspection; thought provoking; separates the outside world from your inner self; quite space, no sound. Paintings are portals to limitless thoughts.

My understanding of sacred or holy is set apart for a special purpose especially one related to religious or spiritual purposes. This place is unique in that it can work even for atheists.

Sacred but non-religious. This introspective, calming, gentle, somber space causes reflection and inner searching.

The formal elements are defined by simple execution and an understanding of archetypal sacred spaces make this a rare entity on the landscape.

The Rothko Chapel is a very famous and popular place to visit in Houston. I was truly disappointed though – not because of its simplicity but because the eternity of this simplicity does not sufficiently encompass the extremes that might have made this place sacred. Just because it is a chapel does not mean it should be sacred. The quality of experience within this space does not evoke any emotion that would contribute to the sacrality of the space. I personally feel that a lot of the sacrality attributed to this place is because of the hype. I beg to disagree.

Sacred but more about meditation or zen – non religious and non sacerdotal – feels more like a contemplative meditation space.

Quality of light, paintings, materials, symmetry of form, humanized building proportions attribute sacredness.

The sense of quiet, of separation from the outside world, the quality of light, the sense of progression from garden to a meditative space.

The space and activities within the space are sacred making the place sacred.

Embodies self reflection in ones self, whether as one person or in a group – space/ place cause one to focus on the sacredness of ones own spirit. Too many people did not treat it this way today.

Sacredness Experienced at Contemporary Arts Museum

At the Contemporary Arts Museum, sacredness was experienced due to – atmosphere and ambiance, ordering of spaces, nature of exhibits, visitor behavioral patterns. Four participant comments were recorded. One participant felt that the Contemporary Arts Museum was experienced as being sacred, while three participants felt that it was not.

It is set apart for a special purpose, whether that purpose has anything to do with spirituality (other than what might be exhibited, which varies) is questionable. Not Sacred for me.

This place is not sacred. But, maybe it was never intended to be. There are 2 kinds of museums – one where the architecture dominates the exhibits and one where the exhibits dominate the architecture. This is in between. I see nothing wrong with this place not being sacred. If every building in the world was sacred, sacred would lose its meaning.

Atmosphere and ambiance, ordering of spaces, nature of exhibits, visitor behavioral patterns make it sacred.

A building becomes sacred when it houses the sacred. This building does not.

Results pertaining to comments associated with the sacredness of the Rothko Chapel and Contemporary Arts Museum are summarized in Tables IV-8 and 9. The four columns displayed in each table (from left-to-right) identify first, *characteristics that contribute to sacredness*; second, *total number of comments recorded*; third, *number of comments suggesting that place is experienced as sacred*, and fourth, *number of comments suggesting that place is not experienced as sacred*.

TABLE IV-8. Summary of comments associated with the sacredness of Rothko Chapel.

Rothko Chapel			
Characteristics that contribute to sacredness	Total number of comments recorded	Number of comments suggesting that	
		Place is experienced as sacred	Place is not experienced as sacred
Separation of inner space from outside world; quietness of space; simplicity of formal elements of building; symmetry of form; humanized proportions of building; materials; paintings; quality of light; progression of spaces – garden to inner meditative space; chapel activities.	10	9	1

TABLE IV-9. Summary of comments associated with the sacredness of Contemporary Arts Museum.

Contemporary Arts Museum			
Characteristics that contribute to sacredness	Total number of comments recorded	Number of comments suggesting that	
		Place is experienced as sacred	Place is not experienced as sacred
Atmosphere and ambiance; ordering of spaces; nature of exhibits; visitor behavioral patterns.	4	1	3

4.5 FOCUS GROUP DISCUSSION DATA

Qualitative data was collected by means of focus group discussions with three Houston architects and three spiritual mentors at the sacred and secular buildings. Focus group discussion results are categorized as follows: 1) exploration of meaning of sacred and secular;

2) exploration of experiences elicited at selected buildings; 3) exploration of sacredness of selected buildings; 4) exploration of architectural characteristics that impact sacredness.

4.5.1 Exploration of Meaning of Sacred and Secular

The participants were asked to describe what sacred and secular meant to them. The following responses were elicited from participants regarding the meaning of sacred.

The sacred is hard to describe... hard to discuss. It means to be cared for... it's an intent... it's a feeling... it's something that the heart feels... it makes your heart breathe and pulse with life... it makes you feel alive and provides you with a greater purpose in life.

The sacred is an experience... it's more than an intention... its a feeling... something that is deeply evoked and felt within... a connection with something that is bigger and beyond... something that is incomprehensible... yet part of everything around, including you and me. Anything can become sacred with intention.

The sacred means feeling something unique... it means sensing something that is extraordinary... it is about transcendence... it is something special and unique... it is experienced as something 'out of the ordinary' or 'other worldly'... it is 'set apart' from the world. The sacred works at several levels... it stems from the heart and the head together. It is the direct experience of a profound awareness that is felt through all the senses put together. It is something that goes beyond what we are taught... something that is beyond analysis... something that cannot be comprehended with our minds. It has to do with our personal backgrounds and past experiences. It is something that is not found in a secular experience or secular space... the secular is about an intellectual understanding and a functional reason for something being a certain way... the secular is about function and reason... the sacred is above all that... almost like a foreign language that you can hear and are aware of... but yet, cannot comprehend.

Everyone has a different belief of what the sacred means to them... your past experiences can define what sacred means to you... it is based upon your belief system. The sacred relates with the concept of God... the nature and existence of the divine being... the idea that God has perceived something to be holy, and so it becomes holy... sacredness is holiness. The sacred signifies the 'other'... it wouldn't exist without the secular because then, it wouldn't be the other. The sacred, I think is what

we perceive subconsciously as one entity... a singularity... the sacred, whatever it may be or whatever we believe it to be, is something that unifies everything around us... it's the opposite of scatter or this-here and that-there and that-over-there. When we look for sacredness, we are usually looking for something specific... something specific that we may not be able to describe appropriately in language... we probably cannot describe the sacred in an articulate manner... but still we are looking for something... some kind of feeling... some kind of experience... some kind emotion or belief... something to relieve us from the pressures of daily life... something to counter depression or sadness in our lives... something that has the potential to make us fulfilled and feel significant... and important in the greater scheme of things.

The word 'sacred' is synonymous with the word 'holy' and interestingly both these words are synonymous with the word 'separate'.

The sacred resonates with the idea of 'connection with God'... it is something that is higher than the 'everyday'.

The following responses were elicited from participants regarding the meaning of secular.

Secular means something that relates to the everyday experience... average... normal.

Something that is not sacred... something that is not holistic... something that is piece-meal... fragmented.

It is the opposite of the sacred, that which is not special or unique.

Secular means the mundane or ordinary... something that is temporary and fleeting.

It relates to that, which can be measured, quantified or defined with ease.

Anything that is not extraordinary... anything that does not have a sense of uniqueness, extraordinary focus or purpose to it... something that belongs to the everyday world and does not stand apart from the rest.

Results associated with the exploration of the meaning of sacred and secular are displayed in the content analytic summary table (Table IV-10). The columns under *Data – Sacred* and *Data – Secular* summarize the focus group discussion data into distinct categories that address specific concepts pertaining to the meaning of sacred and secular. These underlying concepts evolved

as a result of content analysis of the focus group discussion data and are listed under the column *Reference to Concepts*.

TABLE IV-10. Summary of concepts associated with the meaning of sacred and secular.

Reference to concepts	Data - Sacred	Data - Secular
Comprehension	Cannot be comprehended with our minds; incomprehensible; beyond analysis; above function and reason; goes beyond what we are taught; above intellectual understanding.	
Articulation	Hard to describe and discuss; cannot be described appropriately in language or articulate manner; cannot exist without the secular; anything can become sacred with intention; not found in secular experience or secular space.	Can be measured, quantified or defined with ease.
Universality	Everyone has different beliefs regarding sacred; definition changes with personal backgrounds, beliefs, and past experiences.	
Type of experience	The sacred is a feeling; sense; emotion; belief; connection; intent – more than an intention; direct experience; profound awareness.	Secular is something that relates to the everyday.
Ways in which experienced	Perceived subconsciously; evoked deeply; felt within; felt by heart; stems from heart and head together; felt through all senses put together.	
Characteristics of experience	Sacred means feeling something unique; special; extraordinary; out of the ordinary; the other; other worldly; separate; set apart from the world; higher than the everyday; about transcendence; bigger and beyond.	Anything that is not extraordinary; not unique; secular means everyday; average; normal; mundane; ordinary; not special; does not have a sense of uniqueness, extraordinary focus or purpose to it; belongs to the everyday world; does not stand apart from the rest; about function and reason; temporary; fleeting; not sacred; opposite of the sacred.
Ways in which experience contributes	Makes heart breathe and pulse with life; provides us with greater purpose in life; relieves us from pressures of daily life; counters depression or sadness in our lives; makes us feel alive, fulfilled, cared for; makes us feel significant and important in the greater scheme of things.	
Deity	Relates with concept of God, holy, holiness; relates with nature and existence of divine being; idea of connection with God; idea that God perceives something to be holy – so it becomes holy.	
Unity	Perceived subconsciously as one entity; part of everything; singularity; signifies everything; opposite of scatter.	Something that is not holistic; something that is piece-meal; fragmented.

4.5.2 Exploration of Experiences Elicited at Selected Buildings

The participants were asked to describe their experiences at the sacred and secular buildings. The following responses were elicited from participants regarding their experience at the Rothko Chapel.

Wow... I'm in awe... the space feels very powerful and meditative.

I feel extremely tranquil and relaxed. The Chapel offers profound introspection.

I feel at peace with myself and with the universe, here. I've been coming to the Chapel for many years... the Chapel enables me to connect with, for lack of a better word, a 'higher consciousness'... I am able to experience it directly in the Chapel... its completely different to anything else that I experience elsewhere... and in a very mercenary way, I want to analyze the feeling... what exactly is this feeling... why does it feels a certain way... how I can absorb that knowledge and understanding and subsequently use it in my daily understanding of architecture and practice. It feels very mercenary saying this, but it is what I think to be put on the earth to do... I keep trying to draw this knowledge into the intellectual aspect of my life and profession for creative purposes... so that I can reproduce it... so that I can describe it and pass it on to others... so that I can teach it. I think that this study has a lot of power... these questions are very pertinent, but are not addressed today... the study is significant, because it is not easy to define. As architects, when designing buildings, we are usually consumed by function, budgets, personnel and resources... rarely will you find a client that will let you design a building that is based on sacred knowledge and principles... this is unfortunate.

I sense qualities of quietness... ceremonial tradition... deep mysticism... mystical space and time... the Chapel makes you want to explore the mystery within yourself and the mysterious nature of the sacred experience in a deep holistic way.

This place has qualities of openness... the Chapel has a certain quality of hush and quietness... it is very singular and unified.

It has natural and strong orientation. It is empty yet filled with sacral meaning.

The following responses were elicited from participants regarding their experience at the Contemporary Arts Museum.

I seem to feel busy inside the museum... it feels edgy.

The experience is one of intense activity... it feels busy ... not centered... not focused... superficial.

I feel hyper-active... there is too much happening at this place.

Ambiguous... torn... scattered... I feel torn in this space... the space pulls me in different directions... it draws me here and there... around the whole building... it is the opposite of centering, a feeling that is generated on account of a variety of things, including the space within, and the geometry of the

building itself... you are not sure which way to walk... or where to go... there is a sense of disorientation to this place.

Hesitation... disorientation... the Museum does not have one direction or another to walk in... there is no direction here... at the Rothko Chapel, it seems like there is a natural path to take... here there seems to be hesitation upon entry.

There is confusion... experience is fleeting... whimsical... vapid.

Results associated with the exploration of experiences at the sacred and secular buildings are displayed in the content analytic summary table (Table IV-11). The columns under *Data – Rothko Chapel* and *Data – Contemporary Arts Museum* summarize the focus group discussion data into distinct categories that address specific concepts pertaining to the experiences elicited at the Rothko Chapel and the Contemporary Arts Museum. The underlying concepts that evolved as a result of content analysis of the focus group discussion data are listed under the column *Reference to Concepts*.

TABLE IV-11. Summary of concepts associated with the experiences elicited at the Rothko Chapel and the Contemporary Arts Museum.

Reference to concepts	Data - Rothko Chapel	Data - Contemporary Arts Museum
Unique nature of experience	Completely different to anything experienced elsewhere;	
Intensity of experience	Wow; in awe; very powerful experience.	Experience is superficial; fleeting; whimsical; vapid.
Feelings of relaxation	Relaxed; at peace with oneself and universe; extremely tranquil; quietness; certain quality of hush.	Busy; edgy; intense activity; hyper-active; torn; confusion; hesitation.
Feelings of mysticism	Qualities of deep mysticism, mystical space and time sensed.	
Feelings of introspection	Space feels meditative; enables profound introspection; fosters exploration of mystery within oneself; qualities of openness.	
Feelings of sacredness	Fosters deep and holistic exploration of mysterious nature of sacred experience; filled with sacral meaning; enables direct experience and connection with higher consciousness.	
Direction	Natural and strong orientation.	Disorientation due to internal space and geometry of building; draws and pulls in different directions; no direction.
Ceremonial Order	Ceremonial tradition.	
Path/Procession	Chapel has a natural path.	
Void	Chapel is empty.	
Unity	Very singular; unified.	Not centered; not focused; opposite of centering; Too much happening; ambiguous; scattered.

4.5.3 Exploration of Sacredness of Selected Buildings

The participants were asked to determine whether they experienced the selected buildings to be sacred or secular and why. The Rothko Chapel was experienced to be sacred by the participants. The following responses were elicited from participants regarding the Rothko Chapel.

The Chapel feels sacred to me. I have always had a great sense of affinity to this place. Its sacredness though, is not measurable... you cannot say that one place is more sacred than another... sacredness cannot be measured or compared against itself... either you feel it or you don't... the Chapel just feels sacred. There is a sensory feeling of unification to this place. In the West, we don't seem to design too many spaces that provide for the inclusion of sacredness or spaces that would help us connect with the sacred... the practice of designing sacred architecture seems common in other cultures such as Asia, the Middle East... it seems to be a natural process for these cultures.

The Rothko Chapel makes me want to slow down. The sacred is immensely perceptible in this space. The Chapel has something apart from what we see and experience everyday in our lives... the experience of the Chapel is one that I don't have very often in Houston... I feel at peace with myself when I'm inside the Chapel as compared to feeling scattered in my everyday life... I feel unified with the universe here. The experience here goes to another level... above function and reason... something that I am not able to articulate precisely in words... architecture can foster the function and intention of a building and take it to a higher level, in that sense, the Chapel confirms the power of architecture. The Chapel is designed to embrace you... it has two unique qualities... at times, it draws something out of you... at other times, it closes in, around you... it sometimes draws you in and sometimes draws you out... depending on what you seek, the Chapel could help you look inward or outward. When you stop analyzing the space in your mind, the sacredness of the Chapel begins to set in. The Chapel is profoundly conducive to the experience of the sacred... it exemplifies a truly conducive environment for the sacred experience... 'conductive' is the operable word for the Chapel... it functions as a pure filter for the sacred to perceive through. The Chapel feels sacred... different... unique... special... quiet... and apart from the outside world. The Chapel is about 'a' space... one space... a single space that is unified, very focused and very central. The Chapel can be sacred to people belonging to different faiths, on account of its non-religious association.

A place becomes sacred not only on account of physical or environmental characteristics but also because of what happens in the space itself... the Chapel is sacred to me because I have knowledge about special events and memorial services that have been conducted here in the past... it is sacred also on account of highly respected spiritual leaders that have been within this space, walked this ground and spoken within... knowing what has happened in a space and subsequently experiencing that space yourself, can make it sacred... this can happen in any environment, but it is more pronounced in sacred architecture on account of its formal characteristics. Architecture can effectively reinforce the intent, purpose, and function of a space and take it to a higher level. A sacred place can exist at different levels... it can be sacred to an individual or to a community... when individuals and the community, collectively share in the sacredness of a place, that place becomes universally sacred to everyone, as in the case of the Rothko Chapel. The Chapel becomes sacred, knowing about all that has happened within and by the fact that people's experiences within the Chapel have been sacred. Everything seems to come together to one point at the Chapel... the architecture... the purpose... the intent... the function... its all one... and collectively all these, make the Chapel sacred for me.

The Chapel is sacred to me... I know that it is sacred because I can feel it... there is something about the Chapel that makes me feel that way... I feel in awe, when in this place... you cannot appropriately describe this feeling in words. The space draws you in and embraces you. You cannot measure sacredness or quantify sacredness in terms of numbers... you can compare two places and say that maybe one place is sacred while the other is not. The architectural characteristics of the Chapel make it sacred. Knowing about all that has happened in this space also makes it sacred. Anything can become holy or sacred, if you are aware of it in a certain way... the ground on which Moses stood was sacred to him because he was aware of the presence of the divine... the sacred had announced its presence at that place and he was aware of this presence... our awareness of the divine here, makes this place sacred for us... its a cyclic reaction - when a space becomes conducive to our awareness of the sacred, we feel that the place is sacred... space makes it easier for us to experience the sacred and then our very awareness of it, draws us further into the sacred experience... our unique experience in the Chapel, contributes to our awareness of the sacred here... and both these aspects put together, make this place sacred for us. It would be very difficult to experience sacredness in a place like Walmart or any other place that is not conducive to projecting or expressing the sacred... the Chapel is almost like a conductor for the sacred to manifest itself... the Chapel makes it very easy for us to experience the sacred. The Chapel provides a profound sense of unification to your heart, mind and soul.

Projecting what and how your heart feels about sacredness onto a place, can contribute to making that place sacred. Sacred intent is crucial to creating sacred place... sacred places rarely exist without anyone intending them to be sacred. Sacred architecture creates an aura of oneness with the universe... it brings about an inward experience that cannot be fully studied or analyzed. The Rothko Chapel has a sense of transcendence... it has something different from the city and urban profanity that is experienced everyday in our lives. It seems like we have become more peaceful, since we first entered the Chapel... it takes a while for the Chapel to act on you. Place can become sacred if it has some connection with the divine or if it is dedicated to some significant event or person in history... the Chapel also functions as a shrine to the memory and work of Mark Rothko. Creating places that are not only functional but also sacred, is one of the primary goals of architecture... to make a place sacred or holy, you have to intentionally be aware of doing just that. A great deal of ancient knowledge regarding the creation of sacred architecture has been lost... modern people do not comprehend or have appropriate knowledge on how to do this anymore... there seemed to be a great deal of understanding on how to do this in the past... perhaps it was just understood better in the past. Incorporating a sacred space in the household has not really been part of our culture... the media, technology, television, and the internet occupy prime locations in our homes and in our lives... people today, seem to want large rooms in their residences for media purposes – media rooms with state-of-the-art home theatre systems... but the thought process on incorporating a sacred space in our homes is slowly gaining momentum... there is a lot of interest on this subject today... it would be wonderful to have a small and separate space in the house that fosters and contributes to the experience of sacredness.

Space in itself is not capable of being holy or sacred... God is holy... nature and man become holy through the presence of God... when Moses confronted the burning bush, it was the divine presence of God that made the place sacred... Moses had to take off his shoes because the ground upon which he was standing had become hallowed through the presence of God... it was the presence of God in that time and place that made it sacred... place becomes sacred on account of what happens at the place including, rituals and ceremonies that take place within its confines. The Rothko Chapel is sacred and has a sense of timelessness to it. It feels different and very special. It is unique and ideal for escaping from the worries of the mundane world... in that sense this place is sacred to me. It promotes and fosters a relationship between what is holy and what is material... it encourages you in the pursuit of the sacred and the greater concept of Unity. The Chapel functions as a channel or filter for the sacred to manifest through. The experience within, could be classified as 'something else'... something totally different from everything else that you experience in the mundane world.

Because the Chapel is non-denominational, you don't have to belong to a particular faith to experience its sacredness and for this very reason, the Chapel could be sacred to anyone and everyone, including atheists.

The Contemporary Arts Museum was not experienced to be sacred by the participants. The following responses were elicited from participants regarding the Contemporary Arts Museum.

This place does not feel sacred to me... it is a secular place. It feels like a very busy space... this space has a constant chatter to it, which is distracting. It feels like the opposite of Rothko Chapel.

This place expresses complete polar properties as compared to the Rothko Chapel... a great deal of contrast and difference can be perceived between the two places, despite their similarities in scale and underlying function as galleries. We all seem to agree about the essence of difference between the two places... we essentially have the same thoughts as far as differences between the two places are concerned, but seem to express these differences in different ways. People come to the Contemporary Arts Museum and Rothko Chapel for different reasons... one could feel comfortable at both places for very different reasons.

The Museum does not feel sacred. It feels extremely busy... your attention is over-stimulated in this place. The photograph of the young woman in the lower level of the museum is extraordinary... I could not resist paying attention to it... the photograph felt sacred to me... this feeling has nothing to do with the architecture of the Museum itself... by contrast, the characteristics of the Rothko Chapel, make it significantly more conducive to experience the sacred... you feel attuned with the Chapel and seem to be deeply aware of its sacredness.

There is significant contrast between the first floor and lower floor of the Museum... the lower floor feels different compared to the first floor, on account of all the photographs on the wall... there is a sense of order to their arrangement... it has to do with the content of the photographs... the people and their expressions... perhaps it also has to do with the arrangement of the photographs in a linear row within the space... but this feeling has nothing to do with the character of the building itself. The Rothko Chapel makes you want to bow your head, cross your hands, as if in prayer, sit, relax, whereas here, you want to fight your way through the exhibits as quickly as possible... you feel in haste at this place.

The experience here, instead of being one that quiets you or slows you, is the complete opposite... I wouldn't come here to quiet down or relax. This building is reflective of the western

contemporary thought process in architectural expression... it feels vapid. The Polaroid photographs exhibited in the lower level of the Museum draw you into the moment... nothing else seems to matter, when you are viewing them... the power of art is apparent in the Polaroid's... but this experience has really nothing to do with the building... except that the building allows this to happen in a purely functional way.

The Polaroid photographs seem to be elements that foster a meditative feel to the lower level of the Museum ... you can focus on the photographic portraits of people and meditate all day long.

Results associated with the exploration of sacredness of the sacred and secular buildings are displayed in the content analytic summary table (Table IV-12). The columns under *Data – Rothko Chapel* and *Data – Contemporary Arts Museum* summarize the focus group discussion data into distinct categories that address specific concepts pertaining to the sacredness of the Rothko Chapel and the Contemporary Arts Museum. The underlying concepts that evolved as a result of content analysis of the focus group discussion data are listed under the column *Reference to Concepts*.

TABLE IV-12. Summary of concepts associated with the sacredness of the Rothko Chapel and the Contemporary Arts Museum.

Reference to concepts	Data - Rothko Chapel	Data - Contemporary Arts Museum
Articulation of experience	Cannot be articulated precisely in words; above function and reason; cannot be appropriately described in words; cannot be fully studied or analyzed; sacredness experienced when analysis of space ceases.	
Ability of place to contribute to sacredness	Immensely perceptible to sacredness; profoundly conducive to sacredness; truly conducive to sacredness; sacredness easily experienced; place is sacred because one experiences it as sacred; one feels attuned with Chapel and deeply aware of its sacredness; architectural characteristics, physical/environmental characteristics contribute to sacredness; embodies formal characteristics of sacred architecture; architecture effectively reinforces the intent, purpose, and function and takes it to a higher level; space makes it easy to experience the sacred; characteristics of Chapel, make it significantly more conducive to experience the sacred; place dedicated to significant event or person in history is sacred – Chapel functions as shrine to memory and work of Mark Rothko.	Not sacred; secular; opposite of experience elicited at Chapel; complete polar properties compared to Chapel; great deal of contrast and difference perceived as compared to Chapel, despite similarities in scale and underlying function as galleries; everyone agrees about essence of difference between Chapel and Museum; everyone has similar thoughts about differences between Chapel and Museum.
Measure of sacredness of place	Sacredness cannot be measured or compared; sacredness cannot be measured or quantified in terms of numbers; sacredness is either experienced at a place or not; places can be compared to determine only whether they are sacred or not.	
Universality of sacredness of place	Sacred to different faiths due to non-religious association; non-denominational nature makes Chapel universally sacred; universally sacred to all; sacred place can be sacred to an individual or to a community - when individuals and community, collectively share in the sacredness of place, the place becomes universally sacred.	
Ways in which place contributes to sacredness	Functions as pure filter for sacredness; functions as conductor for sacred to manifest; functions as channel/filter for sacred to manifest; encourages one in the pursuit of sacred; confirms power of architecture - fosters function and intention of building and takes it to a higher level; designed to embrace; takes time for Chapel to act on an individual; promotes and fosters a relationship between what is holy and what is material.	
Unique nature of experience	Different; unique; uncommon; something else, very special; great sense of affinity felt; apart from experience of outside world; apart from everyday experience; totally different from everything else one experiences in the mundane world; different from city and urban profanity experienced in everyday life.	
Intensity of experience	In awe.	
Feelings of relaxation	Quiet; peaceful; makes one want to slow down; quiets and slows; ideal for escaping from worries of mundane world; peace with oneself experienced as compared to feeling scattered in everyday life; makes you want to bow head, cross hands, as if in prayer, sit and relax.	very busy space; extremely busy; constant chatter; distracting; haste; attention is over-stimulated; opposite of quiet and slow; does not quiet down or relax; makes one want to fight his/her way through the exhibits really quickly.
Feelings of introspection	Two unique qualities – helps one look inward or outward, depending on what is sought; space draws one in with embrace; inward experience.	
Center	Very central.	
Ceremonial Order	Ceremonial activities; rituals; activities that take place within its confines; knowledge about all that has happened within space; knowledge about activities (special events, memorials) conducted within space; presence of highly respected spiritual leaders within space; knowledge of activities within space; knowledge that other individual experience given place as sacred.	

