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Designing an Urban Meditation Centre

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DESIGNING AN URBAN MEDITATION CENTRE

[ CREATING SPACE THROUGH DESIGNING EXPERIENCE ]

JOLIETTE M. GADEKEN

A TERMINAL PROJECT PRESENTED TO THE FACULTY OF THE COLLEGE OF ARCHITECTURE AT THE UNIVERSITY OF NEBRASKA IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE DEGREE OF MASTER OF ARCHITECTURE, MAJOR: ARCHITECTURE, UNDER THE SUPERVISION OF PROFESSOR NATHAN KRUG [ LINCOLN, NEBRASKA I MAY 2007 ]
When we, as students, design architecture we tend to conceptualize built space as form and gesture - as one grand, unified whole. However, that is not how the built environment is experienced. Architecture exists not simply as architectonic expression or as conceptual meaning, but also as an experienced series of physical spaces connected to each other and to their surroundings by the movement of people through these spaces.

In approaching this project, I chose to experiment with a process based on designing spaces in much the same way that they are experienced. The entire development of this project was informed by this process, everything from the program to the proposed site. The stated fundamental DESIGN GOALS of the project where:

• To explore an experiential and phenomenological approach to design rather than designing ‘building-as-object.’
  - to design a building with which the user can interact and which has a designed effect upon the user’s state of mind and emotions.
  - to incorporate various natural elements materials and spatial arrangements to further these goals.

• To create a sustainable project not just in resources but in use of spaces and relation to the surrounding community as well.
  - to create flexible adaptable spaces that can remain functional as needs change.
  - to create an appropriately regulated continuity between the streetscape and the building’s interior that enhances the experience of both environments.
I would like to focus on the ways in which spatial conditions and characteristics can shape a person’s psychological and emotional state. To this end I would like to design a “meditation space” for a large urban center. Such a project is capable of creating a unique dichotomy in which the design of space can have a powerful impact upon the user because the purpose and use of the space is so different from that which surrounds it. The project could cover a wide array of aspects ranging from spatial conceptions, such as the formal transition from the street environment, to more phenomenological aspects, such as materiality and its effect on the human senses and psyche and the ways in which people interact with their environments.

I would like to focus my research on what an environment can do, rather than on merely what an environment is. For example, I plan to investigate the ways technology can help to create a space that evolves and changes as people do and can therefore meet and affect them on a deeper level. In a similar way, I will examine materiality and the use of natural elements such as earth, light, plantings, and water in an interior environment. These elements can possess certain effects on and connotations to an inhabitant of the space. I would like to learn to use such tools consciously to produce the desired contemplative and introspective state. The goal of this project would not be to create a place of worship, although such spaces provide insights, tools and precedents. The project I envision would be religious only in its emphasis on quiet contemplation—a space for prayer perhaps, rather than worship, that is capable of accommodating people of diverse faiths.

The program for such a space could be varied and changing with a combination of transition spaces, various meditation spaces, art display areas, musical performance or listening spaces. Such a project could also include indoor gardens or some form of commercial space. The space should be focused upon the users as well as being highly adaptable even interactive.

London is ideal for several reasons. First of all, it is one of the largest, oldest, and most diverse metropolises in the world. For this reason the urban fabric is uniquely patchy with many uses and histories of space adjacent to one another. I hope to design a meditation centre that can be incorporated into such an urban fabric and serve people from many cultures, providing them with a place for relaxation and renewal.
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While in London, I pursued an independent study project investigating a wide variety of religious buildings. During the course of this study I developed a set of diagrams to analyze and communicate the experience of space. These diagrams are meant to convey lighting, volume, change in elevation, change in direction, and both physical and implied boundaries.

After determining the ideal client, site, and program for an investigation of experiential design, I developed the series of spaces leading to the ultimate arrival at the mediation spaces. In the development of this spatial progression, I first created a program diagram that linked these spaces, and demonstrated their relationship to other spaces within the project. Next, I developed a series of experience diagrams, like the ones developed in my case studies, in an effort to find the most effective spatial progression to achieve a meditative mental state. I then combined elements of these diagrams into two distinct strategies for achieving the desired effect. These two diagrams were the genesis of two separate building schemes.

For each of these diagrams, I drew a series of storyboards showing lighting and significant material conditions in the most important spaces along these progressions. From these storyboards, I created three-dimensional models of the path from streetscape to meditation space for each of the schemes. At this point, I chose the spatial progression that I felt would be most effective and began to wrap a building around the path.

As the building developed, I began to layer more details and elements into the spatial progression, such as structure, lighting, materials, and form.
My design intent with this project was to design a spatial experience to shape the users’ psychological and emotional state. Often, one of the most difficult mental/ emotional states to achieve in every-day life is that of quiet introspection or meditation. This is also a state upon which environment can have a profound effect. I chose to attempt the design of such an environment.

In selecting an appropriate client for this project I researched a variety of organizations who might desire such a space. I finally settled on the United Religions Initiative [URI], primarily because of many of the goals stated in the preamble of their charter at right.

Many of the URI’s goals directly informed elements of my program, and their desire “to celebrate the joy of blessings and the light of wisdom in both movement and stillness” strongly influenced the development of the meditation spaces, themselves.

The United Religions Initiative Charter

We, people of diverse religions, spiritual expressions and indigenous traditions throughout the world, hereby establish the United Religions Initiative to promote enduring, daily interfaith cooperation, to end religiously motivated violence and to create cultures of peace, justice and healing for the Earth and all living beings.

We respect the uniqueness of each tradition, and differences of practice or belief.
We value voices that respect others, and believe that sharing our values and wisdom can lead us to act for the good of all.
We believe that our religions, spiritual lives, rather than dividing us, guide us to build community and respect for one another.
Therefore, as interdependent people rooted in our traditions, we now unite for the benefit of our Earth community.

We unite to build cultures of peace and justice.
We unite to heal and protect the Earth.

We unite to build safe places for conflict resolution, healing and reconciliation.

We unite to support freedom of religion and spiritual expression, and the rights of all individuals and peoples as set forth in international law.
We unite in responsible cooperative action to bring the wisdom and values of our religions, spiritual expressions and indigenous traditions to bear on the economic, environmental, political and social challenges facing our Earth community.
We unite to provide a global opportunity for participation by all people, especially by those whose voices are not often heard.