TABLE IV-12 Continued

Reference to concepts	Data - Rothko Chapel	Data - Contemporary Arts Museum
Intention	Sacred intent is crucial to creating sacred place; projecting what and how ones heart feels about sacredness onto a place; sacred places rarely exist without sacred intent; anything can become holy or sacred with awareness; place becomes sacred when space becomes conducive to our awareness of the sacred; to make place sacred, one has to intentionally be aware of creating sacred space; very difficult to experience sacredness when place is not conducive to projecting or expressing the sacred.	
Objects	Chapel functions as shrine to memory and work of Mark Rothko.	Polaroid photographs are sacred – has nothing to do with architecture of Museum; Polaroid photographs draw one into the moment – has nothing to do with the building, except that building allows exhibition to happen functionally; Polaroid photographs foster a meditative feel to lower level – one can focus on photographs and meditate; significant contrast between first floor and lower floor, on account of content (expressions of people) of Polaroid photographs – has nothing to do with the character of the building; sense of order to arrangement of Polaroid photographs.
Timelessness	Chapel has sense of timelessness.	
Unity	One space, 'a' space, single space – unified; very focused; unity expressed through architecture, purpose, intent, function – collectively these contribute to sacredness; provides profound sense of unification to heart, mind and soul; sensory feeling of unification; creates aura of oneness with the universe; encourages one in the pursuit of Unity; unified with the universe.	
Deity	sense of transcendence; connection with the divine; awareness of divine; presence of God.	
Difference in knowledge about sacred place-making	Ancient knowledge regarding creation of sacred architecture has been lost; modern people do not comprehend or have appropriate knowledge on how to create sacred place; there seemed to be greater understanding on creating sacred places in the past – possibly because it was better understood in the past; media, technology, television, and internet occupy prime locations in modern homes and lives; museum is reflective of western contemporary thought process in architectural expression – vapid.	
Difference in interest about sacred place-making	Practice of designing sacred architecture seems more common in eastern than western cultures; inclusion of sacred spaces seen as natural process for eastern cultures; creating sacred places – one of the primary goals of architecture; incorporating sacred spaces in dwellings is not part of western cultures; intent on incorporating sacred spaces in dwellings is gaining momentum in west; greater interest in sacred place-making is currently being generated in west; dedication of small and separate space in dwellings that foster and contribute to experience of sacredness is highly desirable.	
Miscellaneous Comments		People visit Museum and Chapel for different reasons – one can feel comfortable at both places for very different reasons.

4.5.4 Exploration of Architectural Characteristics that Impact Sacredness

The participants were asked to identify what architectural characteristics contributed to their experience of sacredness (if at all) at the sacred and secular buildings. The following responses were elicited from participants regarding architectural characteristics that contributed to the experience of sacredness at Rothko Chapel.

The Chapel has a tremendous sense of light and contributes immensely to the experience of the sacred within this place. The absence of sound... the whispers... the silence inside the Chapel contribute to the peaceful and profound experience of sacredness within the Chapel. Natural materials or earth-related materials expressed at the Chapel contribute to an enormous sense of grounding... this experience of grounding draws you within the womb of the Chapel and then subsequently helps you breathe and reach out to the divine. There is a sense of peaceful containment at the Chapel. The Chapel has an immense sense of focus to it... the very geometry of the building and the light entering through the skylight in the ceiling, engenders a profound sense of centrality and focus to the Chapel. It is not only one or two of these factors, but everything in totality that affects me and makes this place sacred for me.

The acoustics of the Chapel are phenomenal and have an amazing, almost trance-like effect on people... this seems to be especially more pronounced when a large group is inside the Chapel... sound seems to have a spectacular effect on people inside the Chapel. I think a sacred place can occur in natural landscape too... I have experienced this before at places, where there seemed to be something really strong and beautiful about the landscape.

The sacredness experienced within, has a lot to do with the quality of sound, quietness and stillness of this Chapel. The quality of light within, contributes immensely to the sacred experience. The sound and light make you feel very different inside the Chapel... there is something about the sound and light that evokes sacredness at this place and it touches you in a way that you cannot describe... it can almost be likened to breathing... the light, sound and the architecture of the Chapel, open and close your heart... your heart is able to breath freely inside the Chapel.

The formal aspects of the Chapel's architecture make it different and sacred for me. The power of Chapel is that the space fosters the sacred experience and embraces you. There is a sense of grounding that welcomes you upon entry. The sacredness experienced within the Chapel has a lot to do with the scale, shape and geometry of the building... the space of the building...

the proportions of the building. The chapel is based on the shape of an octagon... the octagon is considered the most pristine and perfect shape in Feng Shui, for various reasons, one being that it has eight sides... it relates to the Ba Gua... the eight sides of the Chapel lend itself to a cyclic process of movement that tends to slow you down... the eight sides makes you want to slow down and experience the space within... it seems like the octagonal geometry was purposefully intended to slow you down. The quality of light is simply out of this world. Ornamentation of any sort has been left out, which makes the inside and outside of the Chapel feel like a void in space. The strongest aspect of the Chapel is that it has an extraordinary sense of focus and centrality. It is constructed with materials of the Earth, and even though its color palette is very neutral and earthy, it has a profound impact and affect on me. No matter how carefully an architect designs a building, the space will be used in the manner that people want to use it... as architects, we have little control over how people will specifically use a space, but we can definitely foster and encourage people to use it the way we intend them to, at least to a certain degree. The Chapel is a great example of how an architect can encourage people to meditate and introspect.

The Chapel has an amazing quality of sound and light to it. The geometry and spatial characteristics of Rothko Chapel have a focus to it, and this in turn helps you focus. Other things that make it sacred are landscape elements around the building, including the water pool with the obelisk... the shallow pool with the image of the obelisk reflected on the surface of the water feels serene. The architecture of the Chapel reinforces the sacred. The texture of materials used... their colors... the light... the sound... the paintings... the geometry... the emptiness within the Chapel... all these factors collectively set the mood for the sacredness that is experience within the Chapel.

The Chapel is unique because it functions to a great extent to block the outside world and withhold the sacred experience within... the large solid walls isolate you from the mundane world outside... separating the sacred from what is mundane. The light and sound qualities within the Chapel are simply amazing... the sound inside the Chapel has an eerie quality to it - almost like a whisper with an echo, which is barely perceptible. The Chapel has an profound sense of centrality to it... its centrality is the most dominant aspect of its architectural character... it is symmetrical and formal in many ways – its axes, form, spatial alignment, spatial hierarchy, entry/exit sequence, and these characteristics seem to be deliberately designed into the Chapel... these features converge into one strong experience at the Chapel... the combination of all these features, produces a very powerful effect... these qualities enhance and foster the experience of the sacred within the Chapel... they come together in unison to uplift the experience within the Chapel.

The Contemporary Arts Museum was not experienced to be sacred by the participants. The following responses were elicited from participants regarding architectural characteristics at the Contemporary Arts Museum.

Both, the Rothko Chapel and the Contemporary Arts Museum have similar functions, but the experience within each building is completely different... the geometry of the buildings... the experience of approaching and entering each building... the quality of light and sound within each building... these features are completely different in each building. You are subjected to excessively different influences in here... you have a hard time deciding which way to turn or which way to proceed in. The form or geometry of the Museum is not apparent when you are inside the building... the octagonal geometry of the Rothko Chapel is apparent when you are inside the Chapel... you literally have to walk all around the building to realize that it is a parallelogram. The materiality and texture of the concrete columns in the lower level of the Museum seem to resonate with you. The interior of the Museum is flexible in terms of spatial divisions and can be easily organized into several different arrangements, depending on the nature of the exhibits... at the Rothko Chapel, it would be very difficult to rearrange the interior space, on account of the permanent nature of the exhibits.

The geometry of the Museum makes you want to turn around hastily at the acute and obtuse corners. There seems to be so much going on in here... at the Rothko Chapel, there is nothingness. I am very aware of the parallelogram and the point... there is something that is unsettling about that. The space itself does not feel conducive to the sacred experience.

The geometry of the building is disconcerting... the geometry feels alien-like... it makes you want to move constantly... you don't feel like slowing down, or sitting, or relaxing... you feel like you have to constantly move... the Museum doesn't lend itself to relaxing or experiencing the space within... people seem to move around the Museum rather quickly and rapidly... your eyes seem to constantly change focus and tend to jump to different locations within the space... the Museum is about movement... it makes me feel like a child... the Museum has a child-like energy to it... at the Rothko Chapel, movement is significantly slower and quieter. The Museum was designed to be contemporary and busy, and it is successful to that extent. The Museum feels disturbing in a way... there is a sense of hesitation upon entry... probably on account of the overly low entrance foyer and the inherent geometry of the Museum, itself... the Museum feels off-balance compared to the Rothko Chapel, where I feel very balanced and calm. There seems to be a natural quality to the concrete columns in the lower level of the Museum... a feature that this building otherwise does not display... the lower level expresses materials in a very natural way... the lower level is

homogeneous in the way that it expresses materials. The building cannot be experienced as one space... it has a series of spaces that change with every exhibition... the Museum is able to function in many different ways depending on how the interior space is divided... the space feels very malleable and temporary... the partitions can be moved around and the space can be divided in many different ways... the Museum can accept change very easily ... it can be compared to a supermarket, where things come in and go out frequently... the experience in here is constantly changing and morphing... the power and energy of the Museum, if any, are its ever-changing exhibits, and not the building itself... the Rothko Chapel in contrast, is timeless... it is designed around explicit and permanent pieces of art... it is not designed to be a constantly changing environment... the Chapel is a very conscious and fixed container for those pieces of art... in that sense, the Chapel is not controlled by time.

The Museum has a skewed geometry to it... it is a rectangle that has been skewed into a parallelogram... it feels strange entering the building at an obtuse apex of the parallelogram... the form seems to be deliberately intended that way, to throw you off balance, disorient and shock you... and rightfully so, since it is meant to be a cutting edge Avant-garde building that houses contemporary art. I was attracted to the concrete columns in the lower level of the Museum... they have very interesting features... they are rectangular in shape with chamfered corners... the concrete columns have the imprints of wooden forms and the actual grain of the wood... the column surface is textured and resembles the surface texture of wood... they have richness of texture and appearance. People come to the Museum to see exhibits that are constantly changing. The building feels inherently divisive... the scattering tendency of this building is opposite to what the sacred represents. The Museum has similarities with sub-urban mansions – the entrance here is tall and out of scale... upon passing through this tall entry, you end up in a low-scaled lounge space that has no definition and feels weird in proportion... at the Rothko Chapel, you have to enter through a smaller human-scaled entrance before proceeding into the inner sanctum... the entrance at the Chapel feels like architectural feature that Frank Lloyd Wright would design... there seems to be such flavor in the experience of scale at the Rothko Chapel, not only upon entry, but also when you are deep within its inner belly... scale plays a huge role in architecture. The designs of the two buildings were dealt with, and approached very differently... the difference in experience between the two places is due to different design intentions for each place and the incorporation of different design features at each place. The Contemporary Arts Museum is a reflection of modern life... the Museum is vapid, fast, morphing, evolving... it portrays chaos... confusion... uncertainty... these feelings contrast with what is sacred. The Museum does not have a sense of orientation, neither does it have any directional axes ...

even the symmetry that arises out of the shape of the parallelogram is not really apparent, regardless of whether you are inside or outside.

When you enter the Museum, you feel a sense of clutter... the space is busy and edgy. The shape of Museum – the different angles, the angular corners, the edges are disturbing and distracting... there seems to be a lack of orientation... there is a significant contrast between your experience of the Museum and the Rothko Chapel... upon entry, the Chapel leads you... it feels like somebody exquisitely planned a specific journey for someone entering the Chapel as compared to the haphazard feeling experienced upon entering the Museum. As architects we need to come up with the right terminology for a sacred space in our households... some language or terminology to help realize a specific space for the sacred in everyday architecture... it could be as simple as having a niche in the wall, if not an actual space... maybe call it a shrine... temple... prayer space... meditation space... contemplation space. There are times when we need centering... symmetry... axially... as experienced in the Rothko Chapel... there is an immense degree of comfort in that... there is a certain degree of longing for that... but there is also a part of us that craves for novelty... we feel the need to be the surprised, shocked and unsettled... feelings that some of us experienced in the Contemporary Arts Museum... as humans we are part secular and part sacred... our buildings reflect that.

Results associated with the exploration of architectural characteristics that impact sacredness (if at all) of the sacred and secular buildings are displayed in the content analytic summary table (Table IV-13). The columns under *Data – Rothko Chapel* and *Data – Contemporary Arts Museum* summarize the focus group discussion data into distinct categories that address specific concepts pertaining to architectural characteristics that impact sacredness (if at all) of the Rothko Chapel and the Contemporary Arts Museum. The underlying concepts that evolved as a result of content analysis of the focus group discussion data are listed under the column *Reference to Concepts*.

TABLE IV-13. Summary of concepts associated with the architectural characteristics that impact sacredness of the Rothko Chapel and the Contemporary Arts Museum.

Reference to concepts	Data - Rothko Chapel	Data - Contemporary Arts Museum
Center	Centering experience; immense sense of focus; spatial characteristics of Chapel have focus - help one focus; profound sense of centrality; profound sense of centrality and focus; strongest aspect of Chapel is extraordinary sense of focus and centrality; most dominant aspect of architecture is centrality.	
Bounding	Large solid walls present; sense of peaceful containment; very conscious and fixed container for pieces of art.	
Direction	Symmetrical and formal – axes and alignment are deliberately designed to enhance and foster sacredness; axially present.	Does not have sense of orientation; no directional axes; lack of orientation.
Descent	Natural or earth-related materials contribute to enormous sense of grounding; grounding draws one within womb of Chapel and helps one breath and reach out to divine; sense of grounding welcomes one upon entry.	
Passage	Symmetrical and formal entry/exit sequence are deliberately designed into Chapel to enhance and foster sacredness; one has to enter through smaller human-scaled entrance before proceeding into inner sanctum; much flavor in experience of scale at entry; leads you upon entry – specifically and exquisitely planned journey upon entering Chapel.	Experience of approaching and entering is completely different as compared to Chapel; sense of hesitation upon entry - on account of overly low entrance foyer and inherent geometry; feels strange entering building at obtuse apex of parallelogram; entrance is tall and out of scale; upon passing through tall entry, one ends up in low-scaled lounge space that has no definition and feels weird in proportion - similar to sub-urban mansions; haphazard feeling experienced upon entering.
Numeric Order	Eight sides of Chapel facilitate cyclic process of movement that tend to slow one down; eight sides makes one want to slow down and experience space within.	
Geometric Order	Symmetry present; octagonal geometry is apparent when one is inside; design is based on octagon - considered most pristine and perfect shape in Feng Shui; octagon relates to Ba Gua; octagonal geometry purposefully intended to slow one down; geometry of building contributes to sacredness; geometry contributes to sacredness; shape of building contributes to sacredness; symmetry and form are deliberately designed into Chapel to enhance and foster sacredness; geometry of building engenders profound sense of centrality and focus; geometry of Chapel has focus – help one focus.	Geometry is completely different as compared to Chapel; form or geometry is not apparent when one is inside; skewed geometry – rectangle is skewed into parallelogram; one has to literally walk all around building to realize building is a parallelogram; symmetry arising out of parallelogram is not really apparent, regardless of one being inside or outside; geometry makes one want to turn around hastily at acute and obtuse corners; geometry of building is disconcerting; geometry feels alien-like – makes one want to move constantly; one is highly aware of parallelogram and point – unsettling; geometry contributes to sense of hesitation upon entry; form is deliberately intended to disorient, shock, and throw individuals off balance; shape of Museum - different angles, angular corners, edges are disturbing and distracting.
Spatial Order	Power of Chapel lies in space - fosters the sacred experience and embraces the individual; spatial characteristics of building contribute to sacredness; symmetrical and formal spatial hierarchy are deliberately designed into Chapel to enhance and foster sacredness; spatial characteristics of Chapel have focus – help one focus;	Space does not feel conducive to sacred experience; one has hard time deciding which way to turn or which way to proceed in.
Anthropomorphic Order	Human-scaled entrance; scale plays huge role; scale of building contributes to sacredness; proportions of building contribute to sacredness; much flavor in experience of scale at entry and inner space.	Entrance is tall and out of scale; lounge space feels weird in proportion – similar to sub-urban mansions.
Ordered Nature	Landscape elements – water pool with obelisk contribute to sacredness.	
Ordered Views	Functions to great extent to block outside world and withhold sacred experience within - makes Chapel unique; large solid walls isolate one from mundane world outside, separating sacred from mundane.	

TABLE IV-13 Continued

Reference to concepts	Data - Rothko Chapel	Data - Contemporary Arts Museum
Materiality	Natural or earth-related materials contribute to enormous sense of grounding; constructed with materials of the Earth; color palette of materials is very neutral and earthy – has profound impact and affect on individuals; texture and color of materials contribute to sacredness.	Lower level expresses materials in very natural way; lower level is homogeneous in expressing materials; materiality and texture of concrete columns in lower level resonate with individuals; concrete columns in lower level have natural quality – a feature that is otherwise not displayed; concrete columns in lower level are attractive/have very interesting features – rectangular with chamfered corners, imprinted with wooden forms and actual grain of wood; column surface is textured and resembles surface texture of wood – richness of texture and appearance.
Elementals	Shallow pool with image of reflected obelisk is serene.	
Light	Light contributes to sacredness; tremendous sense of light – contributes immensely to sacredness; quality of light contributes immensely to sacredness; light evokes sacredness and touches one in ways that cannot be described – likened to breathing (opens and closes your heart); light makes one feel very different; light entering through skylight in ceiling engenders profound sense of centrality and focus; quality of light is out of this world; amazing quality of light; light qualities are simply amazing.	Quality of light is completely different as compared to Chapel.
Path/Procession	Movement inside Chapel is significantly slower and quieter.	Architecture of Museum is about movement; one feels like he/she has to constantly move; people move around rather quickly and rapidly.
Void	Ornamentation is left out, making inside and outside feel like voids in space; nothingness present; emptiness within Chapel contributes to sacredness.	
Sound	Sound makes one feel very different; sound contributes to sacredness; quality of sound, quietness and stillness contribute immensely to sacredness; sound evokes sacredness and touches one in ways that cannot be described – likened to breathing (opens and closes your heart); absence of sound/presence of silence and whispers – contribute to peaceful and profound experience of sacredness; acoustics are phenomenal; acoustics have amazing trance-like effect on people – especially more pronounced with larger groups; sound has spectacular effect; amazing quality of sound; sound qualities are simply amazing; sound inside Chapel has eerie quality – whisper-like qualities with barely perceptible echo.	Sound is completely different as compared to Chapel.
Objects	Paintings contribute to sacredness.	power and energy are its ever-changing exhibits, not the building;
Timelessness	Permanent exhibits; Chapel designed around explicit and permanent pieces of art – not designed to be constantly changing environment – Chapel not controlled by time – timeless.	
Unity	Building characteristics do not act in isolation - everything in totality affects individuals and makes place sacred; texture and color of materials, light, sound, paintings, geometry, emptiness within chapel – collectively set mood for sacredness; combination of axes, form, spatial alignment, spatial hierarchy, entry/exit sequence produce a very powerful effect – features converge into one strong experience and come together in unison to uplift experience within Chapel.	Busy and edgy; so much going on; sense of clutter; inherently divisive; unsettling; novelty, surprise and shock experienced; scattering tendency is opposite to what sacred represents; significant contrast in experience as compared to Chapel; one is subjected to excessively different influences; cannot be experienced as one space – series of spaces that change with exhibitions; reflects modern life and contrasts with what is sacred – vapid, fast, morphing, evolving; chaotic, confusion, uncertainty; experience constantly changes and morphs.
Ability of place to contribute to sacredness	Formal aspects of architecture make it different and sacred; architecture of Chapel reinforces the sacred.	

TABLE IV-13 Continued

Reference to concepts	Data - Rothko Chapel	Data - Contemporary Arts Museum
Feelings of relaxation	Architecture of Chapel opens and closes your heart – the heart is able to breathe freely; very balanced and calm.	Disturbing experience; feels off-balance compared to Chapel; one doesn't feel like slowing down, or sitting, or relaxing; architecture doesn't lend itself to relaxing or experiencing space within; eyes constantly change focus and jump to different locations within space; makes one feel like a child – has child-like energy; designed to be busy – successful to that extent.
Feelings of introspection	Architects have little control over how people will specifically use a space – they can only foster and encourage people to use a space in ways it is intended to be used to a certain degree – Chapel is great example of how architects can encourage people to meditate and introspect.	
Ancillary differences	Difficult to rearrange interior space due to permanent nature of the exhibits.	Design is dealt with, and approached very differently as compared to Chapel; cutting edge Avant-garde building that houses contemporary art; though functions are similar, experience is completely different as compared to Chapel; difference in experience as compared to Chapel is due to different design intentions and incorporation of different design features; designed to be contemporary – successful to that extent; space feels very malleable and temporary; space accepts change very easily; interior is flexible in terms of spatial divisions and can be easily organized into several different arrangements, depending on nature of exhibits; functions in different ways depending on how interior space is divided; partitions can be moved around and space can be divided in different ways; changing exhibits; likened to supermarket – things come in and go out frequently; people come to Museum to see exhibits that are constantly changing.
Miscellaneous Comments	Certain degree of longing/part of us needs centering; symmetry; axiality as experienced in Chapel – provides immense degree of comfort; architects need to define correct language or terminology for sacred space (shrine, temple, prayer space, meditation space, contemplation space) in dwellings to facilitate the incorporation of specific sacred space in everyday architecture – could be actual space or niche in wall.	Part of us craves for novelty, need to be the surprised, shocked, unsettled as experienced in Museum; buildings reflect part sacred and part secular nature of humans.

CHAPTER V

DISCUSSION

5.1 INTRODUCTION

Data collected and analyzed in the study, by means of grounded theory methods, are discussed accordingly: 1) Differences in pattern presence at selected buildings; 2) Differences in pattern quality at selected buildings; 3) Sacredness of selected buildings; 4) Characteristics that contribute to sacredness; 5) Concepts associated with meaning of sacred and secular; and 6) Development of place-making pattern matrix.

Combined findings from graphical data and questionnaire data were utilized to explore differences in pattern presence between the sacred and secular buildings. Both questionnaire data and graphical data showed that there were a higher number of place-making patterns present at the sacred place, i.e., Rothko Chapel, than at the secular place, i.e., Contemporary Arts Museum.

Combined findings from questionnaire data and focus group discussion data were utilized to explore differences in pattern quality between the sacred and secular buildings. Both questionnaire data and focus group discussion data showed that the quality of expression of the place-making patterns was higher at the sacred place, i.e., Rothko Chapel, than at the secular place, i.e., Contemporary Arts Museum.

Questionnaire data helped to validate focus group discussion data on whether the Rothko Chapel and the Contemporary Arts Museum were experienced to be sacred or secular. Collectively, questionnaire data and focus group discussion data revealed that the Rothko Chapel was experienced to be sacred, while the Contemporary Arts Museum was not. In addition, focus group discussion data was utilized to explore experiences elicited at the sacred and secular buildings that contributed to Rothko Chapel being experienced as sacred and Contemporary Arts Museum not being experienced as sacred.

Combined findings from questionnaire data and focus group discussion data were utilized to identify characteristics that contributed to sacredness of the selected buildings. Fifteen characteristics identified by questionnaire data and focus group discussion data seemed to

correspond with the place-making patterns from the CPPS at the Rothko Chapel. In addition, questionnaire data and focus group discussion data collectively revealed that eight characteristics, not associated with the place-making patterns from the CPPS, seemed to contribute to the sacredness of the Rothko Chapel.

Focus group discussion data also revealed certain concepts associated with the meaning of sacred and secular. Concepts derived through focus group discussions that could not be classified under any of the above stated discussions, were also included under this category.

A place-making pattern matrix is developed based on graphical data, questionnaire data, and focus group discussion data that were collected and analyzed in the research. The matrix is composed of nineteen items arranged in three concentric layers on the basis of their hierarchical importance (in terms of pattern presence and pattern quality) in contributing to sacredness of place. The place-making pattern matrix is meant to serve as a guide for architects in creating sacred place.

5.2 DIFFERENCES IN PATTERN PRESENCE AT SELECTED BUILDINGS

Questionnaire data associated with differences in presence of place-making patterns at the sacred and secular buildings helped to validate the findings of graphical data gathered by means of case study analyses. Differences in the presence of individual place-making patterns from the CPPS, between the sacred and secular buildings are identified below. In the discussions that follow, if 16 or more questionnaire participants (representing 66.6% or greater percentage values of questionnaire participants, i.e., high range percentage values) agreed that a specific pattern was present at a given setting, then that pattern was observed to be present rather than absent by participants at that setting, i.e., the likelihood of that pattern being present at that setting is fairly certain. Similarly, if 8 or less questionnaire participants (representing 33.3% or lower percentage values of questionnaire participants, i.e., low range percentage values) agreed that a specific pattern was present at a given setting, then that pattern was observed to be absent rather than present by participants at that setting, i.e., the likelihood of that pattern being absent at that setting is fairly certain. If 9 to 15 questionnaire participants (representing 33.4% to 66.5% of questionnaire participants, i.e., mid range percentage values) agreed that a specific pattern was present at a given setting, then that pattern could be present or absent at that setting, i.e., the likelihood of that pattern being present or absent at that setting is uncertain. However, in

cases of such uncertainty associated with pattern presence, it is more likely that the specific pattern is present rather than absent at the given setting, if 13 or more questionnaire participants (representing 54.1% or higher percentage values of questionnaire participants, i.e., tending more towards high range percentage values) observed it to be present at that setting. On the other hand, it is more likely that the specific pattern is absent rather than present at the given setting, if 11 or less questionnaire participants (representing 45.8% or lower percentage values of questionnaire participants – tending more towards low range percentage values) observed it to be present at that setting.

Based on questionnaire data, the difference in percentage values associated with pattern presence at the sacred and secular buildings was calculated, i.e., Difference in percentage values = percentage value of participants that answered positively (i.e., yes), to individual place-making patterns being present at Rothko Chapel minus percentage value of participants that answered positively (i.e., yes), to individual place-making patterns being present at Contemporary Arts Museum.

Questionnaire data revealed how, or in what ways, individual place-making patterns from the CPPS were observed to be present at the sacred and secular buildings. This data helped to validate graphical data associated with ways in which individual place-making patterns from the CPPS physically corresponded with the architecture of the sacred and secular buildings, and to identify which characteristics were strongest contributors to the presence of individual place-making patterns at the sacred and secular buildings.

5.2.1 Difference in Presence of Center

Graphical data revealed that the place-making pattern *Center* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 23 out of 24 questionnaire participants (representing 95.8% of the total number of questionnaire participants) agreed that *Center* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 6 out of 24 questionnaire participants (representing 25% of the total number of questionnaire participants) agreed that *Center* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Center* is present at the Rothko Chapel, while it is absent at the Contemporary Arts Museum. Based on questionnaire data, the difference

in percentage values associated with the presence of *Center* at the Rothko Chapel over the Contemporary Arts Museum is 70.8%.

Graphical data revealed that the presence of *Center* at the Rothko Chapel was experienced through the spatial center of the octagonal shaped plan of the Chapel. Questionnaire data revealed that the presence of *Center* at the Rothko Chapel was experienced through: 1) octagonal plan of the chapel; 2) inner chapel spatial center; 3) arrangement of centralized furniture; 4) symmetrical enclosures; and 5) centralized skylight in the ceiling. Based on questionnaire data (participant comments), the strongest contributors to the presence of *Center* at the Rothko Chapel were observed to be: 1) symmetry of the octagonal shape; and 2) centralized skylight.

Based on questionnaire data, contributors to the presence of *Center* at the Contemporary Arts Museum could not be determined, as all four participant comments recorded, indicated that the presence of *Center* was not experienced.

5.2.2 Difference in Presence of Bounding

Graphical data revealed that the place-making pattern *Bounding* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 24 out of 24 questionnaire participants (representing 100% of the total number of questionnaire participants) agreed that *Bounding* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 20 out of 24 questionnaire participants (representing 83.3% of the total number of questionnaire participants) agreed that *Bounding* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Bounding* is present at the Rothko Chapel as well as the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Bounding* at the Rothko Chapel over the Contemporary Arts Museum is 16.7%.

Graphical data revealed that the presence of *Bounding* at the Rothko Chapel was experienced through the walls, floor, and ceiling of the Chapel. Questionnaire data revealed that the presence of *Bounding* at the Rothko Chapel was experienced through: 1) walls; 2) floor; 3) ceiling; 4) restricted views to the exterior; and 5) paintings. Based on questionnaire data, the strongest

contributors to the presence of *Bounding* at the Rothko Chapel were observed to be: 1) walls; 2) ceiling; and 3) restricted views to the exterior.

Graphical data revealed that the presence of *Bounding* at the Contemporary Arts Museum was experienced through the walls, floor, and ceiling of the Museum. Questionnaire data revealed that the presence of *Bounding* at the Contemporary Arts Museum was experienced through: 1) restricted views to the exterior; 2) roof trusses defining ceiling; 3) walls; 4) floor; and 5) uniqueness of materiality. Based on questionnaire data, the strongest contributors to the presence of *Bounding* at the Contemporary Arts Museum were observed to be: 1) restricted views to the exterior; and 2) roof trusses defining ceiling.

5.2.3 Difference in Presence of Direction

Graphical data revealed that the place-making pattern *Direction* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 17 out of 24 questionnaire participants (representing 70.8% of the total number of questionnaire participants) agreed that *Direction* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 8 out of 24 questionnaire participants (representing 33.3% of the total number of questionnaire participants) agreed that *Direction* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Direction* is present at the Rothko Chapel, while it is absent at the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Direction* at the Rothko Chapel over the Contemporary Arts Museum is 37.5%.

Graphical data revealed that the presence of *Direction* at the Rothko Chapel was experienced through the alignment of the Chapel entrance with the pool on the south. Questionnaire data revealed that the presence of *Direction* at the Rothko Chapel was experienced through: 1) orientation of site and building to cardinal points; 2) orientation of building entrance with plaza and obelisk; 3) orientation of obelisk with the sky; 4) orientation of light entering the skylight from above; and 5) symmetrical building form. Based on questionnaire data, the strongest contributors to the presence of *Direction* at the Rothko Chapel were observed to be: 1) orientation of building entrance with plaza and obelisk; and 2) orientation of light entering the skylight from above.

Although graphical data revealed that *Direction* at the Contemporary Arts Museum was experienced to be absent, questionnaire data revealed that its presence was experienced through: 1) orientation of the edges of the building with site boundaries; 2) oblique orientation of the walls of the building; and 3) pointed edges of building. Questionnaire data indicated that there were no strong contributors to the presence of *Direction* at the Contemporary Arts Museum.

5.2.4 Difference in Presence of Descent

Graphical data revealed that the place-making pattern *Descent* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 16 out of 24 questionnaire participants (representing 66.6% of the total number of questionnaire participants) agreed that *Descent* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 16 out of 24 questionnaire participants (representing 66.6% of the total number of questionnaire participants) agreed that *Descent* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Descent* is present at the Rothko Chapel as well as the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Descent* at the Rothko Chapel over the Contemporary Arts Museum is 0%.

Graphical data revealed that the presence of *Descent* at the Rothko Chapel was experienced through the darkness inside the Chapel. Questionnaire data revealed that the presence of *Descent* at the Rothko Chapel was experienced through: 1) cave-like darkness inside the chapel; 2) source of light from skylight making one look upwards; 3) downward contour of the ceiling; 4) black floor color; 5) water pool; and 6) verticality and reflection of the obelisk in the pool. Based on questionnaire data, the strongest contributors to the presence of *Descent* at the Rothko Chapel were observed to be: 1) darkness inside the Chapel; and 2) verticality of the obelisk.

Graphical data revealed that the presence of *Descent* at the Contemporary Arts Museum was experienced through the descending stairs leading to the lower level of the Museum. Questionnaire data revealed that the presence of *Descent* at the Contemporary Arts Museum was experienced through: 1) basement at lower level; 2) descending stairs; 3) lower level

clerestory windows; 4) connection of building to ground; and 5) plinth defining building base. Based on questionnaire data, the strongest contributors to the presence of *Descent* at the Contemporary Arts Museum were observed to be: 1) basement at lower level; and 2) descending stairs.

5.2.5 Difference in Presence of Ascent

Graphical data revealed that the place-making pattern *Ascent* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 22 out of 24 questionnaire participants (representing 91.6% of the total number of questionnaire participants) agreed that *Ascent* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 14 out of 24 questionnaire participants (representing 58.3% of the total number of questionnaire participants) agreed that *Ascent* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel, but is not as successful in validating graphical data at the Contemporary Arts Museum, i.e., *Ascent* is present at the Rothko Chapel, while its presence at the Contemporary Arts Museum is uncertain. Although the presence of *Ascent* at the Contemporary Arts Museum could not be successfully ascertained, it is more likely that *Ascent* is present rather than absent at the setting, as more than half the number of questionnaire participants felt that it was present. Based on questionnaire data, the difference in percentage values associated with the presence of *Ascent* at the Rothko Chapel over the Contemporary Arts Museum is 33.3%.

Graphical data revealed that the presence of *Ascent* at the Rothko Chapel was experienced through the light entering the skylight in the ceiling of the Chapel. Questionnaire data revealed that the presence of *Ascent* at the Rothko Chapel was experienced through: 1) light entering the skylight in the ceiling; 2) ascending ceiling planes; 3) vertical reveals in the walls; 4) verticality of the obelisk; 5) vertical paintings; and 6) geometry of the Chapel. Questionnaire data indicated that there were no strong contributors to the presence of *Ascent* at the Contemporary Arts Museum.

Although graphical data revealed that *Ascent* at the Contemporary Arts Museum was experienced to be absent, questionnaire data revealed that its presence was experienced through: 1) verticality of entry; 2) verticality of siding on the exterior; 3) high trussed ceilings; 4) hanging exhibits; 5) basement clerestory windows. Based on questionnaire data, the

strongest contributors to the presence of *Ascent* at the Contemporary Arts Museum were observed to be: 1) verticality of entry; and 2) verticality of siding on the exterior.

5.2.6 Difference in Presence of Passage

Graphical data revealed that the place-making pattern *Passage* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 20 out of 24 questionnaire participants (representing 83.3% of the total number of questionnaire participants) agreed that *Passage* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 14 out of 24 questionnaire participants (representing 58.3% of the total number of questionnaire participants) agreed that *Passage* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel, but is unsuccessful in validating graphical data at the Contemporary Arts Museum, i.e., *Passage* is present at the Rothko Chapel, while its presence at the Contemporary Arts Museum is uncertain. Although the presence of *Passage* at the Contemporary Arts Museum could not be successfully ascertained, it is more likely that *Passage* is present rather than absent at the setting, as more than half the number of questionnaire participants felt that it was present. Based on questionnaire data, the difference in percentage values associated with the presence of *Passage* at the Rothko Chapel over the Contemporary Arts Museum is 25%.

Graphical data revealed that the presence of *Passage* at the Rothko Chapel was experienced through the main entrance doorway of the Chapel. Questionnaire data revealed that the presence of *passage* at the Rothko Chapel was experienced through: 1) main entrance of the Chapel; 2) entrance foyer; 3) inner portals of Chapel; 4) vestibules between main entrance and inner portals of Chapel; and 5) main passage on the exterior of the chapel. Based on questionnaire data, the strongest contributor to the presence of *Passage* at the Rothko Chapel were observed to be: 1) main entrance of the Chapel; and 2) vestibules between main entrance and inner portals of Chapel.

Graphical data revealed that the presence of *Passage* at the Contemporary Arts Museum was experienced through the main entrance doorway of the Museum. Questionnaire data revealed that the presence of *Passage* at the Contemporary Arts Museum was experienced through: 1) tall narrow main entrance; 2) low-height entrance foyer; 3) contrast in transition space between tall narrow main entrance and low-height entrance foyer; and 4) threshold of dark

exhibit room in the basement. Based on questionnaire data, the strongest contributor to the presence of *Passage* at the Contemporary Arts Museum was observed to be the contrast in transition space between tall narrow main entrance and low-height entrance foyer.

5.2.7 Difference in Presence of Numeric Order

Graphical data revealed that the place-making pattern *Numeric Order* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 20 out of 24 questionnaire participants (representing 83.3% of the total number of questionnaire participants) agreed that *Numeric Order* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 14 out of 24 questionnaire participants (representing 58.3% of the total number of questionnaire participants) agreed that *Numeric Order* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel, but is unsuccessful in validating graphical data at the Contemporary Arts Museum, i.e., *Numeric Order* is present at the Rothko Chapel, while its presence at the Contemporary Arts Museum is uncertain. Although the presence of *Numeric Order* at the Contemporary Arts Museum could not be successfully ascertained, it is more likely that *Numeric Order* is present rather than absent at the setting, as more than half the number of questionnaire participants felt that it was present. Based on questionnaire data, the difference in percentage values associated with the presence of *Numeric Order* at the Rothko Chapel over the Contemporary Arts Museum is 25%.

Graphical data revealed that the presence of *Numeric Order* at the Rothko Chapel was experienced through the eight sides of the Chapel. Questionnaire data revealed that the presence of *Numeric Order* at the Rothko Chapel was experienced through: 1) octagonal plan; 2) six portals; 3) inner Chapel doors opposing each other; 4) three panels – possible reference to trinity; 5) fourteen panels/paintings arranged around octagon; and 6) repetition/re-occurrence of panels/paintings. Based on questionnaire data, the strongest contributors to the presence of *Numeric Order* at the Rothko Chapel were observed to be: 1) eight sides of the Chapel; and 2) fourteen panels/paintings arranged around octagon.

Although graphical data revealed that *Numeric Order* at the Contemporary Arts Museum was experienced to be absent, questionnaire data revealed that its presence was experienced through: 1) triangular elements - building footprint, ceiling trusses, angled windows, projection

over main entrance; 2) regularity of trusses; and 3) four wall planes. Questionnaire data indicated that there were no strong contributors to the presence of *Numeric Order* at the Contemporary Arts Museum.

5.2.8 Difference in Presence of Geometric Order

Graphical data revealed that the place-making pattern *Geometric Order* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 24 out of 24 questionnaire participants (representing 100% of the total number of questionnaire participants) agreed that *Geometric Order* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 21 out of 24 questionnaire participants (representing 87.5% of the total number of questionnaire participants) agreed that *Geometric Order* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Geometric Order* is present at the Rothko Chapel as well as the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Geometric Order* at the Rothko Chapel over the Contemporary Arts Museum is 12.5%.

Graphical data revealed that the presence of *Geometric Order* at the Rothko Chapel was experienced through the octagonal shape of the Chapel. Questionnaire data revealed that the presence of *Geometric Order* at the Rothko Chapel was experienced through: 1) octagonal form of the Chapel; 2) niches in the wall; 3) shadows cast on walls; and 4) octagonal dropped ceiling. Based on questionnaire data, the strongest contributors to the presence of *Geometric Order* at the Rothko Chapel were observed to be: 1) octagonal form of the Chapel; and 2) symmetry of form.

Graphical data revealed that the presence of *Geometric Order* at the Contemporary Arts Museum was experienced through the parallelogram shape of the Museum. Questionnaire data revealed that the presence of *Geometric Order* at the Contemporary Arts Museum was experienced through: 1) triangular shape of building; 2) irregularity of building shape; 3) parallelogram shape of the building; and 4) exterior of building expressing cubic and rectilinear geometry. Based on questionnaire data, the strongest contributor to the presence of *Geometric Order* at the Contemporary Arts Museum was observed to be the parallelogram shape of the building.

5.2.9 Difference in Presence of Spatial Order

Graphical data revealed that the place-making pattern *Spatial Order* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 21 out of 24 questionnaire participants (representing 87.5% of the total number of questionnaire participants) agreed that *Spatial Order* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 14 out of 24 questionnaire participants (representing 58.3% of the total number of questionnaire participants) agreed that *Spatial Order* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel, but is unsuccessful in validating graphical data at the Contemporary Arts Museum, i.e., *Spatial Order* is present at the Rothko Chapel, while its presence at the Contemporary Arts Museum is uncertain. Although the presence of *Spatial Order* at the Contemporary Arts Museum could not be successfully ascertained, it is more likely that *Spatial Order* is present rather than absent at the setting, as more than half the number of questionnaire participants felt that it was present. Based on questionnaire data, the difference in percentage values associated with the presence of *Spatial Order* at the Rothko Chapel over the Contemporary Arts Museum is 29.2%.

Graphical data revealed that the presence of *Spatial Order* at the Rothko Chapel was experienced through the hierarchical arrangement of spaces from the center of the Chapel to the outdoors. Questionnaire data revealed that the presence of *Spatial Order* at the Rothko Chapel was experienced through: 1) singularity of space; 2) octagonal form of Chapel; 3) geometrical planes of Chapel; 4) symmetrical, orthogonal, central, diagonal, and pyramidal characteristics of Chapel; 5) circular/radial order inside Chapel defining center; 6) space between vestibules and Chapel; 7) rectangular entrance foyer; and 8) relationship, transition, rhythm and gradual extension of spatial sequence between inside and outside – pond – sculpture – entry – Chapel. Based on questionnaire data, the strongest contributor to the presence of *Spatial Order* at the Rothko Chapel was observed to be the hierarchical arrangement of spaces from the center of the Chapel to the outdoors.

Based on questionnaire data, contributors to the presence of *Spatial Order* at the Contemporary Arts Museum could not be determined, as all seven participant comments recorded, indicated that the presence of *Spatial Order* was not experienced.

5.2.10 Difference in Presence of Anthropomorphic Order

Graphical data revealed that the place-making pattern *Anthropomorphic Order* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 18 out of 24 questionnaire participants (representing 75% of the total number of questionnaire participants) agreed that *Anthropomorphic Order* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 10 out of 24 questionnaire participants (representing 41.6% of the total number of questionnaire participants) agreed that *Anthropomorphic Order* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel, but is unsuccessful in validating graphical data at the Contemporary Arts Museum, i.e., *Anthropomorphic Order* is present at the Rothko Chapel, while its presence at the Contemporary Arts Museum is uncertain. Although the presence of *Anthropomorphic Order* at the Contemporary Arts Museum could not be successfully ascertained, it is more likely that *Anthropomorphic Order* is absent rather than present at the setting, as more than half the number of questionnaire participants felt that it was absent. Based on questionnaire data, the difference in percentage values associated with the presence of *Anthropomorphic Order* at the Rothko Chapel over the Contemporary Arts Museum is 33.4%.

Graphical data revealed that the presence of *Anthropomorphic Order* at the Rothko Chapel was experienced through the high ceilings of the Chapel. Questionnaire data revealed that the presence of *Anthropomorphic Order* at the Rothko Chapel was experienced through: 1) high ceilings; 2) large inner space; 3) door and furniture heights; 4) 1:1 or 1:2 proportioning system; 5) paintings expressing profiles of human form; 6) octagonal shape of plan; 7) building proportions; and 8) gradual increase in ceiling height from main entrance to inside Chapel. Based on questionnaire data, the strongest contributor to the presence of *Anthropomorphic Order* at the Rothko Chapel was observed to be the high ceilings.

Although graphical data revealed that *Anthropomorphic Order* at the Contemporary Arts Museum was experienced to be absent, questionnaire data revealed that its presence was experienced through: 1) guard and stair railings; 2) lobby furniture; 3) height of entrance door; 4) lobby height; and 5) canopy/overhang. Questionnaire data indicated that there were no strong contributors to the presence of *Anthropomorphic Order* at the Contemporary Arts Museum.

5.2.11 Difference in Presence of Ordered Nature

Graphical data revealed that the place-making pattern *Ordered Nature* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 23 out of 24 questionnaire participants (representing 95.8% of the total number of questionnaire participants) agreed that *Ordered Nature* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 18 out of 24 questionnaire participants (representing 75% of the total number of questionnaire participants) agreed that *Ordered Nature* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Ordered Nature* is present at the Rothko Chapel as well as the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Ordered Nature* at the Rothko Chapel over the Contemporary Arts Museum is 20.8%.

Graphical data revealed that the presence of *Ordered Nature* at the Rothko Chapel was experienced through the water pool with bamboo screening. Questionnaire data revealed that the presence of *Ordered Nature* at the Rothko Chapel was experienced through: 1) reflecting water pool with the obelisk; 2) bamboo screening; 3) groomed ground cover; and 4) sunlight and shadows cast in the inner Chapel. Based on questionnaire data, the strongest contributor to the presence of *Ordered Nature* at the Rothko Chapel was observed to be the reflecting water pool with the obelisk.

Graphical data revealed that the presence of *Ordered Nature* at the Contemporary Arts Museum was experienced through the vegetative shrubs on the site. Questionnaire data revealed that the presence of *Ordered Nature* at the Contemporary Arts Museum was experienced through: 1) ground vegetation; 2) hedges; 3) oak trees 4) metal tree sculpture; and 5) water fountain. Based on questionnaire data, the strongest contributor to the presence of *Ordered Nature* at the Contemporary Arts Museum was observed to be the hedges.

5.2.12 Difference in Presence of Celestial Order

Graphical data revealed that the place-making pattern *Celestial Order* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 21 out of 24 questionnaire

participants (representing 87.5% of the total number of questionnaire participants) agreed that *Celestial Order* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 4 out of 24 questionnaire participants (representing 16.6% of the total number of questionnaire participants) agreed that *Celestial Order* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Celestial Order* is present at the Rothko Chapel, while it is absent at the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Celestial Order* at the Rothko Chapel over the Contemporary Arts Museum is 70.9%.

Graphical data revealed that the presence of *Celestial Order* at the Rothko Chapel was experienced through light entering the skylight in the ceiling. Questionnaire data revealed that the presence of *Celestial Order* at the Rothko Chapel was experienced through 1) light entering the skylight; and 2) sloped ceiling. Based on questionnaire data, the strongest contributor to the presence of *Celestial Order* at the Rothko Chapel was observed to be the light entering the skylight in the ceiling.

Although graphical data revealed that *Celestial Order* at the Contemporary Arts Museum was experienced to be absent, questionnaire data revealed that its presence was experienced through: 1) tall opening at the entrance; and 2) basement clerestory windows. Questionnaire data indicated that there were no strong contributors to the presence of *Celestial Order* at the Contemporary Arts Museum.

5.2.13 Difference in Presence of Differentiating Boundaries

Graphical data revealed that the place-making pattern *Differentiating Boundaries* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 16 out of 24 questionnaire participants (representing 66.6% of the total number of questionnaire participants) agreed that *Differentiating Boundaries* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 8 out of 24 questionnaire participants (representing 33.3% of the total number of questionnaire participants) agreed that *Differentiating Boundaries* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Differentiating Boundaries* is present at the Rothko Chapel,

while it is absent at the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Differentiating Boundaries* at the Rothko Chapel over the Contemporary Arts Museum is 33.3%.

Graphical data revealed that the presence of *Differentiating Boundaries* at the Rothko Chapel was experienced through varying offsets in the wall planes of the Chapel. Questionnaire data revealed that the presence of *Differentiating Boundaries* at the Rothko Chapel was experienced through: 1) south oriented entrance; 2) singular wide niche in octagonal plan; 3) differences in length, size and shape of walls and paintings; 4) difference between wall color and painting color; and 5) skylight in ceiling differentiating celestial boundary. Based on questionnaire data, the strongest contributor to the presence of *Differentiating Boundaries* at the Rothko Chapel was observed to be the differences in length, size and shape of walls and paintings.

Although graphical data revealed that *Differentiating Boundaries* at the Contemporary Arts Museum was experienced to be absent, questionnaire data revealed that its presence was experienced through: 1) difference between wall plane with entrance and other three planes; and 2) difference between ceiling and wall planes. Questionnaire data indicated that there were no strong contributors to the presence of *Differentiating Boundaries* at the Contemporary Arts Museum.

5.2.14 Difference in Presence of Ordered Views

Graphical data revealed that the place-making pattern *Ordered Views* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 20 out of 24 questionnaire participants (representing 83.3% of the total number of questionnaire participants) agreed that *Ordered Views* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 16 out of 24 questionnaire participants (representing 66.6% of the total number of questionnaire participants) agreed that *Ordered Views* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Ordered Views* is present at the Rothko Chapel as well as the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Ordered Views* at the Rothko Chapel over the Contemporary Arts Museum is 16.7%.

Graphical data revealed that the presence of *Ordered Views* at the Rothko Chapel was experienced through the large solid walls of the Chapel restricting all views to the outside. Questionnaire data revealed that the presence of *Ordered Views* at the Rothko Chapel was experienced through: 1) absence of views; 2) wall planes without openings; 3) singular view of diffused light entering the skylight in the ceiling; and 4) entrance sequence - displays visual connectivity up to main Chapel space. Based on questionnaire data, the strongest contributors to the presence of *Ordered Views* at the Rothko Chapel were observed to be: 1) large solid walls of the Chapel restricting all views to the outside; and 2) singular view of diffused light entering the skylight in the ceiling.