We unite to celebrate the joy of blessings and the light of wisdom in both movement and stillness.
We unite to use our combined resources only for non-violent, compassionate action, to awaken to our deepest truths, and to manifest love and justice among all alike in our Earth community.

We unite to use our combined resources only for non-violent, compassionate action, to awaken to our deepest truths, and to manifest love and justice among all alike in our Earth community.
In accordance with the URI Charter, and with the make-up of their organization, I envisioned a wide range of potential users for this building. The project should be as inclusive as possible. This is one reason that it is intended as a centre for quiet thought, meditation or prayer, rather than worship. Users of this centre could include:

- People of diverse religions, spiritual expressions, and indigenous traditions.
- People of different ethnicities and cultures.
- People seeking peace, wisdom, revelation, growth, knowledge.
- People interested in discussing and working toward greater inter-faith cooperation.
- People of different ages and levels of maturity, but mostly working adults.
- Both short term and longer term recipients of the facility’s hospitality.

Images, taken from the United Religions Initiative [URI] Website, representing those involved in their organization.
Drawing from the URI charter, and from the stated goals of the project, I developed these space adjacency diagrams for the functions to be included in the meditation centre. The street facade is held by more public and commercial spaces, and the user transitions through and around these spaces, gradually reaching the calmer, and more private, meditation spaces. The red spaces in the second diagram illustrate this ideal progression.

The upper levels of the centre, accessible primarily by a separate, more private entry, contain additional office and meeting spaces, short term and long term housing, a childcare facility, and a lounge and roof garden.

On the next page is a diagram I created while defining the programmatic functions of the meditation spaces. Using the URI charter for inspiration, I divided possible meditation techniques under the headings of 'movement' and 'stillness.' These disparate functions are bridged by the elements of balance and focus and by the natural elements of earth, wind, water, and light which can be either still or moving.
“Celebrate the joy of blessings and the light of wisdom in both movement and stillness.” - From the URI Charter
These images are part of a preliminary exploration into how the separate elements of the program could fit into the site.

The more public and commercial programmatic functions are placed in a taller core along the street to hold the urban edge. The meditation spaces are screened by this core and open out into the projected meditation garden, enclosed within the block.

The residential and office spaces are raised to the upper levels to increase privacy and
The above diagrams demonstrate part of my original investigation into how the two disparate elements of the program could fit into the site. Diagram 3 was quickly eliminated because it does not fit with the urban character of the site. Diagrams 1 and 2 were helpful in investigating the interaction between building and garden.Diagram 4 seemed to fit best into the site, however, both in the way that it holds the urban edge and in the way that it screens the meditation spaces. It also seemed to create an interesting dialogue between the building and garden.
For my site, I chose a partially empty block in Southern Soho in London, England. The dense urban character of the site is ideal for the experiential goals of the project.

The street character is in direct contrast to the proposed function of the site so that it becomes the responsibility of the project to transition a user psychologically and emotionally.

In addition, London is one of the oldest and most diverse metropolises in the world providing the ideal setting for such a project.

A meditation centre could be incorporated into such an urban fabric and serve people from many cultures, providing them with a place for relaxation and renewal.
Soho is one of the most active neighborhoods in London. It contains many night spots, sub-cultures, art and entertainment venues. The neighborhood is bordered by two major shopping streets, and is directly north of Piccadilly Circus, one of the most popular destinations in London.

The diagrams at the right, taken left to right and top to bottom, show streets and tube stops, pedestrian and vehicular density, districts and attractions, and building functions. [ red representing commercial, yellow entertainment, and blue residential ]

The serial vision sketches on the lower left show a variety of approaches to the neighborhood, and the map below shows the location of Soho within central London.
Site Axonometric

Solid / Void - Points of Interest
Images Around the Site
Images of the Site
These four diagrams are a representative sample of the preliminary design of the spatial experience. They each represent a path moving from the main street entry, through the reception area, through a meeting space, and through the 'stillness' meditation space to the 'movement' meditation space. These latter two spaces were originally conceived as separate and distinct, though they eventually became more integrated. The diagrams represent various volumetric configurations, lighting conditions, and changes of direction and elevation that I experimented with to reach the ideal spatial experience for the project.
After the preliminary exploration, represented by the images on the previous page, I combined the elements of the explorations that I felt were most successful into these two composite solutions, which are represented here in both section and plan. The first composite scheme has a more gradual, subtractive entry statement; a low hallway leading into a very tall lobby space; a sunken meeting space to create a feeling of intimacy and enclosure; ramps down into and up out of the womb-like ‘stillness’ meditation space, which is a multi-level, sunken, and circular space that is lit with natural light down a central well; and a raised ‘movement’ meditation space overlooking the garden. The entry to the second composite scheme protrudes into the street and creates a punched, tunnel-like entry that opens into a taller lobby; the meeting rooms are raised to separate them from the major circulation path; a hallway climbs, lit by skylights, to the meditation space that then steps down towards the garden.
These six images are some of the story-board representations for the first composite scheme. The first image shows the street approach to the meditation centre, and the way that the entry is visible as a void in the otherwise solid street facade. In the second image, the entry angles back and decreases to human scale. The angled walls are lit by light from inside the building. A trace element material invites the touch and draws the user into the building. In the lobby, the third image, the trace material pulls away and opens up the space. Light comes in from above accenting the height of the space. In the meeting space, the fourth image, the floor sinks and the ceiling is coffered to create an enclosed, centralized space. The trace material continues to define the main circulation path around the walls. The ceiling coffer is lit increasing the centralized feeling of the space. In the ‘stillness’ meditation space, the trace material pulls away from the walls and moves to vertical access and furnishings. Natural light comes in from a round skylight above enhancing the height and circular form of the space. From this space a hallway rises to the ‘movement’ meditation space that overlooks the garden. Part of the view is blocked by a floor to ceiling mirror that enlarges the feel of the space, helps to light the space, and can be used for group meditation classes and activities.
These six images are from the storyboards for the second composite scheme. In the first image, the entry to the centre is marked by the protruding trace element material, which attracts and draws the user in as a tactile surface, the second image. The trace element continues along the wall through the lobby. The lobby is lit from the side and above accenting wall and ceiling, the height and form of the space. In the meeting space, the trace material moves to the ceiling, removing it from physical contact with the user and signaling a place to stop. The space is lit by recessed light boxes in the walls, and separated from the circulation path by changes in elevation. As a user rounds the corner from the meeting space, the trace material moves back to a wall and leads the user up a ramped hallway, lit by skylights above, to the meditation space. In the meditation space, the trace material once again works its way up onto the ceiling and out of physical contact. The large volume of the space is broken up by changes in elevation in both the ceiling and the floor plain. These elevation changes also act to create opportunities for natural lighting and seating. The level changes are arranged around a courtyard type space which acts to bring the natural world into the meditation space.
These images represent the three-dimensional interpretation of the experience diagram and storyboards for the first composite scheme. This scheme keeps all of the spaces along the progression very compact, which helps to reduce the total footprint of the building. The progression into and out of the 'stillness' meditation space itself, however, is elongated by spiral ramps that draw users down into the still, circular space, and up again into the 'movement' space that extends into the garden. Outside this primary experience path, the more public and commercial spaces act to hold the street facade, while a larger auditorium/meeting space is tucked back behind.
This plan and these renderings represent the three-dimensional interpretation of the experience diagram and storyboards for the second composite scheme. In this scheme, the path becomes elongated by wrapping around a central auditorium. This scheme also creates more opportunities for interactions with the building’s surroundings. The meeting spaces reach back to the street and interact with the streetscape and the centre’s facade. The split meditation space reaches into the garden with steps that continue outside of the building in an interconnected water feature. It was this scheme that was ultimately chosen for further development.
Here is the final experience diagram for the project. It is nearly identical to the second composite scheme; however, some of the spaces have become more compact, and the lighting conditions are better defined.

The area site plan at left shows the major access points to the site. The most used access route would be from the south, from Picadilly Circus and the tube stop there. This is one reason that the interaction between the building and the streetscape is so important. It must enhance the street experience while filling in the gap in the urban edge.
These diagrams demonstrate some of my early investigations into the relationship between the meditation centre, the streetscape, and the garden. The diagram on the upper left shows a possible concept for the way that a solid urban edge could be penetrated to create entry. In this image, a strong, solid form punctures the urban facade, but begins to open up and disintegrate as it moves into the garden. A similar concept was developed and refined in the bottom two images. A solid wall, and the mass of the building anchor the street facade, while within the garden the form is dematerialized to an extent. The diagram in the upper right merely represents the building as a balancing point between garden and street, as it is the responsibility of the building to transition users between these two spaces.
These diagrams represent some early massing studies of the projected meditation centre. The building was originally conceptualized as three separate massing elements: a tall wall-like element, reinforcing and anchoring the urban edge; a somewhat shorter, yet still urban core housing the more practical and mundane portions of the program; and the lower, more flexible meditation spaces that reach out into the garden. The relationships between these three separate elements is most clearly investigated in the diagram on the top right.
The circulation and separations within the garden are regulated by a sun path diagram for the area of London, to make the best possible use of passive lighting and heating for both the garden and the building.

Many of the elements and circulation paths in the garden were designed according to these principles of Chinese garden design:

- **Maximize length of walkway** - This induces a user to a slower walking pace and enlarges perceptual space. It is achieved by eliminating straight paths and using curves and abrupt angles instead.

- **Combine revealing and concealing** - This helps to create a sense of depth and mystery. It is achieved by interrupting views and creating passages, often through the use of paths or plantings.

- **Dug water, piled hills** - The Chinese used to remove earth to create artificial bodies of water, and then add it to land to create artificial hills. This helped to increase the drama of a landscape. In the meditation garden of this project, earth has been removed to create water features and replaced to add height to landscaped areas.

- **Light and Shadow** - Plantings and features in the meditation garden have been arranged to take advantage of, and to create, patterns of shifting light and shadow.

- **Time and Seasons** - Hardscapes and plantings have been alternated to provide the garden with year-round interest and atmosphere.
From each of the entry points to the garden views are regulated by plantings, and changes in direction of the paths, to disallow any too easy passage through the garden. Hopefully this will decrease cross traffic, as well as urging users to slow down and pause.

Benches rise out of the landscape along the paths, and water features further disrupt passage across the site. The chief mediation pond, that connects the large meditation space directly to the garden, has its source in a smaller pond in the roof garden and cascades down the building, creating a series of unique natural lighting conditions.

The rock garden provides a hardscape that can become a meditative focus year-round.
When attempting to wrap the rest of the meditation centre around the experience path that I had designed, I completed a series of sketches, represented by the ones on this page, in order to investigate characteristics of materials, light, form, and space. I tried to never draw the centre without at least part of the meditation garden, so that the relationship between garden and building would evolve along with other aspects of the design.
At the schematic design phase of this project, the exterior appearance of the building is still primarily rough massing in character, though some indication of transparency and opacity exists. The garden had not been fully developed at that point, and the formal expression is entirely rectilinear. The appearance of the street facade is purely diagrammatic, as well, with some indication given of access and interaction with the streetscape.
In these schematic plans, all of the areas on the main spatial progression are colored red, and those outside the path are colored blue.

The more public and commercial portions of the program are placed along the street facade, helping to increase privacy along the main experience path. The upper floors house office space, additional meeting space, and housing. Vertical circulation is achieved by a curving stairway in the taller, core portion of the building.

While the garden remains relatively undeveloped at this stage, some attempt has been made at creating a relationship between garden and building. The main focal point of the garden regulating lines is at the front corner of the main meditation space, and the water from the pond is beginning to be brought into the building’s interior.
The images on this page represent some of the inspirational images that I compiled for further development of the project after the schematic design phase. I found quite a few images showing the character of spaces framed with curved laminated wood, which became my expressive material of choice.

I was especially struck by the image on the lower left of a traditional Japanese interior. The way that the exposed framing acts to define and give scale to space while creating an intriguing character of light and materials helped to further define the character and feel of the meditation spaces.