Graphical data revealed that the presence of *Ordered Views* at the Contemporary Arts Museum was experienced through the walls of the Museum restricting all views to the outside. Questionnaire data revealed that the presence of *Ordered Views* at the Contemporary Arts Museum was experienced through: 1) absence of views at the eye level; 2) controlled view of exterior at entrance; 3) absence of views due to building enclosure; and 4) controlled views through basement clerestory windows. Based on questionnaire data, the strongest contributors to the presence of *Ordered Views* at the Contemporary Arts Museum were observed to be: 1) absence of views due to building enclosure; and 2) controlled views through basement clerestory windows.

5.2.15 Difference in Presence of Materiality

Graphical data revealed that the place-making pattern *Materiality* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 24 out of 24 questionnaire participants (representing 100% of the total number of questionnaire participants) agreed that *Materiality* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 22 out of 24 questionnaire participants (representing 91.6% of the total number of questionnaire participants) agreed that *Materiality* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Materiality* is present at the Rothko Chapel as well as the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Materiality* at the Rothko Chapel over the Contemporary Arts Museum is 8.4%.

Graphical data revealed that the presence of *Materiality* at the Rothko Chapel was experienced through the gray walls of the Chapel. Questionnaire data revealed that the presence of *Materiality* at the Rothko Chapel was experienced through: 1) massive and reflective/coarse gray walls; 2) simplicity of materiality palate; 3) dark color of materiality; 4) chunky wood furniture; and 5) differences in ground-walls-ceiling materiality. Based on questionnaire data, the strongest contributor to the presence of *Materiality* at the Rothko Chapel was observed to be the gray walls of the Chapel.

Graphical data revealed that the presence of *Materiality* at the Contemporary Arts Museum was experienced through the metallic siding of the Museum. Questionnaire data revealed that the presence of *Materiality* at the Contemporary Arts Museum was experienced through: 1) metal siding; 2) steel space frames; 3) pine floor; 4) concrete; and 5) glass. Based on questionnaire data, the strongest contributors to the presence of *Materiality* at the Contemporary Arts Museum were observed to be: 1) metal siding; 2) steel space frames; and 3) pine floor.

5.2.16 Difference in Presence of Elementals

Graphical data revealed that the place-making pattern *Elementals* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 22 out of 24 questionnaire participants (representing 91.6% of the total number of questionnaire participants) agreed that *Elementals* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 16 out of 24 questionnaire participants (representing 66.6% of the total number of questionnaire participants) agreed that *Elementals* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Elementals* is present at the Rothko Chapel as well as the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Elementals* at the Rothko Chapel over the Contemporary Arts Museum is 25%.

Graphical data revealed that the presence of *Elementals* at the Rothko Chapel was experienced through the walls – earth, skylight – fire, pool – water, and movement of bamboo groove – wind. Questionnaire data revealed that the presence of *Elementals* at the Rothko Chapel was experienced through: 1) Chapel walls, floor tiles, and gravel – representing earth; 2) light entering skylight – representing fire; 3) pool – representing water; and 4) water ripples and

movement of bamboo grove – representing wind. Based on questionnaire data, the strongest contributors to the presence of *Elementals* at the Rothko Chapel were observed to be: 1) Chapel walls, floor tiles, and gravel – representing earth; 2) light entering skylight – representing fire; and 3) pool – representing water.

Graphical data revealed that the presence of *Elementals* at the Contemporary Arts Museum was experienced through the fountain – water. Questionnaire data revealed that the presence of *Elementals* at the Contemporary Arts Museum was experienced through: 1) wood floor – earth; 2) fountain – water; and 3) air duct – wind. Based on questionnaire data, the strongest contributor to the presence of *Elementals* at the Contemporary Arts Museum were observed to be the fountain – water.

5.2.17 Difference in Presence of Light

Graphical data revealed that the place-making pattern *Light* was observed to be present at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. A total of 24 out of 24 questionnaire participants (representing 100% of the total number of questionnaire participants) agreed that *Light* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 15 out of 24 questionnaire participants (representing 62.5% of the total number of questionnaire participants) agreed that *Light* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel, but is unsuccessful in validating graphical data at the Contemporary Arts Museum, i.e., *Light* is present at the Rothko Chapel, while its presence at the Contemporary Arts Museum is uncertain. Although the presence of *Light* at the Contemporary Arts Museum could not be successfully ascertained, it is more likely that *Light* is present rather than absent at the setting, as more than half the number of questionnaire participants felt that it was present. Based on questionnaire data, the difference in percentage values associated with the presence of *Light* at the Rothko Chapel over the Contemporary Arts Museum is 37.5%.

Graphical data revealed that the presence of *Light* at the Rothko Chapel was experienced through sunlight entering the skylight in the ceiling and contrasting with darkness inside the Chapel. Questionnaire data revealed that the presence of *Light* at the Rothko Chapel was experienced through: 1) skylight in the ceiling; and 2) high contrast of light and shadows. Based

on questionnaire data, the strongest contributors to the presence of *Light* at the Rothko Chapel were observed to be: 1) skylight; and 2) high contrast of light and shadows.

Graphical data revealed that the presence of *Light* at the Contemporary Arts Museum was experienced through sunlight entering the basement clerestory windows of the Museum. Questionnaire data revealed that the presence of *Light* at the Contemporary Arts Museum was experienced through: 1) vertical opening at entrance lobby; and 2) basement clerestory windows. Based on questionnaire data, the strongest contributor to the presence of *Light* at the Contemporary Arts Museum was observed to be the basement clerestory windows.

5.2.18 Difference in Presence of Ceremonial Order

Graphical data revealed that the place-making pattern *Ceremonial Order* was observed to be present at the sacred building, i.e., Rothko Chapel, while it was observed to be absent at the secular building, i.e., Contemporary Arts Museum. A total of 24 out of 24 questionnaire participants (representing 100% of the total number of questionnaire participants) agreed that *Ceremonial Order* was present at the Rothko Chapel, while at the Contemporary Arts Museum, 6 out of 24 questionnaire participants (representing 25% of the total number of questionnaire participants) agreed that *Ceremonial Order* was present. Questionnaire data, therefore, successfully validates graphical data at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., *Ceremonial Order* is present at the Rothko Chapel, while it is absent at the Contemporary Arts Museum. Based on questionnaire data, the difference in percentage values associated with the presence of *Ceremonial Order* at the Rothko Chapel over the Contemporary Arts Museum is 75%.

Graphical data revealed that the presence of *Ceremonial Order* at the Rothko Chapel was experienced through interaction of people with the paintings and Chapel itself. Questionnaire data revealed that the presence of *Ceremonial Order* at the Rothko Chapel was experienced through: 1) arrangement of benches at the center of the Chapel; 2) presence of floor mats; 3) singularity of light source; 4) paintings; 5) octagonal geometry expressing circumambulation around Chapel; 6) simplicity and unifying character of space; and 7) building's inherent function as Chapel and gathering space. Based on questionnaire data, the strongest contributors to the presence of *Ceremonial Order* at the Rothko Chapel were observed to be: 1) octagonal

geometry expressing circumambulation around Chapel; and 2) building's inherent function as Chapel and gathering space.

Although graphical data revealed that *Ceremonial Order* at the Contemporary Arts Museum was experienced to be absent, questionnaire data revealed that its presence was experienced through: 1) descending stairs leading to basement; and 2) square-shaped enclosed theater space in basement. Questionnaire data indicated that there were no strong contributors to the presence of *Ceremonial Order* at the Contemporary Arts Museum.

5.2.19 Summary of Differences in Pattern Presence at Selected Buildings

Differences in percentage values of the presence of place-making patterns at the sacred and secular buildings are shown in Table V-1. The column under *Pattern list* displays individual place-making patterns. The column under *Percentage (%) value of pattern presence* shows the percentage value of the presence of individual place-making patterns at the sacred and secular buildings. The column under *Difference in percentage (%) values* shows the difference in percentage (%) values associated with pattern presence at the Rothko Chapel over the Contemporary Arts Museum based on questionnaire data, i.e., *Difference in percentage (%) values* = percentage value of presence of individual place-making patterns at Rothko Chapel minus percentage value of presence of individual place-making patterns at Contemporary Arts Museum. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE V-1. Differences in percentage (%) values of pattern presence at selected buildings.

Pattern List	Percentage (%) value of pattern presence		Difference in percentage (%) values
	RC	CAM	RC - CAM
Center	95.8%	25.0%	70.8%
Bounding	100.0%	83.3%	16.7%
Direction	70.8%	33.3%	37.5%
Descent	66.6%	66.6%	0%
Ascent	91.6%	58.3%	33.3%
Passage	83.3%	58.3%	25%
Numeric Order	83.3%	58.3%	25%
Geometric Order	100.0%	87.5%	12.5%
Spatial Order	87.5%	58.3%	29.2%
Anthropomorphic Order	75.0%	41.6%	33.4%
Ordered Nature	95.8%	75.0%	20.8%
Celestial Order	87.5%	16.6%	70.9%
Differentiating Boundaries	66.6%	33.3%	33.3%
Ordered Views	83.3%	66.6%	16.7%
Materiality	100.0%	91.6%	8.4%
Elementals	91.6%	66.6%	25%
Light	100.0%	62.5%	37.5%
Ceremonial Order	100.0%	25.0%	75%

Table V-2 shows the organization of the eighteen place-making patterns in descending order based on the differences in percentage values associated with their pattern quality. The column under *Pattern list* displays individual place-making patterns. The column under *Difference in percentage (%) values* shows the difference in percentage (%) values associated with pattern presence at the Rothko Chapel over the Contemporary Arts Museum based on questionnaire data, i.e., *Difference in percentage (%) values* = percentage value of presence of individual place-making patterns at Rothko Chapel minus percentage value of presence of individual place-making patterns at Contemporary Arts Museum. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE V-2. Descending order of patterns based on percentage (%) difference in pattern presence.

Pattern list	Difference in percentage (%) values
	RC - CAM
Ceremonial Order	75%
Celestial Order	70.9%
Center	70.8%
Light	37.5%
Direction	37.5%
Anthropomorphic Order	33.4%
Ascent	33.3%
Differentiating Boundaries	33.3%
Spatial Order	29.2%
Passage	25%
Numeric Order	25%
Elementals	25%
Ordered Nature	20.8%
Bounding	16.7%
Ordered Views	16.7%
Geometric Order	12.5%
Materiality	8.4%
Descent	0%

The following Figure V-1 shows the difference in percentage values associated with pattern presence at the Rothko Chapel over the Contemporary Arts Museum based on questionnaire data, i.e., percentage value of participants that answered positively (i.e., yes), to individual place-making patterns being present at Rothko Chapel minus percentage value of participants that answered positively (i.e., yes), to individual place-making patterns being present at Contemporary Arts Museum. The place-making patterns are arranged in descending order based on the difference in percentage values associated with their pattern quality.

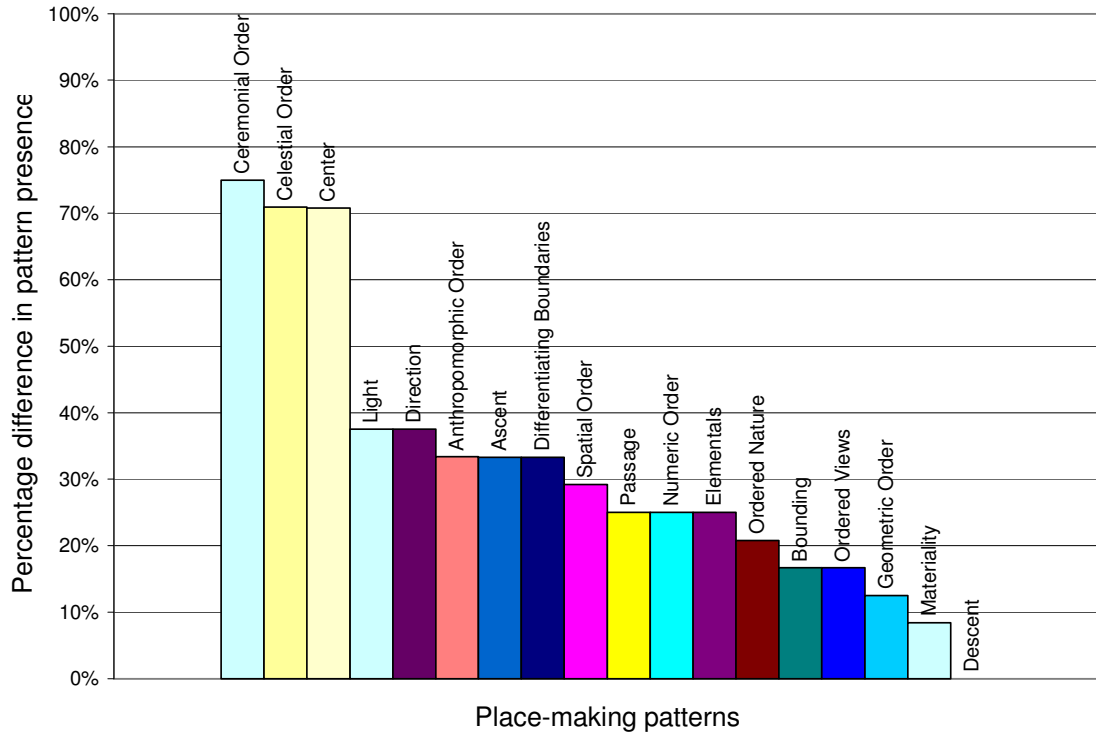


FIGURE V-1. Percentage (%) difference in pattern presence between selected buildings.

Questionnaire data revealed that the difference in percentage value of presence of the place-making pattern *Ceremonial Order* was highest. Questionnaire data revealed that three place-making patterns (i.e., *Ceremonial Order*, *Celestial Order*, *Center*) displayed exceedingly high differences in percentage values associated with pattern presence at the Rothko Chapel over the Contemporary Arts Museum. This could indicate the importance of the presence of the place-making patterns *Ceremonial Order*, *Celestial Order*, and *Center* in contributing to sacredness of place, i.e., the presence of the place-making patterns *Ceremonial Order*, *Celestial Order*, and *Center* may have greater impact in contributing to sacredness of place as compared to the presence of the place-making pattern *Descent*. It is also likely that these three place-making patterns may be exclusive to sacred place, i.e., *Ceremonial Order*, *Celestial Order*, and *Center* are more likely to be present in sacred place than secular place.

The place-making pattern *Materiality* displayed exceedingly low differences in percentage values associated with pattern presence at the Rothko Chapel over the Contemporary Arts Museum. This is because *Materiality* is inherently present in all architectural built-form, i.e., construction

materials are required for the physical manifestation of all architectural built-form. The place-making pattern *Descent* displayed no difference in percentage values of presence. This is interesting to note, because actual physical descent was present at the Contemporary Arts Museum (as experienced through the lower basement level), while at the Rothko Chapel, physical descent in the form of a lower level did not exist – *Descent* was experienced by questionnaire participants through darkness inside the Rothko Chapel.

Based on questionnaire data, the eighteen place-making patterns can be arranged in descending order of their difference in percentage values as follows: 1) Ceremonial Order; 2) Celestial Order; 3) Center; 4) Light; 5) Direction; 6) Anthropomorphic Order; 7) Ascent; 8) Differentiating Boundaries; 9) Spatial Order; 10) Passage; 11) Numeric Order; 12) Elementals; 13) Ordered Nature; 14) Bounding; 15) Ordered Views; 16) Geometric Order; 17) Materiality; 18) Descent. The order of listing indicates the difference in presence of the place-making patterns at the Rothko Chapel over the Contemporary Arts Museum in descending order. It is likely that the order of listing of the place-making patterns from left to right (i.e., highest difference to no difference in pattern presence) indicates the importance of the presence of the place-making patterns in contributing to sacredness of place, i.e., presence of the place-making patterns (in descending hierarchical order) *Ceremonial Order, Celestial Order, Center, Light, Direction, and Anthropomorphic Order*, may have greater impact in contributing to sacredness of place than the presence of the place-making patterns (in descending hierarchical order) *Ordered Nature, Bounding, Ordered Views, Geometric Order, Materiality, and Descent*.

The correspondence of pattern presence with the architecture of the sacred and secular buildings is summarized in Table V-3. The column under *Pattern list* displays individual place-making patterns. The column under *Correspondence of pattern presence with architecture based on graphical data* shows how, or in what ways, individual place-making patterns from the CPPS were observed to be present at the sacred and secular buildings based on graphical data. The column under *Correspondence of pattern presence with architecture based on questionnaire data* shows which characteristics were strongest contributors to the presence of individual place-making patterns at the sacred and secular buildings based on questionnaire data (participant comments). The column under *Correspondence of pattern presence with architecture based collectively on graphical data and questionnaire data* shows which characteristics are strongest contributors to the presence of individual place-making patterns based collectively on graphical data and questionnaire data. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE V-3. Correspondence of pattern presence with architecture of selected buildings.

Pattern list	Correspondence of pattern presence with architecture based on graphical data		Correspondence of pattern presence with architecture based on questionnaire data		Correspondence of pattern presence with architecture based collectively on graphical data and questionnaire data	
	RC	CAM	RC	CAM	RC	CAM
Center	Spatial center of the octagonal shaped plan of the Chapel.	Pattern is absent.	Symmetry of the octagonal shape; centralized skylight.	Pattern is absent.	Spatial center of the octagonal shaped plan of the Chapel.	Pattern is absent.
Bounding	Walls, floor, and ceiling of the Chapel.	Walls, floor, and ceiling of the Museum.	Walls; ceiling; restricted views to the exterior.	Restricted views to the exterior; roof trusses defining ceiling.	Walls and ceiling of the chapel.	Ceiling.
Direction	Alignment of the Chapel entrance with the pool on the south.	Pattern is absent.	Orientation of building entrance with plaza and obelisk; orientation of light entering the skylight from above.	No strong contributors.	Alignment of the Chapel entrance with the pool on the south.	No strong contributors.
Descent	Darkness inside the Chapel.	Descending stairs leading to the lower level of the Museum.	Darkness inside the Chapel; verticality of the obelisk.	Basement at lower level; descending stairs.	Darkness inside the Chapel.	Descending stairs leading to the lower level of the Museum.
Ascent	Light entering the skylight in the ceiling of the Chapel.	Pattern is absent.	Light entering the skylight in the ceiling of the Chapel.	No strong contributors.	Light entering the skylight in the ceiling of the Chapel.	No strong contributors.
Passage	Main entrance doorway of the Chapel.	Main entrance doorway of the Museum.	Main entrance of the Chapel; vestibules between main entrance and inner portals of Chapel.	Contrast in transition space between tall narrow main entrance and low-height entrance foyer.	Main entrance doorway of the Chapel.	Main entrance doorway of the Museum.
Numeric Order	Eight sides of the Chapel.	Pattern is absent.	Eight sides of the Chapel; fourteen panels/paintings arranged around octagon.	No strong contributors.	Eight sides of the Chapel.	No strong contributors.
Geometric Order	Octagonal shape of the Chapel.	Parallelogram shape of the Museum.	Octagonal form of the Chapel; symmetry of form.	Parallelogram shape of the building.	Octagonal shape of the Chapel.	Parallelogram shape of the Museum.
Spatial Order	Hierarchical arrangement of spaces from the center of the Chapel to the outdoors.	Pattern is absent.	Hierarchical arrangement of spaces from the center of the Chapel to the outdoors.	Pattern is absent.	Hierarchical arrangement of spaces from the center of the Chapel to the outdoors.	Pattern is absent.
Anthropomorphic Order	High ceilings of the Chapel.	Pattern is absent.	High ceilings.	No strong contributors.	High ceilings of the Chapel.	No strong contributors.
Ordered Nature	Water pool with bamboo screening.	Vegetative shrubs on the site.	Reflecting water pool with the obelisk.	Hedges.	Water pool.	Vegetative shrubs on the site.
Celestial Order	Light entering the skylight in the ceiling.	Pattern is absent.	Light entering the skylight in the ceiling.	No strong contributors.	Light entering the skylight in the ceiling.	No strong contributors.
Differentiating Boundaries	Varying offsets in the wall planes of the Chapel.	Pattern is absent.	differences in length, size and shape of walls and paintings.	No strong contributors.	Varying offsets in the wall planes of the Chapel.	No strong contributors.

TABLE V-3 Continued

Pattern list	Correspondence of pattern presence with architecture based on graphical data		Correspondence of pattern presence with architecture based on questionnaire data		Correspondence of pattern presence with architecture based collectively on graphical data and questionnaire data	
	RC	CAM	RC	CAM	RC	CAM
Ordered Views	Large solid walls of the Chapel restricting all views to the outside.	Walls of the Museum restricting all views to the outside.	Large solid walls of the Chapel restricting all views to the outside; singular view of diffused light entering the skylight in the ceiling.	Absence of views due to building enclosure; controlled views through basement clerestory windows.	Large solid walls of the Chapel restricting all views to the outside.	Walls of the Museum restricting all views to the outside.
Materiality	Gray walls of the Chapel.	Metallic siding of the Museum.	Gray walls of the Chapel.	Metal siding; steel space frames; pine floor.	Gray walls of the Chapel.	Metallic siding of the Museum.
Elementals	Walls – earth, skylight – fire, pool – water, and movement of bamboo groove – wind.	Fountain – water.	Chapel walls, floor tiles, and gravel – representing earth; light entering skylight – representing fire; pool – representing water.	Fountain – water	Walls – earth, skylight – fire, pool – water.	Fountain – water
Light	Sunlight entering the skylight in the ceiling and contrasting with darkness inside the Chapel.	Sunlight entering the basement clerestory windows of the Museum.	Skylight; high contrast of light and shadows.	Basement clerestory windows.	Sunlight entering the skylight in the ceiling and contrasting with darkness inside the Chapel.	Sunlight entering the basement clerestory windows of the Museum.
Ceremonial Order	Interaction of people with the paintings and the Chapel.	Pattern is absent.	Octagonal geometry expressing circumambulation around Chapel; building's inherent function as Chapel and gathering space.	No strong contributors.	Interaction of people with the paintings and the Chapel itself.	No strong contributors.

Questionnaire data (participant comments) helped to validate the correspondence of pattern presence with the architecture of the sacred and secular buildings, i.e., certain characteristics were experienced to be strongest contributors to the presence of individual place-making characteristics based collectively on graphical data and questionnaire data (participant comments). Strongest contributors to the presence of the place-making patterns at the Rothko Chapel, based collectively on graphical data and questionnaire data (participant comments), were as follows: Center – spatial center of the octagonal shaped plan of the Chapel; Bounding – walls and ceiling of the chapel; Direction – alignment of the Chapel entrance with the pool on the south; Descent – darkness inside the Chapel; Ascent – light entering the skylight in the ceiling of the Chapel; Passage – main entrance doorway of the Chapel; Numeric Order – eight sides of the

Chapel; Geometric Order – octagonal shape of the Chapel; Spatial Order – hierarchical arrangement of spaces from the center of the Chapel to the outdoors; Anthropomorphic Order – high ceilings of the Chapel; Ordered Nature – water pool; Celestial Order – light entering the skylight in the ceiling; Differentiating Boundaries – varying offsets in the wall planes of the Chapel; Ordered Views – large solid walls of the Chapel restricting all views to the outside; Materiality – gray walls of the Chapel; Elementals – walls (earth), skylight (fire), pool (water); Light – sunlight entering the skylight in the ceiling and contrasting with darkness inside the Chapel; Ceremonial Order – interaction of people with the paintings and the Chapel.

Based collectively on graphical data and questionnaire data (participant comments), strongest contributors to the presence of only nine place-making patterns could be validated at the Contemporary Arts Museum as follows: Bounding – ceiling; Descent – descending stairs leading to the lower level of the Museum; Passage – main entrance doorway of the Museum; Geometric Order – parallelogram shape of the Museum; Ordered Nature – vegetative shrubs on the site; Ordered Views – walls of the Museum restricting all views to the outside; Materiality – metallic siding of the Museum; Elementals – fountain – water; Light – sunlight entering the basement clerestory windows of the Museum. Questionnaire data (participant comments) revealed that seven place-making patterns (i.e., Direction, Ascent, Numeric Order, Anthropomorphic Order, Celestial Order, Differentiating Boundaries, Ceremonial Order) were found not to have any strong contributors, while graphical data revealed that these seven place-making patterns were absent. Two place-making patterns (i.e., Center, Spatial Order) were found to be absent at the Contemporary Arts Museum, based collectively on graphical data and questionnaire data (participant comments).

The presence of individual place-making patterns based on graphical data and questionnaire data at the sacred and secular buildings is summarized in Table V-4. The column under *Pattern list* displays individual place-making patterns. The column under *Pattern presence based on graphical data* shows the presence of individual place-making patterns based on graphical data. The column under *Pattern presence based on questionnaire data* shows the presence of individual place-making patterns based on questionnaire data. The column under *Pattern presence based on combination of data* shows the presence of individual place-making patterns based collectively on graphical data and questionnaire data. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE V-4. Differences in pattern presence at selected buildings.

Pattern list	Pattern presence based on graphical data		Pattern presence based on questionnaire data		Pattern presence based on combination of data	
	RC	CAM	RC	CAM	RC	CAM
Center	Present	Absent	Present	Absent	Present	Absent
Bounding	Present	Present	Present	Present	Present	Present
Direction	Present	Absent	Present	Absent	Present	Absent
Descent	Present	Present	Present	Present	Present	Present
Ascent	Present	Absent	Present	Most likely present	Present	Inconclusive
Passage	Present	Present	Present	Most likely present	Present	Present
Numeric Order	Present	Absent	Present	Most likely present	Present	Inconclusive
Geometric Order	Present	Present	Present	Present	Present	Present
Spatial Order	Present	Absent	Present	Most likely present	Present	Inconclusive
Anthropomorphic Order	Present	Absent	Present	Most likely absent	Present	Absent
Ordered Nature	Present	Present	Present	Present	Present	Present
Celestial Order	Present	Absent	Present	Absent	Present	Absent
Differentiating Boundaries	Present	Absent	Present	Absent	Present	Absent
Ordered Views	Present	Present	Present	Present	Present	Present
Materiality	Present	Present	Present	Present	Present	Present
Elementals	Present	Present	Present	Present	Present	Present
Light	Present	Present	Present	Most likely present	Present	Present
Ceremonial Order	Present	Absent	Present	Absent	Present	Absent

Based on graphical data, all eighteen place-making patterns (i.e., Center, Bounding, Direction, Descent, Ascent, Passage, Numeric Order, Geometric Order, Spatial Order, Anthropomorphic Order, Ordered Nature, Celestial Order, Differentiating Boundaries, Ordered Views, Materiality, Elementals, Light, Ceremonial Order) were observed to be present at the Rothko Chapel, while at the Contemporary Arts Museum, only nine place-making patterns (i.e., Bounding, Descent, Passage, Geometric Order, Ordered Nature, Ordered Views, Materiality, Elementals, Light) were observed to be present. Nine place-making patterns (i.e., Center, Direction, Ascent, Numeric Order, Spatial Order, Anthropomorphic Order, Celestial Order, Differentiating Boundaries, Ceremonial Order) were observed to be absent.

Questionnaire data validated the presence of all eighteen place-making patterns at the Rothko Chapel. At the Contemporary Arts Museum, questionnaire data validated the presence of nine place-making patterns (i.e., Bounding, Descent, Passage, Geometric Order, Ordered Nature, Ordered Views, Materiality, Elementals, Light). Questionnaire data also validated the absence of six place-making patterns (i.e., Center, Direction, Anthropomorphic Order, Celestial Order, Differentiating Boundaries, Ceremonial Order) at the Contemporary Arts Museum. Questionnaire data did not seem to agree with graphical data on the presence of three place-making patterns (i.e., Ascent, Numeric Order, Spatial Order) at the Contemporary Arts Museum, i.e., graphical data revealed that Ascent, Numeric Order, and Spatial Order were observed to be absent, while questionnaire data indicated that these patterns were experienced to be most likely present.

Graphical data and questionnaire data, collectively revealed that all eighteen place-making patterns (i.e., Center, Bounding, Direction, Descent, Ascent, Passage, Numeric Order, Geometric Order, Spatial Order, Anthropomorphic Order, Ordered Nature, Celestial Order, Differentiating Boundaries, Ordered Views, Materiality, Elementals, Light, Ceremonial Order) were present at the Rothko Chapel. Based collectively on graphical data and questionnaire data, nine place-making patterns (i.e., Bounding, Descent, Passage, Geometric Order, Ordered Nature, Ordered Views, Materiality, Elementals, Light) were present at the Contemporary Arts Museum, while six place-making patterns (i.e., Center, Direction, Anthropomorphic Order, Celestial Order, Differentiating Boundaries, Ceremonial Order) were absent. The presence of three place-making patterns (i.e., Ascent, Numeric Order, Spatial Order) at the Contemporary Arts Museum was inconclusive. Although the presence of Ascent, Numeric Order and Spatial Order was inconclusive, questionnaire data pertaining to the correspondence of pattern presence with the architecture of the sacred and secular buildings (see Table V-3) revealed that these three place-making patterns were found not to have any strong contributors. In the final analysis, both graphical data and questionnaire data revealed that there were a higher number of place-making patterns present at the sacred place, i.e., Rothko Chapel, than at the secular place, i.e., Contemporary Arts Museum.

5.3 DIFFERENCES IN PATTERN QUALITY AT SELECTED BUILDINGS

Differences in the quality of expression of individual place-making patterns from the CPPS, between the sacred and secular buildings are identified below. In the discussions that follow, mean values associated with pattern quality equal to 4.0 or higher than 4.0 (high range mean values) indicate that a specific pattern was experienced to be high in quality of expression by participants at that setting, i.e., the likelihood of the quality of expression of that pattern being high at that setting is fairly certain. Similarly, mean values equal to 2.0 or less than 2.0 (low range mean values) indicate that a specific pattern was experienced to be low in quality of expression by participants at that setting, i.e., the likelihood of the quality of expression of that pattern being low at that setting is fairly certain. Mean values higher than 2.0 but less than 4.0 (mid range mean values) indicate that a specific pattern is intermediate in quality of expression. However, in cases where the quality of expression of place-making patterns is intermediate, mean values higher than 3.1 (tending more towards high range mean values), indicate that the pattern is experienced by participants to be intermediate to high at that setting. On the other hand, mean values lower than 2.9 (tending more towards low range mean values), indicate that

the pattern is experienced by participants to be intermediate to low at that setting. Focus group discussion data, associated with the quality of expression of specific place-making patterns at the sacred and secular buildings, helped to validate questionnaire data associated with pattern quality.

Based on questionnaire data, the difference in mean values associated with pattern quality at the sacred and secular buildings was calculated, i.e., Mean value difference in pattern quality = mean value of quality of expression of individual place-making patterns at Rothko Chapel minus mean value of quality of expression of individual place-making patterns at Contemporary Arts Museum.

5.3.1 Difference in Quality of Expression of Center

Questionnaire data revealed that the quality of expression of the place-making pattern *Center* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Center* at the Rothko Chapel was 4.34, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Center* was 2.5. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Center* at the Rothko Chapel over the Contemporary Arts Museum is 1.84.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Center*. Analysis of focus group discussion responses, associated with the quality of expression of *Center* is as follows:

... very central... centering experience... immense sense of focus... spatial characteristics of Chapel have focus – help one focus... profound sense of centrality... profound sense of centrality and focus... strongest aspect of Chapel is extraordinary sense of focus and centrality... most dominant aspect of architecture is centrality...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Center* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Center* is high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Center* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Center* at the Contemporary Arts Museum is intermediate to low.

5.3.2 Difference in Quality of Expression of Bounding

Questionnaire data revealed that the quality of expression of the place-making pattern *Bounding* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to high at the secular building, i.e., Contemporary Arts Museum.

Questionnaire data revealed that the mean value of the quality of expression of *Bounding* at the Rothko Chapel was 4.75, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Bounding* was 3.05. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Bounding* at the Rothko Chapel over the Contemporary Arts Museum is 1.7.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Bounding*. Analysis of focus group discussion responses, associated with the quality of expression of *Bounding* is as follows:

*... large solid walls present... sense of peaceful containment...
very conscious and fixed container for pieces of art...*

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Bounding* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Bounding* is high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Bounding* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Bounding* at the Contemporary Arts Museum is intermediate to high.

5.3.3 Difference in Quality of Expression of Direction

Questionnaire data revealed that the quality of expression of the place-making pattern *Direction* was experienced to be intermediate to high at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Direction* at the Rothko Chapel was 3.76, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Direction* was 3.37. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Direction* at the Rothko Chapel over the Contemporary Arts Museum is 0.39.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Direction*. Analysis of focus group discussion responses, associated with the quality of expression of *Direction* is as follows:

... natural and strong orientation... symmetrical and formal - axes and alignment are deliberately designed to enhance and foster sacredness... axiality present...

Focus group discussion data revealed that the Contemporary Arts Museum had a low quality of expression of *Direction*. Analysis of focus group discussion responses, associated with the quality of expression of *Direction* is as follows:

... does not have sense of orientation... no directional axes... lack of orientation... disorientation due to internal space and geometry of building... draws and pulls in different directions... no direction...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Direction* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Direction* is intermediate to high at the Rothko Chapel. At the Contemporary Arts Museum, however, focus group discussion data is unsuccessful in validating questionnaire data, i.e., questionnaire data indicates that the quality of expression of *Direction* is intermediate to high, while focus group discussion data suggests that the quality of expression of *Direction* is low.

5.3.4 Difference in Quality of Expression of Descent

Questionnaire data revealed that the quality of expression of the place-making pattern *Descent* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Descent* at the Rothko Chapel was 4.00, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Descent* was 2.68. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Descent* at the Rothko Chapel over the Contemporary Arts Museum is 1.32.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Descent*. Analysis of focus group discussion responses, associated with the quality of expression of *Descent* is as follows:

... natural or earth-related materials contribute to enormous sense of grounding... grounding draws one within womb of Chapel and helps one breath and reach out to divine... sense of grounding welcomes one upon entry...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Descent* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Descent* is high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Descent* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Descent* at the Contemporary Arts Museum is intermediate to high.

5.3.5 Difference in Quality of Expression of Ascent

Questionnaire data revealed that the quality of expression of the place-making pattern *Ascent* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Ascent* at the Rothko Chapel

was 4.4, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Ascent* was 2.71. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Ascent* at the Rothko Chapel over the Contemporary Arts Museum is 1.69.

At the Rothko Chapel and the Contemporary Arts Museum, the quality of expression of *Ascent* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise at either setting. However, based on questionnaire data, the quality of expression of *Ascent* at the Rothko Chapel is high, while at the Contemporary Arts Museum its quality of expression is intermediate to low.

5.3.6 Difference in Quality of Expression of Passage

Questionnaire data revealed that the quality of expression of the place-making pattern *Passage* was experienced to be intermediate to high at the sacred building, i.e., Rothko Chapel, as well as the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Passage* at the Rothko Chapel was 3.85, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Passage* was 3.5. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Passage* at the Rothko Chapel over the Contemporary Arts Museum is 0.35.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Passage*. Analysis of focus group discussion responses, associated with the quality of expression of *Passage* is as follows:

... symmetrical and formal entry/exit sequence are deliberately designed into Chapel to enhance and foster sacredness... one has to enter through smaller human-scaled entrance before proceeding into inner sanctum; much flavor in experience of scale at entry; leads you upon entry – specifically and exquisitely planned journey upon entering Chapel...

Focus group discussion data revealed that the Contemporary Arts Museum had a low quality of expression of *Passage*. Analysis of focus group discussion responses, associated with the quality of expression of *Passage* is as follows:

... experience of approaching and entering is completely different as compared to Chapel... sense of hesitation upon entry - on account of overly low entrance foyer and inherent geometry... feels strange entering building at obtuse apex of parallelogram... entrance is tall and out of scale... upon passing through tall entry, one ends up in low-scaled lounge space that has no definition and feels weird in proportion - similar to sub-urban mansions... haphazard feeling experienced upon entering...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Passage* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Passage* is intermediate to high at the Rothko Chapel. At the Contemporary Arts Museum, however, focus group discussion data is unsuccessful in validating questionnaire data, i.e., questionnaire data indicates that the quality of expression of *Passage* is intermediate to high, while focus group discussion data suggests that the quality of expression of *Passage* is low.

5.3.7 Difference in Quality of Expression of Numeric Order

Questionnaire data revealed that the quality of expression of the place-making pattern *Numeric Order* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Numeric Order* at the Rothko Chapel was 4.4, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Numeric Order* was 2.92. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Numeric Order* at the Rothko Chapel over the Contemporary Arts Museum is 1.48.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Numeric Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Numeric Order* is as follows:

... eight sides of Chapel facilitate cyclic process of movement that tend to slow one down... eight sides makes one want to slow down and experience space within...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Numeric Order* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Numeric Order* is high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Numeric Order* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Numeric Order* at the Contemporary Arts Museum is intermediate to low.

5.3.8 Difference in Quality of Expression of Geometric Order

Questionnaire data revealed that the quality of expression of the place-making pattern *Geometric Order* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to high at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Geometric Order* at the Rothko Chapel was 4.58, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Geometric Order* was 3.47. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Geometric Order* at the Rothko Chapel over the Contemporary Arts Museum is 1.11.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Geometric Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Geometric Order* is as follows:

... symmetry present... octagonal geometry is apparent when one is inside... design is based on octagon – considered most pristine and perfect shape in Feng Shui and relates to Ba Gua...

octagonal geometry purposefully intended to slow one down... geometry of building contributes to sacredness... geometry contributes to sacredness... shape of building contributes to sacredness... symmetry and form are deliberately designed into Chapel to enhance and foster sacredness... geometry of building engenders profound sense of centrality and focus... geometry of Chapel has focus – help one focus...

Focus group discussion data revealed that the Contemporary Arts Museum had a low quality of expression of *Geometric Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Geometric Order* is as follows:

... geometry is completely different as compared to Chapel... form or geometry is not apparent when one is inside... skewed geometry – rectangle is skewed into parallelogram... one has to literally walk all around building to realize building is a parallelogram... symmetry arising out of parallelogram is not really apparent, regardless of one being inside or outside... geometry makes one want to turn around hastily at acute and obtuse corners... geometry of building is disconcerting... geometry feels alien-like – makes one want to move constantly... one is highly aware of parallelogram and point – unsettling... geometry contributes to sense of hesitation upon entry... form is deliberately intended to disorient, shock, and throw individuals off balance... shape of Museum – different angles, angular corners, edges are disturbing and distracting...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Geometric Order* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Geometric Order* is high at the Rothko Chapel. At the Contemporary Arts Museum, however, focus group discussion data is unsuccessful in validating questionnaire data, i.e., questionnaire data indicates that the quality of expression of *Geometric Order* is intermediate to high, while focus group discussion data suggests that the quality of expression of *Geometric Order* is low.

5.3.9 Difference in Quality of Expression of Spatial Order

Questionnaire data revealed that the quality of expression of the place-making pattern *Spatial Order* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Spatial Order* at the Rothko Chapel was 4.14, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Spatial Order* was 2.71. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Spatial Order* at the Rothko Chapel over the Contemporary Arts Museum is 1.43.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Spatial Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Spatial Order* is as follows:

... power of Chapel lies in space - fosters the sacred experience and embraces the individual... spatial characteristics of building contribute to sacredness... symmetrical and formal spatial hierarchy are deliberately designed into Chapel to enhance and foster sacredness... spatial characteristics of Chapel have focus – help one focus...

Focus group discussion data revealed that the Contemporary Arts Museum had a low quality of expression of *Spatial Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Spatial Order* is as follows:

... space does not feel conducive to sacred experience... one has hard time deciding which way to turn or which way to proceed in...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Spatial Order* at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., the quality of expression of the place-making pattern *Spatial Order* is high at the Rothko Chapel, while at the Contemporary Arts Museum its quality of expression is intermediate to low.

5.3.10 Difference in Quality of Expression of Anthropomorphic Order

Questionnaire data revealed that the quality of expression of the place-making pattern *Anthropomorphic Order* was experienced to be intermediate to high at the sacred building, i.e., Rothko Chapel, while it was experienced to be low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Anthropomorphic Order* at the Rothko Chapel was 3.55, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Anthropomorphic Order* was 1.9. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Anthropomorphic Order* at the Rothko Chapel over the Contemporary Arts Museum is 1.65.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Anthropomorphic Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Anthropomorphic Order* is as follows:

... human-scaled entrance... scale plays huge role... scale of building contributes to sacredness... proportions of building contribute to sacredness... much flavor in experience of scale at entry and inner space...

Focus group discussion data revealed that the Contemporary Arts Museum had a low quality of expression of *Anthropomorphic Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Anthropomorphic Order* is as follows:

... entrance is tall and out of scale... lounge space feels weird in proportion – similar to sub-urban mansions...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Anthropomorphic Order* at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., the quality of expression of the place-making pattern *Anthropomorphic Order* is intermediate to high at the Rothko Chapel, while at the Contemporary Arts Museum its quality of expression is low.

5.3.11 Difference in Quality of Expression of Ordered Nature

Questionnaire data revealed that the quality of expression of the place-making pattern *Ordered Nature* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Ordered Nature* at the Rothko Chapel was 4.08, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Ordered Nature* was 2.05. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Ordered Nature* at the Rothko Chapel over the Contemporary Arts Museum is 2.03.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Ordered Nature*. Analysis of focus group discussion responses, associated with the quality of expression of *Ordered Nature* is as follows:

... *landscape elements – water pool with obelisk contribute to sacredness...*

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Ordered Nature* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Ordered Nature* is high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Ordered Nature* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Ordered Nature* at the Contemporary Arts Museum is intermediate to low.

5.3.12 Difference in Quality of Expression of Celestial Order

Questionnaire data revealed that the quality of expression of the place-making pattern *Celestial Order* was experienced to be intermediate to high at the sacred building, i.e., Rothko Chapel, while it was experienced to be low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Celestial Order* at the Rothko Chapel was 3.9, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Celestial Order* was 2.0. Based on questionnaire data, the difference in

mean values associated with the quality of expression of *Celestial Order* at the Rothko Chapel over the Contemporary Arts Museum is 1.9.

At the Rothko Chapel and the Contemporary Arts Museum, the quality of expression of *Celestial Order* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise at either setting. However, based on questionnaire data, the quality of expression of *Celestial Order* at the Rothko Chapel is intermediate to high, while at the Contemporary Arts Museum its quality of expression is low.

5.3.13 Difference in Quality of Expression of Differentiating Boundaries

Questionnaire data revealed that the quality of expression of the place-making pattern *Differentiating Boundaries* was experienced to be intermediate to high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Differentiating Boundaries* at the Rothko Chapel was 3.31, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Differentiating Boundaries* was 2.37. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Differentiating Boundaries* at the Rothko Chapel over the Contemporary Arts Museum is 0.94.

At the Rothko Chapel and the Contemporary Arts Museum, the quality of expression of *Differentiating Boundaries* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise at either setting. However, based on questionnaire data, the quality of expression of *Differentiating Boundaries* at the Rothko Chapel is intermediate to high, while at the Contemporary Arts Museum its quality of expression is intermediate to low.

5.3.14 Difference in Quality of Expression of Ordered Views

Questionnaire data revealed that the quality of expression of the place-making pattern *Ordered Views* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum.

Questionnaire data revealed that the mean value of the quality of expression of *Ordered Views* at the Rothko Chapel was 4.85, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Ordered Views* was 2.93. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Ordered Views* at the Rothko Chapel over the Contemporary Arts Museum is 1.92.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Ordered Views*. Analysis of focus group discussion responses, associated with the quality of expression of *Ordered Views* is as follows:

... functions to great extent to block outside world and withhold sacred experience within - makes Chapel unique... large solid walls isolate one from mundane world outside, separating sacred from mundane...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Ordered Views* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Ordered Views* is high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Ordered Views* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Ordered Views* at the Contemporary Arts Museum is intermediate to low.

5.3.15 Difference in Quality of Expression of Materiality

Questionnaire data revealed that the quality of expression of the place-making pattern *Materiality* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to high at the secular building, i.e., Contemporary Arts Museum.

Questionnaire data revealed that the mean value of the quality of expression of *Materiality* at the Rothko Chapel was 4.08, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Materiality* was 3.31. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Materiality* at the Rothko Chapel over the Contemporary Arts Museum is 0.77.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Materiality*. Analysis of focus group discussion responses, associated with the quality of expression of *Materiality* is as follows:

... natural or earth-related materials contribute to enormous sense of grounding... constructed with materials of the Earth... color palette of materials is very neutral and earthy – has profound impact and affect on individuals... texture and color of materials contribute to sacredness...

Focus group discussion data revealed that the Contemporary Arts Museum had a high quality of expression of *Materiality*. Analysis of focus group discussion responses, associated with the quality of expression of *Materiality* is as follows:

... lower level expresses materials in very natural way... lower level is homogeneous in expressing materials... materiality and texture of concrete columns in lower level resonate with individuals... concrete columns in lower level have natural quality – a feature that is otherwise not displayed... concrete columns in lower level are attractive/have very interesting features – rectangular with chamfered corners, imprinted with wooden forms and actual grain of wood... column surface is textured and resembles surface texture of wood – richness of texture and appearance...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Materiality* at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., the quality of expression of the place-making pattern *Materiality* is high at the Rothko Chapel, while at the Contemporary Arts Museum its quality of expression is intermediate to high.

5.3.16 Difference in Quality of Expression of Elementals

Questionnaire data revealed that the quality of expression of the place-making pattern *Elementals* was experienced to be intermediate to high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Elementals* at the Rothko Chapel was 3.9, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Elementals* was 2.25. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Elementals* at the Rothko Chapel over the Contemporary Arts Museum is 1.65.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Elementals*. Analysis of focus group discussion responses, associated with the quality of expression of *Elementals* is as follows:

... shallow pool with image of reflected obelisk is serene...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Elementals* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Elementals* is intermediate to high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Elementals* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Elementals* at the Contemporary Arts Museum is intermediate to low.

5.3.17 Difference in Quality of Expression of Light

Questionnaire data revealed that the quality of expression of the place-making pattern *Light* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate to low at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Light* at the Rothko Chapel was 4.54, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Light* was 2.26. Based on questionnaire data, the difference in mean values associated with the quality of expression of *Light* at the Rothko Chapel over the Contemporary Arts Museum is 2.28.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Light*. Analysis of focus group discussion responses, associated with the quality of expression of *Light* is as follows:

... light contribute to sacredness... tremendous sense of light – contributes immensely to sacredness... quality of light contributes immensely to sacredness... light evokes sacredness and touches one in ways that cannot be described – likened to breathing (opens and closes your heart)... light makes one feel very different... light entering through skylight in ceiling engenders profound sense of centrality and focus... quality of light is out of this world... amazing quality of light... light qualities are simply amazing...

Focus group discussion data revealed that the Contemporary Arts Museum had a low quality of expression of *Light*. Analysis of focus group discussion responses, associated with the quality of expression of *Light* is as follows:

... quality of light is completely different as compared to Chapel...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Light* at the Rothko Chapel as well as the Contemporary Arts Museum, i.e., the quality of expression of the place-making pattern *Light* is high at the Rothko Chapel, while at the Contemporary Arts Museum its quality of expression is intermediate to low.

5.3.18 Difference in Quality of Expression of Ceremonial Order

Questionnaire data revealed that the quality of expression of the place-making pattern *Ceremonial Order* was experienced to be high at the sacred building, i.e., Rothko Chapel, while it was experienced to be intermediate at the secular building, i.e., Contemporary Arts Museum. Questionnaire data revealed that the mean value of the quality of expression of *Ceremonial Order* at the Rothko Chapel was 4.54, while at the Contemporary Arts Museum, the mean value of the quality of expression of *Ceremonial Order* was 3.0. Based on questionnaire data, the

difference in mean values associated with the quality of expression of *Ceremonial Order* at the Rothko Chapel over the Contemporary Arts Museum is 1.54.

Focus group discussion data revealed that the Rothko Chapel had a high quality of expression of *Ceremonial Order*. Analysis of focus group discussion responses, associated with the quality of expression of *Ceremonial Order* is as follows:

... ceremonial tradition... ceremonial activities... rituals... activities that take place within its confines... knowledge about all that has happened within space... knowledge about activities (special events, memorials) conducted within space... presence of highly respected spiritual leaders within space... knowledge of activities within space... knowledge that other individuals experience the Chapel as sacred...

Focus group discussion data, therefore, successfully validates questionnaire data associated with the quality of expression of *Ceremonial Order* at the Rothko Chapel, i.e., the quality of expression of the place-making pattern *Ceremonial Order* is high at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of *Ceremonial Order* could not be validated by means of focus group discussions, as there were no responses associated with its presence or otherwise. However, based on questionnaire data, the quality of expression of *Ceremonial Order* at the Contemporary Arts Museum is intermediate.

5.3.19 Summary of Differences in Pattern Quality at Selected Buildings

Differences in mean values of the quality of expression of place-making patterns at the sacred and secular buildings are shown in Table V-5. The column under *Pattern list* displays individual place-making patterns. The column under *Mean value of pattern quality* shows the mean value of the quality of expression of individual place-making patterns at the sacred and secular buildings. The column under *Difference in Mean values* shows the difference in mean values associated with pattern quality at the Rothko Chapel over the Contemporary Arts Museum based on questionnaire data, i.e., *Difference in mean values* = mean value of quality of expression of individual place-making patterns at Rothko Chapel minus mean value of quality of expression of

individual place-making patterns at Contemporary Arts Museum. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE V-5. Differences in mean values of pattern quality at selected buildings.