The middle image on the bottom is an iconic representation of the tree of life, which is a concept common to many religions and traditions. Because the natural world creates such a strong common ground for these disparate groups, it seemed an appropriate concept to use in the design of this project. Many details of the project, from the structural framing, to the materiality, to the incorporation of natural elements were informed, at least in part, by this concept.
Because I was dissatisfied with the rectilinear architectonic expression of the schematic design, I decided to strip the building down to its basic structural framing and elements and to introduce a more flexible geometric expression. The images on this page demonstrate some of the investigation and development of these framings and forms. The more curvilinear forms were introduced to give a softer and more enclosing feeling to the interior spaces and increase the desired psychological effect. In addition, portions of the framing helped to increase continuity between spaces, as framing members running the length of the building were alternately exposed and concealed.
These images represent some further, sketched explorations into the framing and formal expression discussed on the previous page. Also included in the sketches are elements of materials and lighting.
These sketches show some of my attempts to create an interaction between the rectilinear street facade and the more curvilinear formal expression of the experience path. They also show a couple of my attempts to create a suitable urban facade.
The images on this page and the next few pages show the final designed spatial experience of the path from the streetscape to the interior of the final meditation space. The path approaches the meditation centre from the south [Picadilly Circus], moves through the entry, the lobby, hallways, a smaller meditation room, and terminates in the large meditation space overlooking the garden.
Final Storyboard Renderings
These are the first two of the final cross-sections for this project. The top image above shows, on the ground floor, the soffiting and reception desk in the lobby and the cafe / coffee shop. On the top floor, some of the roof garden is visible. The bottom cross-section shows very clearing part of the framing concept of the centre. The beams that support the roof of the meditation space continue into the auditorium, where they support the canopy over the stage and the acoustical panels, and continue out through the street facade, where they support the enclosing element that defines the lower meeting spaces.
The upper cross-section shows the circulation core, the roof garden, the cafe / coffee shop, the lobby, and the entry. The lower section shows the interior of both main meditation rooms showing the hallway, bench, and lighting fixture in the first, and the framing, screening device, and connection to the meditation pond in the second.
The upper elevation shows the northwest side of the meditation centre, and cuts through the direct entry to the garden from the street. The lower elevation shows the street facade. The lounge and meeting spaces, and the day-care, are marked by a facade treatment of vertical slats acting to shade the glazing. The main entry and the lower meeting spaces are marked by curvilinear enclosing elements. The first floor facade is left largely transparent, increasing the connection of the more public / commercial spaces to the streetscape.
The top elevation shows the southeast side of the centre. This elevation shows the lobby and lower back office space. It also clearly shows the screening elements on the large meditation space. The bottom elevation shows the main view of the meditation centre from the garden.
FIRST FLOOR PLAN
Street View [from north]

View of Meditation Space from Bridge

Lighting in Hallway to Meditation Spaces

Lighting in Hallway to Meditation Spaces
Aerial View of Street

Aerial View of Garden

View of Garden from South Rear Entry

View of Garden from North Rear Entry

View from North Path

View of Garden from Street Entry
These two images help to give some idea of how the meditation centre fits into its context. The large curvilinear enclosing elements on the street facade interact with pedestrians on the street and create space. The solid wall creates openings that reinterpret the windows of the other facades on the street.
These photos represent my final physical model of this project. It is not a fully enclosed model, but it begins to show how all of the parts and pieces go together. It also shows how the garden and the building interact, especially with the water features.

Unfortunately, in this model the building tends to look more monumental and iconic than was originally intended. This effect may have been reduced if I had been able to finish the context enclosing the building and the garden.
I received some very good comments in my final critique. I would have liked to incorporate some of them into the design, had there been time.

The first of these was the comment that access to the meditation garden was left too unrestricted. The point was made that since meditation is about limiting external distractions it was inappropriate for the garden to be so readily accessible. I pointed out in turn that the circuitous nature of the paths would limit casual pedestrian crossings and that the project was also intended to be inclusive. In addition, the act of meditation is the filtering out of distractions, so a few distractions would merely provide something to filter out. However, when the goal of the project is to transition people from the streetscape to the garden it may be inappropriate to allow them into the garden without the transitional experience.

It was also pointed out that, while the relationship between the more prominent meditation spaces and the garden was, on the whole, successful, the smaller meditation spaces to the north of the centre open onto bank walls and a straight path. It may have been helpful to supply some sort of focus for meditation within the view of these spaces, such as vines on the walls, plantings in the path, or some other type of focal point.

The comment was made that the position of the building as either “background” or “iconic” was left equivocal. I suggested that, to a point, this was intentional, as the building was intended to fit into the streetscape, and also to provide potential for new views and experiences from the garden.

Another very valid comment that was made was that the focus of the project had seemed to get rather lost towards the end, that I ended up focusing too much on making architecture and not enough on the experience of the meditation spaces. I do feel that the experiential qualities of the most important spaces could have been pushed farther, but it would also, I feel, have been inappropriate to completely disregard the experience and design of other portions of the building.
I began my research for this terminal project while I was in London, England for a semester. For my independent study project in London I conducted experiential research into urban religious spaces.

Below are the original thesis statement and description of methodology from that project:

**[THESIS]**

In designing the built environment, architects often attempt to influence the mental and emotional state of the users, much as a set-designer does for a play. This manipulation of space to affect the user is often most obvious and easily analyzed in buildings with a chiefly religious purpose, as they consciously attempt to move users beyond the day-to-day. By investigating a variety of such spaces, it is possible to derive a set of tools and strategies which could be used to consciously design the effect a building will have upon the average occupant.

**[METHOD]**

In my investigations in and around London, I have visited, experienced, and photographed a wide range of religious structures covering a variety of scales, cultures, and contexts.

In this analysis I will first present and evaluate four projects in depth. I did not choose these examples based on architectural style or period, but attempted to include a range of times, types, and cultures. The final selection was based chiefly on spatial experience and urban context, as religious buildings in such a context must be especially focused on the progression of spaces from the streetscape to the most interior spaces. Each of the four was selected for distinct features or spatial experiences which I found intriguing. During my original investigations, I developed a list of points to compare and analyze for each structure. These include: [1] context / street presence / approach, [2] spatial progression / organization / volumes, [3] light / materials, [4] boundaries, [5] decoration / ornamentation, and [6] philosophy / purpose / focus, and how these are expressed in the earlier points.