Pattern list	Mean value of pattern quality		Difference in mean values
	RC	CAM	RC - CAM
Center	4.34	2.5	1.84
Bounding	4.75	3.05	1.7
Direction	3.76	3.37	0.39
Descent	4	2.68	1.32
Ascent	4.4	2.71	1.69
Passage	3.85	3.5	0.35
Numeric Order	4.4	2.92	1.48
Geometric Order	4.58	3.47	1.11
Spatial Order	4.14	2.71	1.43
Anthropomorphic Order	3.55	1.9	1.65
Ordered Nature	4.08	2.05	2.03
Celestial Order	3.9	2	1.9
Differentiating Boundaries	3.31	2.37	0.94
Ordered Views	4.85	2.93	1.92
Materiality	4.08	3.31	0.77
Elementals	3.9	2.25	1.65
Light	4.54	2.26	2.28
Ceremonial Order	4.54	3	1.54

Table V-6 shows the organization of the eighteen place-making patterns in descending order based on the difference in mean values associated with their pattern quality. The column under *Pattern list* displays individual place-making patterns. The column under *Difference in mean values* shows the difference in mean values associated with pattern quality at the Rothko Chapel over the Contemporary Arts Museum based on questionnaire data, i.e., *Difference in mean values* = mean value of quality of expression of individual place-making patterns at Rothko Chapel minus mean value of quality of expression of individual place-making patterns at Contemporary Arts Museum. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE V-6. Descending order of patterns based on mean difference in pattern quality.

Pattern list	Difference in mean values
	RC - CAM
Light	2.28
Ordered Nature	2.03
Ordered Views	1.92
Celestial Order	1.9
Center	1.84
Bounding	1.7
Ascent	1.69
Anthropomorphic Order	1.65
Elementals	1.65
Ceremonial Order	1.54
Numeric Order	1.48
Spatial Order	1.43
Descent	1.32
Geometric Order	1.11
Differentiating Boundaries	0.94
Materiality	0.77
Direction	0.39
Passage	0.35

The following Figure V-2 shows the difference in mean values associated with pattern quality at the Rothko Chapel over the Contemporary Arts Museum based on questionnaire data, i.e., mean value of quality of expression of individual place-making patterns at Rothko Chapel minus mean value of quality of expression of individual place-making patterns at Contemporary Arts Museum. The place-making patterns are arranged in descending order based on the difference in mean values associated with their pattern quality.

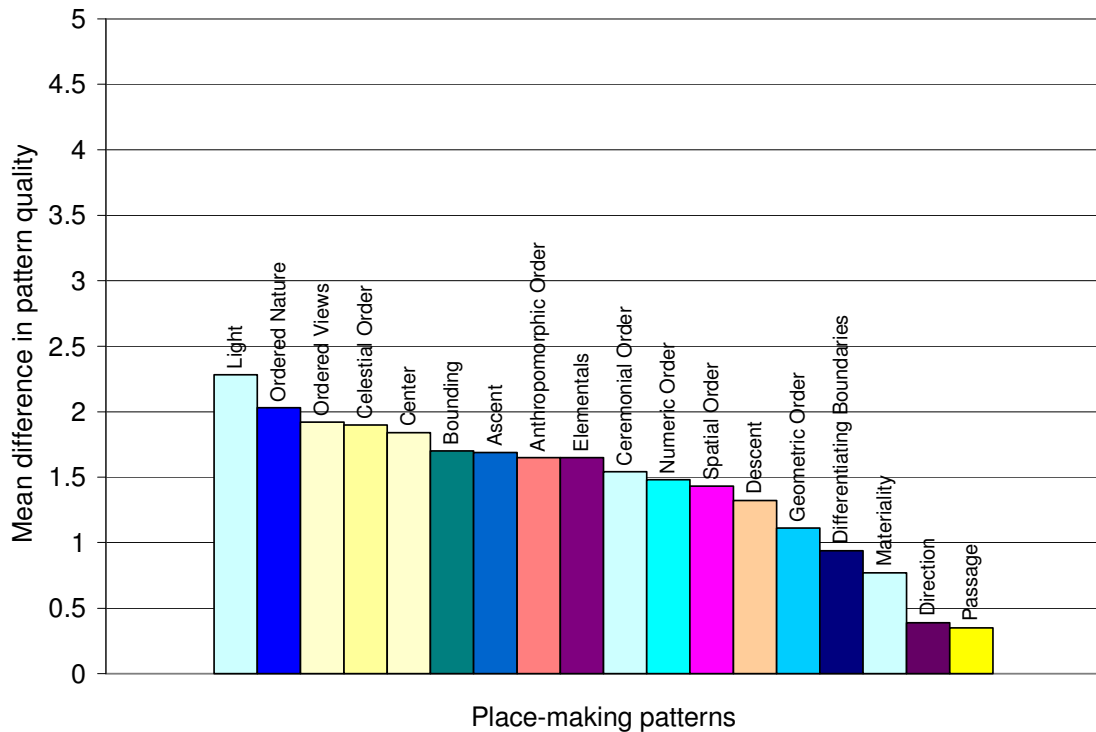


FIGURE V-2. Mean difference in pattern quality between selected buildings.

Questionnaire data revealed that the difference in mean value of the quality of expression of the place-making pattern *Light* was highest, while the difference in the quality of expression of the place-making pattern *Passage* was lowest. This could indicate the importance of the quality of expression of the place-making pattern *Light* in contributing to sacredness of place, i.e., high quality of expression of the place-making pattern *Light* may have greater impact in contributing to sacredness of place, as compared to the quality of expression of the place-making pattern *Passage*. It is also likely that the high quality of expression of the place-making pattern *Light* may be exclusive to sacred place.

Based on questionnaire data, the eighteen place-making patterns can be arranged in descending order of their difference in mean values as follows: 1) *Light*; 2) *Ordered Nature*; 3) *Ordered Views*; 4) *Celestial Order*; 5) *Center*; 6) *Bounding*; 7) *Ascent*; 8) *Anthropomorphic Order*; 9) *Elementals*; 10) *Ceremonial Order*; 11) *Numeric Order*; 12) *Spatial Order*; 13) *Descent*; 14) *Geometric Order*; 15) *Differentiating Boundaries*; 16) *Materiality*; 17) *Direction*; 18) *Passage*. The order of listing indicates the difference in quality of expression of the place-making patterns

at the Rothko Chapel over the Contemporary Arts Museum in descending order. It is likely that the order of listing of the place-making patterns from left to right (i.e., highest difference to least difference in pattern quality) indicates the importance of the quality of expression of the place-making patterns in contributing to sacredness of place, i.e., high quality of the place-making patterns (in descending hierarchical order) *Light, Ordered Nature, Ordered Views, Celestial Order, Center, and Bounding* may have greater impact in contributing to sacredness of place than the quality of expression of the place-making patterns (in descending hierarchical order) *Descent, Geometric Order, Differentiating Boundaries, Materiality, Direction, and Passage*.

The quality of expression of individual place-making patterns based on questionnaire data and focus group discussion data at the sacred and secular buildings is summarized in Table V-7. The column under *Pattern list* displays individual place-making patterns. The column under *Pattern quality based on questionnaire data* shows the quality of expression of individual place-making patterns based on questionnaire data. The column under *Pattern quality based on focus group discussion data* shows the quality of expression of individual place-making patterns based on focus group discussion data. The column under *Pattern quality based on combination of data* shows the quality of expression of individual place-making patterns based collectively on questionnaire data and focus group discussion data. In the table, Rothko Chapel has been abbreviated as RC, while Contemporary Arts Museum has been abbreviated as CAM.

TABLE V-7. Summary of pattern quality based on questionnaire data and focus group discussion data.

Pattern list	Pattern quality based on questionnaire data		Pattern quality based on focus group discussion data		Pattern quality based on combination of data	
	RC	CAM	RC	CAM	RC	CAM
Center	High	Intermediate to low	High	Indeterminable	High	Low
Bounding	High	Intermediate to high	High	Indeterminable	High	High
Direction	Intermediate to high	Intermediate to high	High	Low	High	Inconclusive
Descent	High	Intermediate to low	High	Indeterminable	High	Low
Ascent	High	Intermediate to low	Indeterminable	Indeterminable	High	Low
Passage	Intermediate to high	Intermediate to high	High	Low	High	Inconclusive
Numeric Order	High	Intermediate to low	High	Indeterminable	High	Low
Geometric Order	High	Intermediate to high	High	Low	High	Inconclusive
Spatial Order	High	Intermediate to low	High	Low	High	Low
Anthropomorphic Order	Intermediate to high	low	High	Low	High	Low
Ordered Nature	High	Intermediate to low	High	Indeterminable	High	Low
Celestial Order	Intermediate to high	low	Indeterminable	Indeterminable	High	Low
Differentiating Boundaries	Intermediate to high	Intermediate to low	Indeterminable	Indeterminable	High	Low
Ordered Views	High	Intermediate to low	High	Indeterminable	High	Low
Materiality	High	Intermediate to high	High	High	High	High
Elementals	Intermediate to high	Intermediate to low	High	Indeterminable	High	Low
Light	High	Intermediate to low	High	Low	High	Low
Ceremonial Order	High	Intermediate	High	Indeterminable	High	Intermediate

Based on questionnaire data, the quality of expression of twelve place-making patterns (i.e., Center, Bounding, Descent, Ascent, Numeric Order, Geometric Order, Spatial Order, Ordered Nature, Ordered Views, Materiality, Light, Ceremonial Order) was experienced to be high at the Rothko Chapel. The quality of expression of six place-making patterns (i.e., Direction, Passage, Anthropomorphic Order, Celestial Order, Differentiating Boundaries, Elementals) was experienced to be intermediate to high at the Rothko Chapel. At the Contemporary Arts Museum, there were no place-making patterns whose quality of expression was experienced to be high. The quality of expression of five place-making patterns (i.e., Bounding, Direction, Passage, Geometric Order, Materiality) was experienced to be intermediate to high, while the quality of expression of one place-making pattern (i.e., Ceremonial Order) was experienced to be intermediate at the Contemporary Arts Museum. The quality of expression of ten place-making patterns (i.e., Center, Descent, Ascent, Numeric Order, Spatial Order, Ordered Nature,

Differentiating Boundaries, Ordered Views, Elementals, Light) was experienced to be intermediate to low, while the quality of expression of two place-making patterns (i.e., Anthropomorphic Order, Celestial Order) was experienced to be low at the Contemporary Arts Museum.

Based on focus group discussion data the quality of expression of fifteen place-making patterns (i.e., Center, Bounding, Direction, Descent, Passage, Numeric Order, Geometric Order, Spatial Order, Anthropomorphic Order, Ordered Nature, Ordered Views, Materiality, Elementals, Light, Ceremonial Order) was experienced to be high at the Rothko Chapel. The quality of expression of three place-making patterns (i.e., Ascent, Celestial Order, Differentiating Boundaries) was indeterminable at the Rothko Chapel. At the Contemporary Arts Museum, the quality of expression of one place-making pattern (i.e., Materiality) was experienced to be high, while the quality of expression of six place-making patterns (i.e., Direction, Passage, Geometric Order, Spatial Order, Anthropomorphic Order, Light) was experienced to be low. The quality of expression of eleven place-making patterns (i.e., Center, Bounding, Descent, Ascent, Numeric Order, Ordered Nature, Celestial Order, Differentiating Boundaries, Ordered Views, Elementals, Ceremonial Order) was indeterminable at the Contemporary Arts Museum.

Focus group discussion data validated the quality of expression of fifteen place-making patterns (i.e., Center, Bounding, Direction, Descent, Passage, Numeric Order, Geometric Order, Spatial Order, Anthropomorphic Order, Ordered Nature, Ordered Views, Materiality, Elementals, Light, Ceremonial Order) at the Rothko Chapel. The quality of expression of the remaining three place-making patterns (Ascent, Celestial Order, Differentiating Boundaries) was indeterminable through focus group discussion data. At the Contemporary Arts Museum, focus group discussion data validated the quality of expression of four place-making patterns (Spatial Order, Anthropomorphic Order, Materiality, Light). Of the remaining fourteen place-making patterns at the Contemporary Arts Museum, the quality of expression of eleven place-making patterns (i.e., Center, Bounding, Descent, Ascent, Numeric Order, Ordered Nature, Celestial Order, Differentiating Boundaries, Ordered Views, Elementals, Ceremonial Order) was indeterminable through focus group discussion data. Focus group discussion data did not seem to agree with questionnaire data on the quality of expression of three place-making patterns (i.e., Direction, Passage, Geometric Order) at the Contemporary Arts Museum, i.e., questionnaire data revealed that the quality of expression of Direction, Passage, and Geometric Order was experienced as intermediate to high, while focus group discussion data revealed that their quality of expression was low.

Questionnaire data and focus group discussion data collectively revealed that the quality of expression of all eighteen place-making patterns (i.e., Center, Bounding, Direction, Descent, Ascent, Passage, Numeric Order, Geometric Order, Spatial Order, Anthropomorphic Order, Ordered Nature, Celestial Order, Differentiating Boundaries, Ordered Views, Materiality, Elementals, Light, Ceremonial Order) was high at the Rothko Chapel. Based collectively on questionnaire data and focus group discussion data, the quality of expression of only two place-making patterns (i.e., Bounding, Materiality) was high at the Contemporary Arts Museum. The quality of expression of one place-making pattern (i.e., Ceremonial Order) was intermediate, while the quality of expression of twelve place-making patterns (i.e., Center, Descent, Ascent, Numeric Order, Spatial Order, Anthropomorphic Order, Ordered Nature, Celestial Order, Differentiating Boundaries, Ordered Views, Elementals, Light) was low at the Contemporary Arts Museum. The quality of expression of three place-making patterns (i.e., Direction, Passage, Geometric Order) at the Contemporary Arts Museum was inconclusive. In the final analysis, both, questionnaire data and focus group discussion data revealed that the quality of expression of individual place-making patterns at the Rothko Chapel was higher than the quality of expression of the place-making patterns at the Contemporary Arts Museum.

5.4 SACREDNESS OF SELECTED BUILDINGS

Questionnaire data and focus group discussion data associated with the sacredness of the Rothko Chapel and the Contemporary Arts Museum are discussed as follows: 1) Sacredness of Rothko Chapel and Contemporary Arts Museum; and 2) Experiences elicited at Rothko Chapel and Contemporary Arts Museum.

5.4.1 Sacredness of Rothko Chapel and Contemporary Arts Museum

A total of 23 out of 24 questionnaire participants (representing 95.8% of the total number of questionnaire participants) agreed that Rothko Chapel was experienced to be sacred. Focus group discussion data validated questionnaire data and revealed that the Rothko Chapel was experienced to be sacred. Analysis of focus group discussion responses, suggesting that Rothko Chapel was experienced to be sacred is as follows:

...fosters deep and holistic exploration of mysterious nature of sacred experience... filled with sacral meaning...enables direct experience and connection with higher consciousness... immensely perceptible to sacredness... profoundly conducive to sacredness... truly conducive to sacredness... sacredness easily experienced... formal aspects of architecture make it different and sacred... architecture of Chapel reinforces the sacred... place is sacred because one experiences it as sacred... one feels attuned with Chapel and deeply aware of its sacredness... architectural characteristics, physical/environmental characteristics contribute to sacredness... embodies formal characteristics of sacred architecture... architecture effectively reinforces the intent, purpose, and function and takes it to a higher level... space makes it easy to experience the sacred... characteristics of Chapel, make it significantly more conducive to experience the sacred... place dedicated to significant event or person in history is sacred – Chapel functions as shrine to memory and work of Mark Rothko...

At the Contemporary Arts Museum, only 2 out of 24 questionnaire participants (representing 8.3% of the total number of questionnaire participants) felt that the contemporary Arts Museum was sacred. The two participants experienced the Contemporary Arts Museum to be sacred on account of objects that were exhibited. Focus group discussion data validated questionnaire data and revealed that the Contemporary Arts Museum was not experienced to be sacred by majority of the participants. Analysis of focus group discussion responses, suggesting that Contemporary Arts Museum was not experienced to be sacred is as follows:

...not sacred... secular... opposite of experience elicited at Chapel... complete polar properties compared to Chapel... great deal of contrast and difference perceived as compared to Chapel, despite similarities in scale and underlying function as galleries... everyone agrees about essence of difference between Chapel and Museum... everyone has similar thoughts about differences between Chapel and Museum...

In summary, questionnaire data and focus group discussion data, collectively revealed that the Rothko Chapel was experienced as sacred, while the Contemporary Arts Museum was not.

5.4.2 Experiences Elicited at Rothko Chapel and Contemporary Arts Museum

Articulation of Experience

Precise articulation of experiences elicited at Rothko Chapel was difficult, as suggested by the analysis of focus group discussion responses:

... cannot be articulated precisely in words... above function and reason... cannot be appropriately described in words... cannot be fully studied or analyzed... sacredness experienced when analysis of space ceases...

Measure of Sacredness

Measuring the sacredness of the Rothko Chapel was difficult, as suggested by the analysis of focus group discussion responses:

... sacredness cannot be measured or compared... sacredness cannot be measured or quantified in terms of numbers... sacredness is either experienced at a place or not... places can be compared to determine only whether they are sacred or not...

Universality of Sacredness

Sacredness of the Rothko Chapel was experienced to be universal, as suggested by the analysis of focus group discussion responses:

... sacred to different faiths due to non-religious association... non-denominational nature makes Chapel universally sacred... universally sacred to all... sacred place can be sacred to an individual or to a community - when individuals and community, collectively share in the sacredness of place, the place becomes universally sacred...

Ways in Which Place Contributes to Sacredness

The Rothko Chapel functions as a medium for experiencing sacredness, as suggested by the analysis of focus group discussion responses:

... functions as pure filter for sacredness... functions as conductor for sacred to manifest... functions as channel/filter for sacred to manifest... encourages one in the pursuit of sacred... confirms power of architecture – fosters function and intention of building and takes it to a higher level... designed to embrace... takes time for Chapel to act on an individual... promotes and fosters a relationship between what is holy and what is material...

Unique Nature of Experience

Experiences elicited at Rothko Chapel were unique and extraordinary, as suggested by the analysis of focus group discussion responses:

... completely different to anything experienced elsewhere... different... unique... uncommon... something else, very special... great sense of affinity felt... apart from experience of outside world... apart from everyday experience... totally different from everything else one experiences in the mundane world... different from city and urban profanity experienced in everyday life...

Intensity of Experience

Experiences elicited at Rothko Chapel were intense, as suggested by the analysis of focus group discussion responses:

... wow... in awe... very powerful experience...

At the Contemporary Arts Museum, experiences elicited were not intense, as suggested by the analysis of focus group discussion responses:

... experience is superficial... fleeting... whimsical... vapid...

Feelings of Relaxation

Experiences elicited at Rothko Chapel were associated with feelings of relaxation, as suggested by the analysis of focus group discussion responses:

... relaxed... at peace with oneself and universe... extremely tranquil... quietness... certain quality of hush... quiet... peaceful... makes one want to slow down... quiets and slows... ideal for escaping from worries of mundane world... peace with oneself experienced as compared to feeling scattered in everyday life... makes you want to bow head, cross hands, as if in prayer, sit and relax... architecture of Chapel opens and closes your heart – the heart is able to breathe freely; very balanced and calm...

Experiences elicited at Contemporary Arts Museum were not associated with feelings of relaxation, as suggested by the analysis of focus group discussion responses:

... edgy... intense activity... hyper-active... torn... confusion... hesitation... very busy space... extremely busy... constant chatter... distracting... haste... attention is over-stimulated... opposite of quiet and slow... does not quiet down or relax... makes one want to fight his/her way through the exhibits really quickly... disturbing experience... feels off-balance compared to Chapel... one doesn't feel like slowing down, or sitting, or relaxing... architecture doesn't lend itself to relaxing or experiencing space within... eyes constantly change focus and jump to different locations within space... makes one feel like a child – has child-like energy; designed to be busy – successful to that extent...

Feelings of Mysticism

Experiences elicited at Rothko Chapel were associated with feelings of mysticism, as suggested by the analysis of focus group discussion responses:

... qualities of deep mysticism, mystical space and time sensed...

Feelings of Introspection

Experiences elicited at Rothko Chapel were associated with feelings of introspection, as suggested by the analysis of focus group discussion responses:

... space feels meditative... enables profound introspection... fosters exploration of mystery within oneself... qualities of openness... two unique qualities of Chapel – helps one look inward or outward, depending on what is sought... space draws one in with embrace... inward experience... architects have little control over how people will specifically use a space – they can only foster and encourage people to use a space in ways it is intended to be used to a certain degree – Chapel is great example of how architects can encourage people to meditate and introspect...

In summary, focus group discussion data revealed that the articulation of experiences elicited at Rothko Chapel and measurement of the Chapel's sacredness were difficult. Participants suggested that the Chapel was universally sacred and that it functioned as a medium for experiencing sacredness. In addition, experiences elicited at Rothko Chapel were intense, unique, extraordinary, and associated with feelings of relaxation, mysticism, and introspection. At the Contemporary Arts Museum, experiences elicited were not intense and were not associated with feelings of relaxation.

5.5 CHARACTERISTICS THAT CONTRIBUTE TO SACREDNESS

Questionnaire data and focus group discussion data associated with characteristics that contributed to sacredness of the selected buildings is discussed as follows: 1) Characteristics associated with place-making patterns from CPPS; 2) Characteristics not associated with place-making patterns from CPPS; and 3) Ancillary differences between Rothko Chapel and Contemporary Arts Museum.

5.5.1 Characteristics Associated with Place-making Patterns from CPPS

Questionnaire data revealed that the seven characteristics (associated with place-making patterns from the CPPS) contributed to sacredness experienced at the Rothko Chapel. These characteristics suggest the presence of specific place-making patterns (in brackets) as follows:

... *symmetry of form*... (Geometric Order)

... *progression of spaces – garden to inner meditative space*...
(Spatial Order)

... *humanized proportions of building*... (Anthropomorphic Order)

... *separation of inner space from outside world*... (Ordered Views)

... *materials*... (Materiality)

... *quality of light*... (Light)

... *Chapel activities*... (Ceremonial Order)

Although the Contemporary Arts Museum was not experienced to be sacred, two questionnaire participants felt that it was sacred on account of two characteristics (associated with place-making patterns from the CPPS). These characteristics suggest the presence of specific place-making patterns (in brackets) as follows:

... *ordering of spaces*... (Spatial Order)

... *visitor behavioral patterns*... (Ceremonial Order)

However, combination of graphical data and questionnaire data revealed that the presence of Spatial Order at the Contemporary Arts Museum was inconclusive (see Table V-4), and that it did not have any strong contributors (see Table V-3). In addition, the quality of expression of Spatial Order at the Contemporary Arts Museum was identified as low (see Table V-7). Similarly,

combination of graphical data and questionnaire data associated with Ceremonial Order at the Contemporary Arts Museum, revealed that it was absent (see Table V-4), and that it did not have any strong contributors (see Table V-3). Also, the quality of expression of Ceremonial Order at the Contemporary Arts Museum was identified as low (see Table V-7).

Analysis of focus group discussion responses revealed that certain characteristics (associated with place-making patterns from the CPPS) contributed to sacredness experienced at the Rothko Chapel. These characteristics suggest the presence of specific place-making patterns (in brackets) as follows:

... very central... centering experience... immense sense of focus... spatial characteristics of Chapel have focus – help one focus... profound sense of centrality... profound sense of centrality and focus... strongest aspect of Chapel is extraordinary sense of focus and centrality... most dominant aspect of architecture is centrality... (Center)

... large solid walls present... sense of peaceful containment... very conscious and fixed container for pieces of art... (Bounding)

... natural and strong orientation...symmetrical and formal – axes and alignment are deliberately designed to enhance and foster sacredness; axiality present... (Direction)

... natural or earth-related materials contribute to enormous sense of grounding... grounding draws one within womb of Chapel and helps one breath and reach out to divine... sense of grounding welcomes one upon entry... (Descent)

... symmetrical and formal entry/exit sequence are deliberately designed into Chapel to enhance and foster sacredness... one has to enter through smaller human-scaled entrance before proceeding into inner sanctum; much flavor in experience of scale at entry; leads you upon entry – specifically and exquisitely planned journey upon entering Chapel... (Passage)

... eight sides of Chapel facilitate cyclic process of movement that tend to slow one down... eight sides makes one want to slow down and experience space within... (Numeric Order)

... symmetry present... octagonal geometry is apparent when one is inside... design is based on octagon – considered most pristine and perfect shape in Feng Shui and relates to Ba Gua... octagonal geometry purposefully intended to slow one down... geometry of building contributes to sacredness... geometry contributes to sacredness... shape of building contributes to sacredness... symmetry and form are deliberately designed into Chapel to enhance and foster sacredness... geometry of building engenders profound sense of centrality and focus... geometry of Chapel has focus – helps one focus... (Geometric Order)

... power of Chapel lies in space - fosters the sacred experience and embraces the individual... spatial characteristics of building contribute to sacredness... symmetrical and formal spatial hierarchy are deliberately designed into Chapel to enhance and foster sacredness... spatial characteristics of Chapel have focus – help one focus... (Spatial Order)

... human-scaled entrance... scale plays huge role... scale of building contributes to sacredness... proportions of building contribute to sacredness... much flavor in experience of scale at entry and inner space... (Anthropomorphic Order)

... landscape elements – water pool with obelisk contribute to sacredness... (Ordered Nature)

... functions to great extent to block outside world and withhold sacred experience within – makes Chapel unique... large solid walls isolate one from mundane world outside, separating sacred from mundane... (Ordered Views)

... natural or earth-related materials contribute to enormous sense of grounding... constructed with materials of the Earth... color palette of materials is very neutral and earthy – has profound impact and affect on individuals... texture and color of materials contribute to sacredness... (Materiality)

... shallow pool with image of reflected obelisk is serene... (Elementals)

... light contributes to sacredness... tremendous sense of light – contributes immensely to sacredness... quality of light contributes immensely to sacredness... light evokes sacredness and touches one in ways that cannot be described – likened to breathing (opens and closes your heart)... light makes one feel very different... light entering through skylight in ceiling engenders profound sense of centrality and focus... quality of light is out of this world... amazing quality of light... light qualities are simply amazing... (Light)

... ceremonial tradition... ceremonial activities... rituals... activities that take place within its confines... knowledge about all that has happened within space... knowledge about activities (special events, memorials) conducted within space... presence of highly respected spiritual leaders within space... knowledge of activities within space... knowledge that other individuals experience the Chapel as sacred... (Ceremonial Order)

Focus group discussion data revealed that, although the Contemporary Arts Museum was not experienced as sacred, the materiality of the concrete columns in the lower level of the Museum was found to be attractive as suggested by the analysis of responses:

... lower level expresses materials in very natural way... lower level is homogeneous in expressing materials... materiality and texture of concrete columns in lower level resonate with individuals... concrete columns in lower level have natural quality

– a feature that is otherwise not displayed... concrete columns in lower level are attractive/have very interesting features – rectangular with chamfered corners, imprinted with wooden forms and actual grain of wood... column surface is textured and resembles surface texture of wood – richness of texture and appearance...

Questionnaire data and focus group discussion data, therefore, collectively revealed that fifteen place-making patterns from the CPPS, contributed to sacredness experienced at Rothko Chapel as follows: 1) Center; 2) Bounding; 3) Direction; 4) Ascent; 5) Passage; 6) Numeric Order; 7) Geometric Order; 8) Spatial Order; 9) Anthropomorphic Order; 10) Ordered nature; 11) Ordered Views; 12) Materiality; 13) Elementals; 14) Light; and 15) Ceremonial Order. Graphical data and questionnaire data revealed that all fifteen place-making patterns listed above were present (see Table V-4), and had a high quality of expression (see Table V-7) at the Rothko Chapel.

5.5.2 Characteristics Not Associated with Place-making Patterns from CPPS

Questionnaire data revealed that three characteristics (not associated with place-making patterns from the CPPS) contributed to sacredness experienced at the Rothko Chapel. These characteristics have been associated with specific concepts (in brackets) as follows:

... quietness of space... (Sound)

... simplicity of formal elements of building... (Void)

... paintings... (Objects)

Although the Contemporary Arts Museum was not experienced to be sacred, two questionnaire participants felt that it was sacred on account of the following characteristics (not associated with place-making patterns from the CPPS):

... atmosphere and ambiance... (Sound)

... nature of exhibits... (Objects)

Questionnaire data, therefore, revealed that three characteristics (not associated with place-making patterns from the CPPS) seemed to contribute to sacredness experienced at the Rothko Chapel and Contemporary Arts Museum as follows: 1) Sound; 2) Void; and 3) Objects.

Analysis of focus group discussion responses revealed that eight characteristics (not associated with place-making patterns from the CPPS) contributed to sacredness experienced at the Rothko Chapel. These characteristics have been associated with specific concepts (in brackets) as follows:

... Chapel has a natural path... movement inside Chapel is significantly slower and quieter... (Path/Procession)

... Chapel is empty... ornamentation is left out, making inside and outside feel like voids in space... nothingness present... emptiness within Chapel contributes to sacredness... (Void)

...sacred intent is crucial to creating sacred place... projecting what and how ones heart feels about sacredness onto a place... sacred places rarely exist without sacred intent... anything can become holy or sacred with awareness... place becomes sacred when space becomes conducive to our awareness of the sacred... to make place sacred, one has to intentionally be aware of creating sacred space... very difficult to experience sacredness when place is not conducive to projecting or expressing the sacred... (Intention)

... Chapel functions as shrine to memory and work of Mark Rothko... paintings contribute to sacredness... (Objects)

... permanent exhibits... Chapel designed around explicit and permanent pieces of art – not designed to be constantly changing environment – Chapel not controlled by time – timeless... Chapel has sense of timelessness... (Timelessness)

*... sense of transcendence... connection with the divine...
awareness of divine... presence of God... (Deity)*

*... sound makes one feel very different... sound contributes to
sacredness... quality of sound, quietness and stillness contribute
immensely to sacredness... sound evokes sacredness and
touches one in ways that cannot be described – likened to
breathing (opens and closes your heart)... absence of
sound/presence of silence and whispers – contribute to peaceful
and profound experience of sacredness... acoustics are
phenomenal... acoustics have amazing trance-like effect on
people – especially more pronounced with larger groups...
sound has spectacular effect... amazing quality of sound...
sound qualities are simply amazing... sound inside Chapel has
eerie quality – whisper-like qualities with barely perceptible
echo... (Sound)*

*... very singular... unified... one space, 'a' space, single space –
unified... very focused... unity expressed through architecture,
purpose, intent, function – collectively these contribute to
sacredness... provides profound sense of unification to heart,
mind and soul... sensory feeling of unification... creates aura of
oneness with the universe... encourages one in the pursuit of
Unity... unified with the universe... building characteristics do not
act in isolation – everything in totality affects individuals and
makes place sacred... texture and color of materials, light,
sound, paintings, geometry, emptiness within chapel –
collectively set mood for sacredness... combination of axes,
form, spatial alignment, spatial hierarchy, entry/exit sequence
produce a very powerful effect – features converge into one
strong experience and come together in unison to uplift
experience within Chapel... (Unity)*

Focus group discussion data revealed that *Objects* (Polaroid photographs) exhibited in the lower level of the Contemporary Arts Museum were experienced to be sacred, as suggested by the analysis of responses:

... Polaroid photographs are sacred – has nothing to do with architecture of Museum... Polaroid photographs draw one into the moment – has nothing to do with the building, except that building allows exhibition to happen functionally... Polaroid photographs foster a meditative feel to lower level – one can focus on photographs and meditate... significant contrast between first floor and lower floor, on account of content (expressions of people) of Polaroid photographs – has nothing to do with the character of the building... sense of order to arrangement of Polaroid photographs... power and energy are its ever-changing exhibits, not the building...

Focus group discussion data revealed that *Path/Procession* was experienced to be quick/rapid at the Contemporary Arts Museum, as suggested by the analysis of responses:

... architecture of Museum is about movement... one feels like he/she has to constantly move... people move around rather quickly and rapidly...

Focus group discussion data revealed that *Sound* at the Contemporary Arts Museum did not possess the same qualities as those at the Rothko Chapel, as suggested by the analysis of responses:

... sound is completely different as compared to Chapel...

Focus group discussion data revealed that *Unity* was not experienced at the Contemporary Arts Museum, as suggested by the analysis of responses:

... not centered... not focused... opposite of centering... too much happening... ambiguous... scattered... busy and edgy... so much going on... sense of clutter... inherently divisive...

*unsettling... novelty, surprise and shock experienced...
 scattering tendency is opposite to what sacred represents...
 significant contrast in experience as compared to Chapel... one
 is subjected to excessively different influences... cannot be
 experienced as one space – series of spaces that change with
 exhibitions... reflects modern life and contrasts with what is
 sacred – vapid, fast, morphing, evolving; chaotic, confusion,
 uncertainty; experience constantly changes and morphs...*

In summary, questionnaire data and focus group discussion data collectively revealed that eight characteristics (not associated with place-making patterns from the CPPS) contributed to sacredness experienced at the Rothko Chapel as follows: 1) Sound; 2) Void; 3) Objects; 4) Path/Procession; 5) Intention; 6) Timelessness; 7) Deity; and 8) Unity. The concept of *Unity* was experienced as the most powerful contributor to sacredness at the Rothko Chapel. At the Contemporary Arts Museum, questionnaire data and focus group discussion data did not agree on whether *Sound*, contributed to sacredness, i.e., questionnaire data showed that *Sound* contributed to sacredness, while focus group discussion data suggested that *Sound* was completely different as compared to the Rothko Chapel. However, questionnaire data and focus group discussion data agreed that *Objects* at the Contemporary Arts Museum were sacred.

5.5.3 Ancillary Differences between Rothko Chapel and Contemporary Arts Museum

Focus group discussion data revealed that the Rothko Chapel was experienced as an inflexible space, as suggested by the analysis of responses:

*... difficult to rearrange interior space due to permanent nature of
 the exhibits...*

The Contemporary Arts Museum was experienced as a flexible space, as suggested by the analysis of focus group discussion responses:

*... space feels very malleable and temporary... space accepts
 change very easily... interior is flexible in terms of spatial
 divisions and can be easily organized into several different*

arrangements, depending on nature of exhibits... functions in different ways depending on how interior space is divided... partitions can be moved around and space can be divided in different ways... changing exhibits; likened to supermarket – things come in and go out frequently... people come to Museum to see exhibits that are constantly changing...

Focus group discussion data revealed that the design of the Museum was successful to the extent that it was contemporary, as suggested by the analysis of responses:

... design is dealt with, and approached very differently as compared to Chapel... cutting edge Avant-garde building that houses contemporary art... though functions are similar, experience is completely different as compared to Chapel... difference in experience as compared to Chapel is due to different design intentions and incorporation of different design features... designed to be contemporary – successful to that extent...

In summary, focus group discussion data revealed that Rothko Chapel was experienced as an inflexible space, while Contemporary Arts Museum was experienced to be flexible. The design of the Museum was also experienced as being successful to the extent that it was contemporary.

5.6 CONCEPTS ASSOCIATED WITH MEANING OF SACRED AND SECULAR

Focus group discussion data in this section is discussed as follows: 1) Meaning of sacred and secular; and 2) Ancillary concepts derived from focus group discussion data.

5.6.1 Meaning of Sacred and Secular

Comprehension

Focus group discussion data revealed that the sacred is incomprehensible, as suggested by the analysis of responses:

*...cannot be comprehended with our minds...
incomprehensible... beyond analysis... above function and
reason... goes beyond what we are taught... above intellectual
understanding...*

Articulation

Focus group discussion data revealed that the sacred is hard to articulate, as suggested by the analysis of responses:

*... hard to describe and discuss... cannot be described
appropriately in language or articulate manner... cannot exist
without the secular... anything can become sacred with
intention... not found in secular experience or secular space...*

Focus group discussion data revealed that the secular can be articulated with ease, as suggested by the analysis of responses:

... can be measured, quantified or defined with ease...

Universality

Focus group discussion data revealed that universality in the meaning of sacred does not exist, as suggested by the analysis of responses:

*...everyone has different beliefs regarding sacred... definition
changes with personal backgrounds, beliefs, and past
experiences...*

Type of Experience

Focus group discussion data revealed that sacred was associated with a higher awareness, as suggested by the analysis of responses:

*... the sacred is a feeling... sense... emotion... belief...
connection... intent – more than an intention... direct
experience... profound awareness...*

Focus group discussion data revealed that the secular was associated with the everyday, as suggested by the analysis of responses:

... Secular is something that relates to the everyday...

Ways in which Experienced

Focus group discussion data revealed that the experience of the sacred stemmed from within, as suggested by the analysis of responses:

... perceived subconsciously... evoked deeply... felt within... felt by heart; stems from heart and head together... felt through all senses put together...

Characteristics of Experience

Focus group discussion data revealed that the experience of the sacred was unique and extraordinary, as suggested by the analysis of responses:

... sacred means feeling unique... special... extraordinary... out of the ordinary... the other... other worldly... separate... set apart from the world... higher than the everyday... about transcendence... bigger and beyond...

Focus group discussion data revealed that the experience of the secular was not unique or extraordinary, as suggested by the analysis of responses:

... anything that is not extraordinary... not unique... secular means everyday... average... normal... mundane... ordinary... not special... does not have a sense of uniqueness, extraordinary focus or purpose to it... belongs to the everyday world... does not stand apart from the rest... about function and reason... temporary... fleeting... not sacred... opposite of the sacred...

Ways in which Experience Contributes

Focus group discussion data revealed that the experience of the sacred was beneficial, as suggested by the analysis of responses:

... makes heart breathe and pulse with life... provides us with greater purpose in life... relieves us from pressures of daily life... counters depression or sadness in our lives... makes us feel alive, fulfilled, cared for... makes us feel significant and important in the greater scheme of things...

Deity

Focus group discussion data revealed that the sacred was associated with the concept of God, as suggested by the analysis of responses:

... relates with concept of God, holy, holiness... relates with nature and existence of divine being... idea of connection with God... idea that God perceives something to be holy – so it becomes holy...

Unity

Focus group discussion data revealed that the sacred was associated with the concept of Unity, as suggested by the analysis of responses:

... perceived subconsciously as one entity... part of everything... singularity... signifies everything... opposite of scatter...

Focus group discussion data revealed that the experience of the secular was not associated with the concept of Unity, as suggested by the analysis of responses:

... something that is not holistic... something that is piecemeal... fragmented...

In summary, focus group discussion data revealed that the sacred is incomprehensible and hard to articulate. Universality in the meaning of sacred did not exist. The sacred was associated with a higher awareness, where the experience stemmed from within. Experience of the sacred was found to be unique, extraordinary and beneficial. The Sacred was also associated with the concept of Deity & Unity. The secular was associated with the everyday and was compared to a concept that could be articulated with ease. In addition, the experience of the secular was not unique or extraordinary. The secular was also not associated with the concept of Unity.

5.6.2 Ancillary Concepts Derived from Focus Group Discussion Data

Difference in knowledge about sacred place-making

Focus group discussion data revealed that there was greater understanding on creating sacred places in the past than the present, as suggested by the analysis of responses:

... ancient knowledge regarding creation of sacred architecture has been lost... modern people do not comprehend or have appropriate knowledge on how to create sacred place... there seemed to be greater understanding on creating sacred places in the past – possibly because it was better understood in the past... media, technology, television, and internet occupy prime locations in modern homes and lives... museum is reflective of western contemporary thought process in architectural expression – vapid...

Differences in interest about sacred place-making

Focus group discussion data revealed that sacred place-making is more common in eastern cultures than western cultures and that, western cultures are gradually beginning to take an interest in sacred architecture, as suggested by the analysis of responses:

... practice of designing sacred architecture seems more common in eastern than western cultures... inclusion of sacred spaces seen as natural process for eastern cultures... creating sacred places – one of the primary goals of architecture... incorporating sacred spaces in dwellings is not part of western cultures... intent on incorporating sacred spaces in dwellings is gaining momentum in west... greater interest in sacred place-making is currently being generated in west... dedication of small and separate space in dwellings that foster and contribute to experience of sacredness is highly desirable...

Miscellaneous Comments

Focus group discussion data revealed that people feel the need for both – secular and sacred, as suggested by the analysis of responses:

... certain degree of longing/part of us needs centering... symmetry... axially as experienced in Chapel – provides immense degree of comfort... part of us craves for novelty, need to be surprised, shocked, unsettled as experienced in Museum... buildings reflect part sacred and part secular nature of humans... people visit Museum and Chapel for different reasons – one can feel comfortable at both places for very different reasons...

Focus group discussion data revealed that there is a need for architects to define appropriate terminology associated with sacred place-making, as suggested by the analysis of responses:

... architects need to define correct language or terminology for sacred space (shrine, temple, prayer space, meditation space, contemplation space) in dwellings to facilitate the incorporation of specific sacred space in everyday architecture – could be actual space or niche in wall...

In summary, focus group discussion data revealed that participants believed that there was greater understanding of creating sacred places in the past than the present and that sacred place-making is more common in eastern cultures than western cultures – western cultures are gradually beginning to take an interest in sacred architecture. In addition, focus group discussion data revealed that people feel the need for both – secular and sacred, and that there is a need for architects to define appropriate terminology associated with sacred place-making.

5.7 DEVELOPMENT OF PLACE-MAKING PATTERN MATRIX

Based on data collected and analyzed in the research, a place-making pattern matrix, meant to serve as a guide for architects in creating sacred place, is developed. The hierarchical ordering of place-making patterns in the matrix is based on differences in the presence and quality of expression (considered collectively) of the place-making patterns between the sacred and secular building (see Tables V-2 and 6). Since there were a total of eighteen place-making patterns, a simple scoring system made up of values from 18 to 1 was used to determine the hierarchical ordering of the place-making patterns in the matrix, i.e., the highest value – 18 was

assigned to patterns at the very top of both tables and the lowest value – 1 was assigned to patterns at the very bottom of both tables. In this manner, each place-making pattern was assigned two values – one value for its presence and one value for its quality of expression, dependent on its order of listing in Table V-2 and 6. The two values (presence value and quality of expression value) were subsequently added to reveal a total score. The total score of each place-making pattern subsequently determined its hierarchical order in the place-making pattern matrix. The presence values, quality of expression values, and total scores of individual place-making patterns for generating the hierarchical order of the place-making pattern matrix are shown in Table V-8.

TABLE V-8. Presence values, quality of expression values, and total scores of individual place-making patterns for generating the hierarchical order of the place-making pattern matrix.

Pattern	Presence value	Quality of expression value	Total score	Hierarchical order in matrix
Light	15	18	33	1
Celestial Order	17	15	32	2
Center	16	14	30	3
Ceremonial Order	18	9	27	4
Ascent	12	12	24	5
Anthropomorphic Order	13	11	24	6
Ordered Nature	6	17	23	7
Ordered Views	4	16	20	8
Bounding	5	13	18	9
Spatial Order	10	7	17	10
Elementals	7	10	17	11
Direction	14	2	16	12
Numeric Order	8	8	16	13
Differentiating Boundaries	11	4	15	14
Passage	9	1	10	15
Geometric Order	3	5	8	16
Descent	1	6	7	17
Materiality	2	3	5	18

The place-making pattern matrix (Figure V-3) is composed of nineteen items arranged in three concentric layers, i.e., the eighteen place-making patterns from the CPPS which formed the basis for this study, arranged in the two outer layers of the matrix with *Unity* at the center of the matrix.

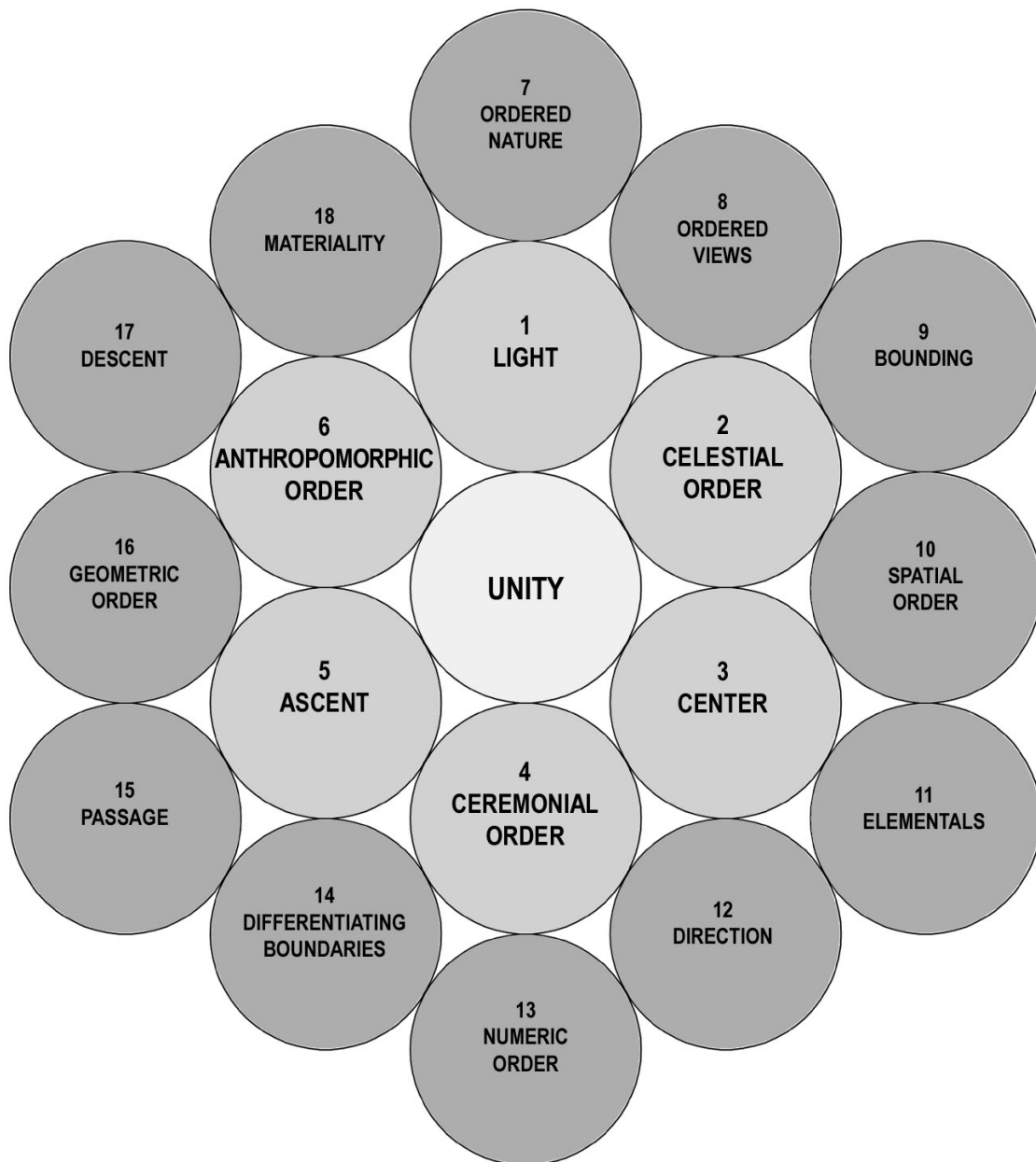


FIGURE V-3. Place-making pattern matrix.

The concept of *Unity* which signifies the experience of “wholeness” or “oneness” between all the place-making patterns is identified at the center of the matrix. It denotes the integral and meaningful unification of all eighteen place-making patterns that contribute to sacredness of place. Six place-making patterns *Light*, *Celestial Order*, *Center*, *Ceremonial Order*, *Ascent*, and *Anthropomorphic Order* are arranged in the middle layer of the matrix. These six place-making

patterns were found to have highest differences (based collectively on their differences in pattern presence and pattern quality) between the Rothko Chapel and the Contemporary Arts Museum. The remaining twelve place-making patterns *Ordered Nature, Ordered Views, Bounding, Spatial Order, Elementals, Direction, Numeric Order, Differentiating Boundaries, Passage, Geometric Order, Descent, and Materiality* are arranged in the outermost layer of the matrix.

The hierarchical order of place-making patterns in the matrix could indicate their importance (in terms of pattern presence and pattern quality) in contributing to sacredness of place. In this sense, it is likely that the presence and high quality of expression of the place-making patterns in the middle layer of the matrix (in descending hierarchical order – *Light, Celestial Order, Center, Ceremonial Order, Ascent, and Anthropomorphic Order*) have a greater impact in contributing to sacredness of place, than the presence and quality of expression of the remaining twelve place-making patterns in the outermost layer of the matrix (in descending hierarchical order – *Ordered Nature, Ordered Views, Bounding, Spatial Order, Elementals, Direction, Numeric Order, Differentiating Boundaries, Passage, Geometric Order, Descent, and Materiality*). In other words, the presence and high quality of expression of the place-making patterns *Light* may have greater impact in contributing to sacredness of place as compared to the presence and quality of expression of the place-making pattern *Materiality*. Further studies are required to explore how, or in what ways the six place-making patterns (i.e., *Light, Celestial Order, Center, Ceremonial Order, Ascent, and Anthropomorphic Order*) in the middle layer of the matrix impact sacredness of place.

The matrix includes place-making patterns that were common to both authors – Michael Brill and Phillip Tabb, including place-making patterns that were exclusive, i.e., *Differentiating Boundaries, Ordered Views, Light* (exclusive to Michael Brill) and *Numeric Order, Geometric Order, Anthropomorphic Order, and Elementals* (exclusive to Phillip Tabb) have been included in the matrix. Of seven of the place-making patterns that were exclusive, two place-making patterns (i.e., *Light* and *Anthropomorphic Order*) are located in the middle layer of the place-making pattern matrix, as their presence and high quality of expression was found to have a high impact in contributing to sacredness of place.

It is to be noted that besides the eighteen place-making patterns arranged in the middle and outermost layer of the matrix, seven characteristics not associated with the place-making patterns from the CPPS (i.e., *Sound, Void, Objects, Path/Procession, Intention, Timelessness,*

and *Deity*) were also found to contribute to sacredness of place. Further studies are required to explore how, or in what ways these eight characteristics impact sacredness of place.