The next part of this analysis will deal with a few interesting strategies drawn for the other projects that I investigated in the course of my research but could not evaluate in full. For example, I found it very difficult to gain access to the interior of any urban synagogues or mosques, but I will still evaluate the street facades and such other aspects as I could experience of the more interesting examples. I will also include a partial evaluation of a pagan temple which exists only as ruins, and hence has no actual interior spatial experience.

I will also present a list of other examples which I investigated, but found unnecessary to evaluate in depth since they contained many aspects in common with projects already assessed. For example, the materiality and spatial experience is very similar in many Catholic cathedrals and it would be redundant to evaluate each example.

Finally, I will outline my conclusions and some general strategies drawn from the analyzed projects. I will also attempt to determine how these could be used in the design and development of other types of projects.
Our Lady Queen of Heaven
- Catholic Church
- Queen'sway Road, Bayswater, London, England

The church is located on dense, busy, and international Queen’sway Road. The surrounding neighborhood is mainly residential, but Queen’sway itself is a busy commercial street.

The facade projects slightly from the urban edge, and stairs protrude into the sidewalk space.

It still exists as part of the street facade, however, and the average passer-by may not realize that it exists.

Although the building has three entrances in the street facade, including a grand arched entrance with processional stairs, the only one used is up a few steps into the left hand “tower”.

This means that, for the average visitor, the entrance is hidden behind the stairs and requires the visitor to pass along the entire facade before gaining entrance. It also creates a more involved interior progression.
Spatial Progression

The building is entered through a narrow, low-ceilinged stairwell that turns as it climbs. At the top of the stairs is a door leading into a slightly taller, and better lit, narthex space. This space has one wall, in common with the sanctuary, that is curved with the convex side towards the narthex creating a definitely secondary space. The door in this wall leads into the sanctuary, entering under a semi-circular balcony. The rounded room and a sloping balcony that acts as an implied “ceiling” create a definite focus and centrality around the altar, which is raised on a series of rounded platforms. Doors in the back of the sanctuary open into a small garden.

Organization

Because of its nature as an urban infill, the building has a very unique geometry, with the nearly circular sanctuary edged by more rectilinear passages and support spaces. This creates very interesting interstitial and remaindered spaces.

Volume

The spaces maintain a restricted volume throughout the transitional spaces. Upon entering the sanctuary the space constricts further, as the balcony slopes inward. However, upon approaching the altar the volume of the space rises abruptly to three stories, creating a clear central focus.
Light
The natural lighting within this church helps to emphasize the spatial progression and the forms of the internal volumes, as well as creating a strong central focal point. The entrance is darker and enclosed, forming a definite progression from darkness to light. The sanctuary is more brightly lit, and the curved form is emphasized by a series of tall windows in the curved outer wall. These windows are of stained glass so that they provide a softer light and restrict views. The center of the sanctuary above the alter is accented by a rounded skylight at the top of the roof peak.

Materials
The materials pallet is relatively simple. The curved sanctuary is brightened and strengthened by a smooth surface painted white. This also helps to bring the effects of the natural lighting into prominence. Wooden trim and furnishings help to add warmth. The stained glass adds a soft glow.

Boundaries
Along the spatial progression there is a series of both implied and actual boundaries. The first is the outer door, which, though often left open, presents a defined threshold. The landings and turning of the stairs creates a simple progression of implied boundaries. At the top of the stairs another door [also left open] creates a second major threshold. The door to the sanctuary, which is left closed, separates it and sets it apart from the rest of the building. It takes a conscious action to enter this central space. Once within the sanctuary, the steps, the railing and the edge of the balcony overhead create a firm implied boundary around the altar.
Decoration / Ornamentation

The decoration and ornamentation of the space is fairly simple and restrained, especially for a catholic church. Forms are simple and often unadorned. The major points of ornamentation are the stained glass windows and the altar. The stained glass windows create a constantly changing wall decoration which also often casts colored patterns onto the surrounding plain white surfaces. The altar decorations are simple, but stand out by contrast with the surroundings. By use of gilt and bright colors they draw the eye. Especially as they are highlighted by the skylight above.

Philosophy / Purpose / Focus

As Catholic Christians the users of this building worship a single God and Jesus Christ as his incarnate son. Everything in this building works to place emphasis upon the alter and His image were their worship is focused. The narrow, darker progression opens into this main space with natural light focused on the center. The space itself curves around and enfolds this central point, which is raised. The height of this space also focuses the user’s attention and draws the eye upwards. The major ornamentation is also concentrated within this space.
Located on Roman Road in Bethnel Green, the centre has a definite urban context, surrounded by a mix of commercial and residential buildings.

The building faces solidly on the heavily trafficked Roman Road, but the entrance is hidden around the corner, on a much less traveled road.

The courtyard cannot be seen from the street and the door is secured, it does not open unless a button is pushed. This makes the space itself difficult to find and access.

Once through the door, the visitor enters a courtyard space filled with plants, benches, and a fountain.

From the courtyard, a wall of clear glass windows reveals the main hallway, which leads to the reception desk and the largest meeting room.
**Spatial Progression**

The progression of spaces from the street to the shrine spaces in this building seems very carefully planned. The entrance is secure and concealed, but once that first threshold is crossed the courtyard acts as a buffer from the street. Filled with plants grouped around a fountain, it creates an environment that is very different from the street outside. The building is entered off the courtyard into a glassed-in hallway. In a small room to the right is a bookstore and the reception desk, which looks directly into the hallway. Past the reception desk, a narrow passage leads past an open kitchenette and cloakroom. At the end of the hall is a tiny, brightly lit library. Around the corner, through a small vestibule is the smaller of the two shrine rooms. To the left of the entry is a large peaceful meeting room with nature scenes painted on the wall. This room leads into the larger shrine room. Each of the shrine rooms is low ceiled with the image of the Buddha raised on steps and accented by a lowered ceiling.