CHAPTER VI CONCLUSION

6.1 CONCLUSION

The study utilized quantitative as well as qualitative methods by means of graphical data, questionnaire data and focus group discussion data to examine differences in the presence and quality of expression of place-making patterns between a sacred building, i.e., Rothko Chapel and a secular building, i.e., Contemporary Arts Museum. Contrast and comparison of empirical evidence which emerged from data collection and analysis, revealed that the presence and quality of expression of place-making patterns was higher at the Rothko Chapel than at the Contemporary Arts Museum. This dissertation addressed: 1) differences in presence of place-making patterns; 2) strongest contributors to presence of place-making patterns; 3) differences in quality of expression of place-making patterns; 4) highest and lowest differences in presence and quality of expression of place-making patterns; 5) hierarchical ordering of patterns and their impact in contributing to sacredness of place; 6) sacredness and experiences elicited at selected buildings; 7) patterns and non-pattern related characteristics that impact sacredness at selected buildings; 8) meaning of sacred and secular; 9) design guidelines for sacred place-making; and 10) validity of hypothesis and development of place-making pattern theory. The chapter then addresses limitations of the study and implications for further study, followed by final words from the researcher.

6.1.1 Differences in Presence of Place-making Patterns

At the Rothko Chapel, all eighteen place-making patterns – *Center, Bounding, Direction, Descent, Ascent, Passage, Numeric Order, Geometric Order, Spatial Order, Anthropomorphic Order, Ordered Nature, Celestial Order, Differentiating Boundaries, Ordered Views, Materiality, Elementals, Light*, and *Ceremonial Order* were present. At the Contemporary Arts Museum, only nine place-making patterns – *Bounding, Descent, Passage, Geometric Order, Ordered Nature, Ordered Views, Materiality, Elementals*, and *Light* were present. Six place-making patterns – *Center, Direction, Anthropomorphic Order, Celestial Order, Differentiating Boundaries*, and *Ceremonial Order* were absent, while the presence of three place-making patterns – *Ascent*,

Numeric Order, and *Spatial Order* was found to be inconclusive at the Contemporary Arts Museum.

6.1.2 Strongest Contributors to Presence of Place-making Patterns

At the Rothko Chapel, strongest contributors to the presence of all eighteen place-making patterns – *Center*, *Bounding*, *Direction*, *Descent*, *Ascent*, *Passage*, *Numeric Order*, *Geometric Order*, *Spatial Order*, *Anthropomorphic Order*, *Ordered Nature*, *Celestial Order*, *Differentiating Boundaries*, *Ordered Views*, *Materiality*, *Elementals*, *Light*, and *Ceremonial Order* could be identified. At the Contemporary Arts Museum, strongest contributors to the presence of only nine place-making patterns – *Bounding*, *Descent*, *Passage*, *Geometric Order*, *Ordered Nature*, *Ordered Views*, *Materiality*, *Elementals*, and *Light* could be identified, while seven place-making patterns – *Direction*, *Ascent*, *Numeric Order*, *Anthropomorphic Order*, *Celestial Order*, *Differentiating Boundaries*, and *Ceremonial Order* were identified as not having any strong contributors.

6.1.3 Differences in Quality of Expression of Place-making Patterns

At the Rothko Chapel, the quality of expression of all eighteen place-making patterns – *Center*, *Bounding*, *Direction*, *Descent*, *Ascent*, *Passage*, *Numeric Order*, *Geometric Order*, *Spatial Order*, *Anthropomorphic Order*, *Ordered Nature*, *Celestial Order*, *Differentiating Boundaries*, *Ordered Views*, *Materiality*, *Elementals*, *Light*, and *Ceremonial Order* was high. At the Contemporary Arts Museum, the quality of expression of only two place-making patterns – *Bounding* and *Materiality* was high. The quality of expression of one place-making pattern – *Ceremonial Order* was intermediate, while the quality of expression of twelve place-making patterns – *Center*, *Descent*, *Ascent*, *Numeric Order*, *Spatial Order*, *Anthropomorphic Order*, *Ordered Nature*, *Celestial Order*, *Differentiating Boundaries*, *Ordered Views*, *Elementals*, and *Light* was low at the Contemporary Arts Museum. The quality of expression of three place-making patterns – *Direction*, *Passage*, and *Geometric Order* was inconclusive at the Contemporary Arts Museum.

6.1.4 Highest and Lowest Differences in Presence and Quality of Expression of Patterns

Three place-making patterns – *Ceremonial Order*, *Celestial Order*, and *Center* displayed exceedingly high differences in presence between the Rothko Chapel and the Contemporary Arts Museum, while one pattern – *Descent* displayed no difference at all. The place-making pattern *Light* displayed the highest difference in its quality of expression between the Rothko Chapel and the Contemporary Arts Museum, while the place-making pattern *Passage* displayed the lowest.

6.1.5 Hierarchy of Patterns and their Impact in Contributing to Sacredness of Place

The presence and high quality of expression of the place-making patterns (in descending hierarchical order) *Light*, *Celestial Order*, *Center*, *Ceremonial Order*, *Ascent*, and *Anthropomorphic Order* may have a greater impact in contributing to sacredness of place, than the presence and quality of expression of the remaining twelve place-making patterns (in descending hierarchical order) *Ordered Nature*, *Ordered Views*, *Bounding*, *Spatial Order*, *Elementals*, *Direction*, *Numeric Order*, *Differentiating Boundaries*, *Passage*, *Geometric Order*, *Descent*, and *Materiality*. This hierarchical order of place-making patterns could indicate their importance (in terms of pattern presence and pattern quality) in contributing to sacredness of place, i.e., the presence and high quality of expression of the place-making patterns *Light* may have greater impact in contributing to sacredness of place as compared to the presence and quality of expression of the place-making pattern *Materiality*.

6.1.6 Sacredness and Experiences Elicited at Selected Buildings

The Rothko Chapel was experienced to be sacred in comparison to the Contemporary Arts Museum. The articulation of experiences elicited at Rothko Chapel and measurement of the Chapel's sacredness were difficult. Participants suggested that the Chapel was universally sacred and that it functioned as a medium for experiencing sacredness. In addition, experiences elicited at Rothko Chapel were intense, unique, extraordinary, and associated with feelings of relaxation, mysticism, and introspection. At the Contemporary Arts Museum, experiences elicited were not intense and were not associated with feelings of relaxation.

6.1.7 Patterns and Non-pattern Related Characteristics that Impact Sacredness

Fifteen place-making patterns – *Center, Bounding, Direction, Ascent, Passage, Numeric Order, Geometric Order, Spatial Order, Anthropomorphic Order, Ordered nature, Ordered Views, Materiality, Elementals, Light*, and *Ceremonial Order* contributed to sacredness experienced at Rothko Chapel. All fifteen place-making patterns were present and had a high quality of expression at the Rothko Chapel. Eight characteristics, not associated with any of the place-making patterns from the CPPS, also contributed to sacredness experienced at the Rothko Chapel. These characteristics included – Sound, Void, Objects, Path/Procession, Intention, Timelessness, Deity, and Unity. At the Contemporary Arts Museum, only one characteristic (not associated with any of the place-making patterns from the CPPS) – *Objects* was considered to be sacred. The concept of *Unity* (collective experience of all place-making patterns and other non-pattern related characteristics) was experienced as the most powerful contributor to sacredness at the Rothko Chapel.

6.1.8 Meaning of Sacred and Secular

Based on content analysis of focus group discussion data associated with the meaning of sacred and secular, the study revealed that the sacred is difficult to comprehend and hard to articulate. Universality in the meaning of sacred did not exist. The sacred was associated with a higher awareness, where the experience stemmed from within. Experience of the sacred was found to be unique, extraordinary and beneficial. The Sacred was also associated with the concept of Deity & Unity. The secular was associated with the everyday and was compared to a concept that could be articulated with ease. In addition, the experience of the secular was not unique or extraordinary. The secular was also not associated with the concept of Unity.

6.1.9 Design Guidelines for Sacred Place-making

The design guidelines listed below are by no means an exclusive set or complete list of recommendations. They are intended to assist architects in creating everyday architecture that is meaningful and sacred. Based on data collected and analyzed in the research, recommendations for the meaningful inclusion of the place-making patterns in architecture are as follows:

- 1) *Center* can be embodied in place by means of: a) symmetry in the plan of the building; b) polygonal/circular arrangement of furniture; c) features such as centralized skylights.
- 2) *Bounding* can be embodied in place by means of: a) staunch walls; b) solid floors; c) ceilings with openings; d) restricted views to the exterior; e) objects defining extents.
- 3) *Direction* can be embodied in place by means of: a) orientation of site and building to cardinal points; b) orientation of the building entrance with significant landscape features; c) orientation of natural light inside the building; d) orientation of objects within the building or the landscape; e) symmetry in the building form.
- 4) *Descent* can be embodied in place by means of: a) darkness inside the building; b) light provided from above, contrasting with darkness inside the building; c) ceilings with downward contours towards its center; d) black color; e) depressions in the landscape such as water pools; f) reflection of vertically oriented objects on the surface of water.
- 5) *Ascent* can be embodied in place by means of: a) light provided from above – features that encourage people to look upwards; b) ascending ceiling planes; c) vertical reveals in walls; d) vertical objects; e) vertical building planes soaring towards the sky.
- 6) *Passage* can be embodied in place by means of: a) main entrance of the building; b) entrance foyer; c) inner portals of the building; d) pronounced passageways within the building; e) pronounced outdoor walkways leading to the main entrance of the building.
- 7) *Numeric Order* can be embodied in place by means of: a) polygonal-shaped plans; b) specific number of portals and doorways; c) recurrence of objects within the building.
- 8) *Geometric Order* can be embodied in place by means of: a) physical form of the building; b) geometrical shapes of wall planes.
- 9) *Spatial Order* can be embodied in place by means of: a) singular spaced enclosures with defined spatial centers; b) physical form of the building; c) geometrical shapes of wall planes; d) symmetrical, circular/radial, orthogonal, central, diagonal, and pyramidal spatial organizations; e) hierarchy, relationship, transition, rhythm and gradual extension of spatial sequence from the inside of the building to the outside.
- 10) *Anthropomorphic Order* can be embodied in place by means of: a) high ceilings; b) large inner space; c) door and furniture heights; d) 1:1 or 1:2 proportioning systems; d) objects expressing profiles of human form; e) symmetry in the plan of the building; f) building proportions; g) gradual increase in ceiling height from main entrance of the building to the inside of the building.
- 11) *Ordered Nature* can be embodied in place by means of: a) water pools; b) vegetative screening; c) groomed ground cover; d) sunlight and shadows cast inside the building.

- 12) *Celestial Order* can be embodied in place by means of: a) natural light entering the building from above; 2) sloped ceiling.
- 13) *Differentiating Boundaries* can be embodied in place by means of: a) orientation of the entrance of the building with the cardinal directions; b) niches in the walls of the building; c) differences in the length, size, and shape of walls planes; d) difference in wall colors and wall textures; e) differences within the ceiling plane.
- 14) *Ordered Views* can be embodied in place by means of: a) wall planes without openings; b) restricting views from the inside of the building to outside mundane spaces; c) singular view of features such as light provided from above; d) visual connectivity between significant spaces within the building.
- 15) *Materiality* can be embodied in place by means of: a) construction materials; b) texture of construction materials; c) color of construction materials; d) differences in walls-floor-ceiling materials, including landscape materials.
- 16) *Elementals* can be embodied in place by means of: a) materiality of the walls, floor, and ceiling – representing earth; natural light – representing fire; water pool – representing water; bamboo groove (when swaying) – representing wind.
- 17) *Light* can be embodied in place by means of: a) sunlight entering the building; b) high contrast of light and shadows inside the building.
- 18) *Ceremonial Order* can be embodied in place by means of: a) arrangement of furniture that encourages introspection and meditation; b) singularity of light source; c) objects that encourage introspection and meditation; d) specific pattern of movement of people inside the building; e) inherent function of the building.

6.1.10 Validity of Hypothesis and Development of Place-making Pattern Theory

Data collected and analyzed, validated the pattern presence and pattern quality assessment methods as viable tools for determining whether a specific built environment was more likely to be experienced as sacred or secular. The study validated the hypothesis of the study by concluding that *built environments which possess a higher presence and higher quality of expression of certain place-making patterns are more likely to be experienced as sacred, than built environments with a lower presence and lower quality of expression of the place-making patterns.*

6.2 LIMITATIONS OF THE STUDY AND IMPLICATIONS FOR FURTHER STUDY

This study focused on the differences in the presence and quality of expression of place-making patterns at a limited number of case studies, i.e., one sacred building – Rothko Chapel and one secular building – contemporary Arts Museum. Similar research on additional case studies would have increased the validity of the research findings. The selected case studies were also limited to a single location, i.e., Houston, Texas. Research on case studies in other locations would have helped to validate universal applications of the research. Methodological limitations included the small sample size of participants for questionnaires. Also, focus group discussions could have been conducted more than once at each location and included more subjects to test the recurrence of data and increase the validity of the research.

Further studies are required to explore how, or in what ways the six place-making patterns (i.e., *Light, Celestial Order, Center, Ceremonial Order, Ascent, and Anthropomorphic Order*) in the middle layer of the place-making pattern matrix impact sacredness of place. Further studies could also examine ways in which individual place-making patterns, common to both sacred and secular places differ, other than those associated with their presence and quality of expression, i.e., further studies could explore whether factors other than those associated with pattern presence and pattern quality are responsible for contributing to the sacredness of place. Such research could involve studying whether and how specific combinations of place-making patterns, contribute to sacredness of place. Further studies could also test whether and how sequential embodiment of the place-making patterns, contribute to sacredness of place. These differences could be examined by means of studies that compare a series of sacred and secular places, until recurring patterns in differences are revealed. Further studies are also required to explore how, or in what ways the seven characteristics (i.e., *Sound, Void, Objects, Path/Procession, Intention, Timelessness, and Deity*) not associated with the place-making patterns from the CPPS contribute to sacredness of place. In addition, further studies could also reveal other characteristics and/or place-making patterns that have not yet been identified.

6.3 FINAL WORDS

This four year dissertation has provided me with a glimpse of how little I know, and how much more there is to know about sacred place and the place-making patterns. The importance of the patterns in the creation of place has often been under-appreciated and misunderstood. Perhaps,

the contents of this dissertation will be seen as a small step in re-evaluating the process, goals, and status of using the place-making patterns in place-design as an activity.

It is my belief that the place-making patterns, when meaningfully embodied and uplifted in place, could function as channels for the pure exemplification of the sacred. The resulting architecture could, in turn, act as a channel for remembering and experiencing the sacred. It is through the lens of the place-making patterns that the qualitative nature of sacred place may be understood. In this sense, the patterns could assist in the making of place that is memorable and sacred. The experience of *Unity* in sacred place can be likened to that of a mnemonic device, which when triggered, helps us re-remember our quest for the most exemplary model of place – place that is sacred and place that heals. The end of this daunting task is but the beginning of a very long journey – one that has taught me to be humble and patient, and one that will always be deeply revered and cherished.

*The road is arduous, fraught with perils, because it is, in fact, a rite of the passage
from the profane to the sacred, from the ephemeral and illusory to reality and eternity,
from death to life, from man to the divinity.*

Mircea Eliade, 1959

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APPENDIX A
QUESTIONNAIRE

THE SACRED IN ARCHITECTURE

Participant No. _____

A Study of the Presence and Quality of Place-making Patterns in Sacred and Secular Buildings

6. What is the quality of the contribution of "Direction" to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Descent" is embodied by means of features that occupy the under-realm and allow visual or physical descent such as ground and lower floors, foundations, footings, and wells. These features signify a connection with the earth by gesturing downward. The meaningful embodiment of this pattern could provide grounding to the place.

7. Based on the description above, do you feel that "Descent" is present at this place?
 Yes No (If no, go directly to item 9)
8. What is the quality of the contribution of "Descent" to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Ascent" is embodied by means of vertical features that allow visual or physical ascent such as towers, vertically ascending roof lines, tall columns, and shafts of light from above. These features signify a connection with the sky by gesturing upward. The meaningful embodiment of this pattern could provide levity to the place.

9. Based on the description above, do you feel that "Ascent" is present at this place?
 Yes No (If no, go directly to item 11)
10. What is the quality of the contribution of "Ascent" to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Passage" is embodied by means of doorways, foyers, entrances, or thresholds that provide points of entry to the place. These thresholds function as distinct spaces of continuity between two domains. The meaningful embodiment of this pattern could provide transformation within the human body with physical movement into the place.

11. Based on the description above, do you feel that "Passage" is present at this place?
 Yes No (If no, go directly to item 13)
12. What is the quality of the contribution of "Passage" to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Numeric Order" is embodied by means of significant recurrence of architectural features such as the singularity or duality of forms, the number of towers, doors, windows, columns, walls, and steps. The meaningful embodiment of this pattern could provide significant numerical identity to the place.

13. Based on the description above, do you feel that "Numeric Order" is present at this place?
 Yes No (If no, go directly to item 15)
14. What is the quality of the contribution of "Numeric Order" to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

THE SACRED IN ARCHITECTURE

Participant No. _____

A Study of the Presence and Quality of Place-making Patterns in Sacred and Secular Buildings

“Geometric Order” is embodied by means of shapes that make up the physical form of the building. It defines volume in space. The meaningful embodiment of this pattern could provide harmonic proportions and progressions in form at the place.

15. Based on the description above, do you feel that “Geometric Order” is present at this place?
 Yes No (If no, go directly to item 17)

16. What is the quality of the contribution of “Geometric Order” to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

“Spatial Order” is embodied by means of rhythm and succession of spaces that could reveal symmetry and be circular, linear, radial, triangular, orthogonal, or spiral in nature. It generates correspondence and relation between spaces. The meaningful embodiment of this pattern could provide hierarchical meaning between spaces at the place.

17. Based on the description above, do you feel that “Spatial Order” is present at this place?
 Yes No (If no, go directly to item 19)

18. What is the quality of the contribution of “Spatial Order” to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

“Anthropomorphic Order” is embodied by means of proportions in form based on measurements of the human body. The meaningful embodiment of this pattern could provide resonance and harmony in the human body at the place.

19. Based on the description above, do you feel that “Anthropomorphic Order” is present at this place?
 Yes No (If no, go directly to item 21)

20. What is the quality of the contribution of “Anthropomorphic Order” to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

“Ordered Nature” is embodied by means of special plants, trees, gardens, and other natural landscape features that are bordered and controlled, i.e., continually taken care of by humans. It could address the changing of seasons at the place. The meaningful embodiment of this pattern could express the spirit of nature at the place.

21. Based on the description above, do you feel that “Ordered Nature” is present at this place?
 Yes No (If no, go directly to item 23)

22. What is the quality of the contribution of “Ordered Nature” to your experience within this place?
 Very low quality 1 2 3 4 5 Very high quality

Comments: _____

“Celestial Order” is embodied by means of openings or markers that indicate the movement of the sun, moon, other celestial objects, or through alignment of the building to articulate solstices (i.e., to celebrate temporal changes or the changing of light). It could be manifested by domed or vaulted ceilings. The meaningful embodiment of this pattern could provide significant celestial references through the form of the building at the place.

THE SACRED IN ARCHITECTURE

Participant No. _____

A Study of the Presence and Quality of Place-making Patterns in Sacred and Secular Buildings

23. Based on the description above, do you feel that "Celestial Order" is present at this place?

- Yes No (If no, go directly to item 25)

24. What is the quality of the contribution of "Celestial Order" to your experience within this place?

- Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Differentiating Boundaries" is embodied by means of boundaries such as walls and roofs that reveal differentiation depending on their orientation with the cardinal directions. The meaningful embodiment of this pattern could provide different meanings to the boundaries at the place.

25. Based on the description above, do you feel that "Differentiating Boundaries" is present at this place?

- Yes No (If no, go directly to item 27)

26. What is the quality of the contribution of "Differentiating Boundaries" to your experience within this place?

- Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Ordered Views" is embodied by means of limited or specially positioned windows or openings that prevent vision between sacred and mundane spaces. For example, windows or openings that provide direct visual interaction between sacred and mundane spaces are avoided, while direct views between two sacred places are provided. The absence of views is also expressive of this pattern. For example, windows or openings are sometimes avoided in a space to restrict views that would otherwise negate the experience within the place. The meaningful embodiment of this pattern could sustain the integrity of experience at the place.

27. Based on the description above, do you feel that "Ordered Views" is present at this place?

- Yes No (If no, go directly to item 29)

28. What is the quality of the contribution of "Ordered Views" to your experience within this place?

- Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Materiality" is embodied by means of building materials such as brick, stone, wood, cement, steel, ceramic tile, plaster, and glass. The meaningful embodiment of this pattern could provide formal integrity and physical order that are not easily eroded or subdued by natural forces at the place.

29. Based on the description above, do you feel that "Materiality" is present at this place?

- Yes No (If no, go directly to item 31)

30. What is the quality of the contribution of "Materiality" to your experience within this place?

- Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Elementals" is embodied by means of fire, water, air, and earth. It could be expressed by features such as fireplaces, fountains, ventilated openings, and masonry walls. The meaningful embodiment of this pattern could express the natural qualities of substance at the place.

31. Based on the description above, do you feel that "Elementals" is present at this place?

- Yes No (If no, go directly to item 33)

32. What is the quality of the contribution of "Elementals" to your experience within this place?
Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Light" is embodied by means of illuminance that could provide orientation with the cardinal directions or demarcate the passage of time with movement of the sun across the sky. The absence of illuminance (i.e., darkness) also forms an essential quality of light. The meaningful embodiment of this pattern could provide significant contrast with surrounding darkness at the place.

33. Based on the description above, do you feel that "Light" is present at this place?
 Yes No (If no, go directly to item 35)

34. What is the quality of the contribution of "Light" to your experience within this place?
Very low quality 1 2 3 4 5 Very high quality

Comments: _____

"Ceremonial Order" is embodied by means of spaces that allow for ceremony, meditation, prayer, temporal/seasonal celebrations or ritual/consecrative acts at a place. The meaningful embodiment of this pattern could provide communal presence at the place.

35. Based on the description above, do you feel that "Ceremonial Order" is present at this place?
 Yes No (If no, go directly to item 37)

36. What is the quality of the contribution of "Ceremonial Order" to your experience within this place?
Very low quality 1 2 3 4 5 Very high quality

Comments: _____

37. Do you feel that this place is sacred?
 Yes No (If no, skip item 38)

38. Please explain briefly, why you feel that this place is sacred?

VITA

ARSENIO TIMOTIO RODRIGUES

Prairie View A&M University, Architecture Bldg., P.O. Box 519, MS 2100, Prairie View, TX 77446

EDUCATION

Doctor of Philosophy in Architecture, Texas A&M University, Dec 2008

Master of Architecture, Texas A&M University, May 2003

Bachelor of Architecture, Goa University, Goa, India, May 2000

CERTIFICATION

Council of Architecture Registration Certificate, India, January 2008

Health Systems and Design Certificate, Texas A&M University, May 2003

ACADEMIC EXPERIENCE

Assistant Professor, School of Architecture, Prairie View A&M University, TX

August 2007 – Present

Instructor, Department of Architecture, Texas A&M University, TX

September 2001 – May 2003 & September 2004 – May 2007

PROFESSIONAL EXPERIENCE

Database Technician, Instructional Technology Services, Texas A&M University, TX

June 2007 – August 2007 & June 2005 – August 2005

Intern, City of College Station, Planning and Development Services, TX

February 2006 – January 2007

Intern, Ken Gaylord Architects/Black Hawk Construction, Inc., NC

June 2003 – June 2004

PUBLICATIONS

The Built Environment and Health, *46th International Making Cities Livable Conference*,
June 1 – June 5, 2008, Santa Fe, New Mexico, USA.

Typal and Archetypal Patterns in Place-making, *11th Conference of the International Society for the Study of European Ideas, Broadening the Scope of Architectural Creativity*, July 28 – August 02, 2008, University of Helsinki, Helsinki, Finland.

AWARDS AND FELLOWSHIPS

3D/I International Endowed Scholarship, TAMU, 2007

Gensler Aggies Endowed Scholarship, TAMU, 2007

James S. & Mary G. Wright Fellowship, TAMU, 2007

USA Funds National Scholarship, USA Funds, 2007

Geo & Mary Lewis Endowed Scholarship, TAMU, 2007

Honoree – Who's Who among Students in American Universities & Colleges, 2007

Jack Warren Memorial Fellowship, TAMU, 2006

Academic Achievement Award, Association of Former Students, TAMU, 2005, 2006

Humanities Research Award, Student Research Week, TAMU, 2005

Rodney Tabor '06 Scholarship in Architecture, TAMU, 2005

Architecture Graduate Scholarship, TAMU, 2005

Certificate of Recognition, American Institute of Architects, 2002

Certificate of Recognition, National Association of Home Builders, 2002

Edward J. Romeiniec Graduate Traveling Fellowship, TAMU, 2002

International Education Scholarship, TAMU, 2002

American Architectural Foundation Scholarship, 2002