**Organization**

The building is arranged around the courtyard and central glass hallway. From the hallway the path splits with separate progressions culminating in each shrine room.

**Volume**

From the street the volume of space becomes bound in the courtyard, but has no ceiling accept in places where one is implied by the plantings. The space become more enclosed in the entry hallway; but, since walls and ceiling are glass is still permeable. Narrow corridors and brighter meeting rooms lead to the low, much more enclosed shrine rooms.
Light
The lighting in this project works well to emphasize the spatial progression. As a visitor moves from the exterior courtyard to the deep interior shrines, the light grows consistently dimmer and softer. The courtyard is brightest, with the glass hallway only slightly muted. Travelling through the centre, the spaces become more enclosed until, in the shrines, the windows are thickly covered and the lights dimmed. This helps to enhance the feeling of peace and contemplation that the shrines possess.

Materials
The materials within the centre vary by space. The courtyard is dominated by brick, concrete, and plants. The hallways and other transitional spaces are carpeted, and the walls are simple gypsum, painted in several different bright pastel shades. The shrine rooms are different, with darker, bolder colors of paint, wood floors, and the smell of incense.

Boundaries
Actual and implied boundaries are very important to the spatial progression in the centre. The strongest boundaries separate the courtyard from the street and the shrine rooms from the passages. These boundaries consist of solid doors; the outside one must be unlocked by pushing a button. The boundaries after this major barrier are much more permeable, with glass doors or open doors, stairs, or bends in hallways. Within the shrine rooms the steps and lowered ceiling create an implied boundary around the shrines themselves.
Decoration / Ornamentation

The main decorative tool used in the center is paint. The passages are painted in multiple bright, but soft, colors. A large mural of flowers is painted on a neighboring building in the courtyard, which helps to enforce the pastoral feel and identify the space from the street. The largest meeting room, leading to the larger shrine room, is decorated on two walls with a mountain scene in muted colors, which helps to increase the peaceful quality of the space. The most heavily decorated areas, however, are the Buddha shrines. Vases of flowers, candle sticks, incense burners, wall hangings, and painted niches all decorate the shrines. The most common motifs in all areas of decoration are flowers and natural scenes.

Philosophy / Purpose / Focus

For Buddhists, the emphasis is on meditation and internal contemplation. Therefore, the shrine rooms, used for meditation and contemplation of the Buddha and his teachings, are the terminal points of the building’s layout. It is in these spaces that the progression of outside to inside culminates. The two shrine rooms are the most enclosed, allowing no views to the outside and allowing only very filtered natural light in. Both shrines are dominated by a statue of the Buddha which is further emphasized by being raised on stepped platforms and placed within a brightly colored niche. This contrasts strongly with the bareness of the rest of the space. These shrines are a clear focus for contemplation and meditation.
Located in Neasden, the temple is surrounded by a mix of residential and industrial buildings. This means that it stands out very clearly from its surroundings.

It is separated and isolated from the rest of the area by a high wall, which runs around the entire complex.

The ceremonial progression into the temple would be through the arches on the corner, up the grand stairs and through the arched portico and door. However, this gate is usually closed, with a longer access progression through the grand foyer.

The complex is heavily secured, with cameras and a guard at the gate entrance. Cameras have to be left at a small office in the parking lot across the street.

The large courtyard between the Mandir [temple] and the Haveli [hall] feels very wide and open. Few people linger there, though it is landscaped with low hedges, trimmed in geometric patterns, and pools.
Spatial Progression

The visitor approaches down the street, along the wall, until reaching the gate. The guard gives directions towards the hall. The wide, open space of the courtyard is crossed before climbing a few stairs under a dramatic overhang to the main doors. Once inside, the visitor passes through a metal detector while their bags are x-rayed. Past the security check-point the space opens up to two stories creating a grand foyer in the middle of which is a small shop. To the left and right of the entrance are small rooms for coats and shoes, separated by gender. From the foyer, a lower, narrower passageway ramps downwards to the space under the mandir where there is an exhibition on Hinduism and a small space, designed to look like a cave, which is used for religious ceremonies. From this underground space, stairs on either side climb up into the mandir. The mandir is a dramatic space of pure white with a dome in the middle and a niche for the sacred deities at one end.

Organization

Organization and orientation are very important in the design of a mandir. Within the mandir itself, the orientation of spaces is axial, with the great dome in the center. The complex as a whole tends to reinforce this rectilinear organization with the major paths arranged at right angles to one another. The major spaces are organized vertically as well as horizontally. A user of the space must travel through the transitional and preparation spaces, then move down towards the center of the earth, then climb upwards into the mandir.
Light

The lighting of the spatial progression tends to emphasize its vertical nature. The narrow entry way is dim and the visitor moves forward into the high, open foyer with a sense of arrival. The path then sinks and becomes narrower and dimmer. Finally, it climbs and becomes brighter and pure white.

Materials

Materials are essential to the design of the mandir. The hall is covered in wood accents, intricately carved. It creates a warm welcoming space. No wood is used in the mandir, itself, however. In Hindu teaching the construction of the mandir cannot contain any metal, which disturbs meditation. This means that even the dome is constructed only of marble. The entire mandir is built of Italian marble and Bulgarian limestone, which was intricately carved in India before being assembled in London.

Boundaries

Many of the boundaries within the Mandir are strictly enforced, not just with doors, but also with guards. Other areas are roped off or posted with signs, so that the path to follow is very clear. The level changes also create a series of implied boundaries. These are especially evident in the mandir around the shrines, though the shrines are protected by gates, as well.
Decoration / Ornamentation

Both the mandir and the hall are very richly decorated, almost entirely with carvings. The hall is mostly of wood carved in patterns of a purely ornamental nature. The mandir, however, is built of marble, each piece of which has been intricately carved. Most of the carvings are abstract and decorative in nature, but there are also a large number of figural pieces. Each of the columns is surrounded by different incarnations of many of the Hindu deities. Animals and plants are also represented. The roof beams are winding serpents. The mandir is also filled with statues in niches gated off within the walls. Hindus believe that through a special ceremony the Gods come to dwell within the statues, so the images are fed and clothed in special ceremonies.

Philosophy / Purpose / Focus

The primary focus within the mandir is on the sacred deity images. However, since there are many of these, a purely axial arrangement would be too focused. The mandir is almost radially organized with the dome in the center and shrines in all the walls around. The main shrine is placed along the axis near the edge of the dome. This leaves space behind the shrine where there are smaller shrines for various minor deities, as well as shrines to many of the past leaders of the Swaminarayan sect. The space under the mandir is also important as some Hindu ceremonies aught to be performed within the earth. This space is below ground level and designed to look like a cave. The progression from this space “within the earth” up to the pure white mandir could be said to represent the spiritual journey to enlightenment.
Located in Temple Bar, near the Thames in central London, it is surrounded by a dense mixture of mainly offices and residences. The entrances to Temple Bar are gated and open only on week days.

Some streets in the area are accessible by car, but the streets immediately around the temple are limited to pedestrians traffic only.

The Temple sits in a confined courtyard surrounded on all sides by dense buildings. This courtyard is accessed by footpaths that run between and through these buildings. This also severely limits view corridors, and it is difficult to see the entire temple building at one time.

The Temple can be entered normally at only one point in the southern part of the courtyard near the monument pillar. The entry is marked by a small vestibule that projects into the courtyard.

There seems to be another entry on the west side of the rounded volume, however, this is gated off and inaccessible. This means that the only usable entry point is at right angles to the axis rather than directly on it.
Organization

The organization of spaces in The Temple has a very strong axially. In fact, it is almost bilaterally symmetrical. It also has a very strong geometry with two concentric circles joined to a long rectangle that is divided into thirds. A smaller rectangle for entry is attached to the side of the long rectangle on the opposite end from the alter.

Spatial Progression

The spatial progression in The Temple is very clear and straightforward. A small, low-ceilinged entry enclosure leads directly into the main volume of the sanctuary. From there, a right turn leads to the altar, which is separated from the rest of the sanctuary only by a step. A left turn from the entry leads under the outer of the two circles, which has a much lower ceiling, and into the clerestoried centre circle.

Volume

The tiny entry volume opens directly into the long tall rectangular sanctuary. Connected to this are a set of concentric cylinders. The outer of these is short and squat, and separates the tall rectangular volume from the central cylinder which is even taller.
Light

This space makes copious use of natural lighting, and fenestration is clearly placed in ways which help to accentuate the volume of the spaces. For example, the tallest volume, the central of the two cylinders, is lit at the very top by a row of clerestory windows. These act to bring a column of light down to highlight the center of an otherwise dimmer space. Three sides of the long rectangular sanctuary are lit by tall windows, as well.

Materials

The major materials used are an unusual combination, but work together to create a warm and bright space. The smooth white walls and blue granite columns are warmed and contrasted by the wooden furnishings. The large amounts of stained glass also help to enhance the warm, bright feeling of the space.

Boundaries

The main door into the sanctuary is the only real barrier in the space. Along with the arched opening and the vestibule it is the only thing separating the courtyard from the interior. On the interior, the changing volumes and roof heights create a series of implied thresholds.
Decoration / Ornamentation

With all of the windows and natural light in the sanctuary space, the brilliant stained glass becomes a major decorative element. Such windows often illustrate stories from the Christian scriptures. The altar is backed by a highly carved wooden alter screen, and covered with bright cloth and flowers. The cylindrical volume is decorated with carvings. A good portion of the floor is covered with monuments which depict people buried there. All the way around the space the wall is carved into niches and decorated with small, humorous gargoyle heads. Aside from the stained glass, wood is the prominent decorative material, including decorative mouldings along the ridges of the roof.

Philosophy / Purpose / Focus

The Temple is a great example of axially in a Christian church. Many Christian churches place the high altar at one end of a long high volume that acts to draw the eye forward and upward. Everything is aligned along this axis. Symbolically this focuses worship and meditation upon the supreme deity. Natural lighting is often used to emphasize the height of such a space.
MIT Chapel
- Interfaith Chapel
- Massachusetts Avenue, Cambridge, Massachusetts, USA

Context
Saarinen's chapel at MIT is set in the midst of an otherwise very urban and orthogonal campus. The chapel is on the western part of the campus, in the large area dedicated to housing and recreation.

Organization
The chapel itself is contained within a simple cylindrical form. Connected to this cylinder is a low, rectangular form that contains the narthex. The chapel is separated further from the surrounding urban landscape by a moat which surrounds the cylinder and reflects light up into the interior of the chapel.

Volume
The two volumes of the narthex and the chapel work together to create a very simple and effective spatial progression. The rectangular narthex is low-ceilinged and constricting, so that entry into the chapel, with its 30-foot ceiling, is a dramatic release.

Light
Natural lighting is used throughout the chapel to accent and enhance the space and its spiritual nature. A single skylight at one end of the cylinder creates a spotlight effect on the altar, and lights a sculptural screen which reflects and casts light throughout the space. The moat around the chapel reflects light up onto the undulating interior walls through low fenestration around the base of the cylinder. The narthex is much more open, with two walls composed of clear and violet glass.
Materials

The cylinder of the chapel, both inside and out, is formed of warm-hued brick, which helps to create connections with the surrounding brick dormitories. It could be argued that the chapel's materiality and forms were chosen to evoke elements of earth [the brick], air [the curving walls and the dangling sculpture], light [the skylight, reflections from the moat, light patterns in the narthex, etc.], and water [the moat].

Boundaries

The first boundary is the door into the narthex. Upon entering the chapel from the narthex the space becomes more enclosed and ‘sacred’. There is also a strong, implied boundary around the altar created by the steps on which it is raised, as well as the lowered skylight above, which sets it off further.

Decoration/Ornamentation

As an interfaith building the chapel is careful not to use symbols or representations of any particular religion. Instead of iconographic representations, the building uses elemental language of light, form, and materiality to decorate the space.

Philosophy / Purpose / Focus

The MIT chapel was the only intentionally interfaith space which I studied in depth. As such, it speaks directly to the purpose of my terminal project and there are several strategies employed in the MIT chapel that I could borrow and reinterpret. For example, the avoidance of iconographic decoration in favor of natural and elemental expressions can speak to people of many different faiths or none.
Entry and Street Presence

Though I could not gain entrance to either of these projects they both have a unique way of dealing with an urban condition. The mosque, which is set on a wider street proclaims its purpose by the use of several minarets, visible along the street for some distance. The main point of entry is very clearly marked by a large, plainer volume which projects from the street facade. The synagogue uses a similar strategy. The facade presents forms that are unique from the surrounding buildings. The entry is marked by a smaller door within an over-scaled threshold.

The remains of this Temple of Mithras, in a now urban area, presents the opportunity to extrapolate possible volumes. The organization and progression are basic. Three forms, with the center one dominant, lead axially to the raised altar platform.

Projected Spatial Character
Conclusions

Context
An urban context often requires a unique solution for a religious space. This often consists of a way to separate the internal spaces from the street by a series of buffer spaces. For example, the courtyards in the Buddhist meditation center and the Hindu temple.

Approach
Depending on the context, an approach can be direct, ceremonial, and axial or winding and more involved. Much of this depends on the density of the area around, the amount of traffic passing, and the lines of site to the space. For example, in the Buddhist meditation centre the entry is placed around a corner off of the main street.

Spatial Progression
The spatial progression relies heavily on the purpose and focus of the building. For example, in the Hindu temple the spaces move from tight and buried, climbing to light and open, symbolizing the soul’s journey to enlightenment.

Organization
The organization of spaces also depends on the purpose of the space. Cathedrals, for example, are organized axially in line with the main altar of the supreme deity. Hindu spaces of worship tend to be more radial.

Volume
The volume of spaces are most often used to reinforce the spatial progression. For example, in the Catholic church on Queen’sway the spaces remain small and narrow until they reach the sanctuary were the volume increases dramatically.
Light

Light is usually used in connection with spatial volume to enhance the progression through the spaces. Important spaces and destinations tend to be lighter while passages tend to be dimmer. This helps to emphasize a sense of arrival and move people through the transitional spaces.

Materials

Materials often rely on the use of the space, such as the need for marble in the Hindu mandir. They can also be used for psychological effect. For example, the use of wood in the Hindu and Buddhist spaces to create a feeling of warmth, or the bright white walls in the Queensway church to enhance the comfortable, centralized feel of the geometry and a sense of the pure and sacred.

Boundaries

Boundaries are essential to the spatial progression. They make it difficult or easy to move between spaces and enhance the feeling of importance of a space. For example, the only door left closed in the Queen'sway church is the door to the sanctuary, setting is apart as important.

Decoration / Ornamentation

Decoration can be used for a multitude of purposes. In the Buddhist space, wall murals where used to enhance the psychological effect of the preparatory spaces with landscapes and floral patterns creating a calming effect. While stained glass windows in a Christian church can be used to teach and to tell stories.

Philosophy / Focus

The philosophy and focus of the space is the one factor that influences all of the others. It informs all design decisions and is the basis for the spatial experience that is the main tool for creating the desired psychological effect. It determines what the desired effect should be.
Psychological and Behavioral Effects of Urban Religious Spaces

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[ ORIGINALLY A RESEARCH PROJECT FOR : ]

Environment and Human Behavior
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Professor James Potter

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Abstract

In this study, a variety of Christian churches within a Midwestern, urban context where investigated from an environment-behavioral standpoint. Through observations of individual’s behavior and one-on-one interviews, the researcher attempts to identify and evaluate the change in a user’s mind-set and behavior within such a context, and which aspects of the built environment support or hinder the desired experience of the space. These issues show especially clearly as they are demonstrated in the user’s transition from the ‘everyday’ urban street landscape to the more ‘sacred’ space of the church.

Introduction

Problem Statement: Because we as human beings spend the vast majority of our time indoors, the physical environment has a profound effect not only on our physical, but also on our psychological well-being. This relationship between people and their environment has been investigated very carefully in such areas as housing and the work environment. However, very little research has been done into the ways in which individuals experience religious spaces. This is especially surprising since so much time, effort, and energy has gone into the building of churches over the centuries. These structures seek to create a desired psychological or ‘spiritual’ effect within worshippers and are often consciously designed toward that end. While the effects of such spaces may, in part, be due to the social environment and culturally assigned expectations, the built environment, just as in the creation of stage sets, has a large part to play, and it is on these elements that I will be focusing.

To many people the search for the ‘spiritual’ or the ‘divine’ is a very important part of life. They seek to move beyond the day-to-day world and touch the eternal. This dichotomy between the mundane and the spiritual is what makes the study of urban religious spaces so intriguing. A person who worships within such a space often undergoes a change of attitude or mind-set as they leave the streetscape and enter the ‘sacred’ sanctuary space, and the built environment can either facilitate or hamper this progression. It would be helpful for those who seek to design such spaces to have some general knowledge of how their design decisions will affect the experience of those who will use their buildings.

Literature Review: As I have already mentioned, there is little previous research directly related to this investigation. However, many studies and theoretical articles were helpful in determining the direction and scope of my research. The sources that I will address here are comprised of research studies, case studies, and theoretical discussions on a range of topics. For purposes of discussion, I have arranged these articles into three separate, but interrelated, categories—general theory and definitions, theory and study of religious spaces in an urban context, and meaning in sacred spaces.

As well as covering a range of topics, these articles proceed from a range of disciplines, so that they approach the issues from diverse angles. While I found some interesting general, background, and theoretical information in transpersonal psychology, the
most useful studies turned out to be in the fields of cultural geography and sociology. Many of the valuable background sources that I found, while not directly applicable, provided links to more relevant sources.

**General Theory and Definitions:** In conceptualizing this study and developing my research method I read several articles that dealt with background and general theory in the area of religious experience and the built environment. I came across several mentions of Otto’s book *Idea of the Holy*, either as historical background (Long 2000), a definition of terms and discussion of concepts (Kong 1993), or as a research methodology for critique (Comstock 1981). If nothing else, Otto’s description of the ‘numinous’ experience—defined as a feeling of awe, dread, mystery and fascination when faced with what is holy, uncanny or supernatural—provides a starting point for considering the expression of religious experience.

Comstock’s critique of this foundational theory is especially valuable to the methodology of my research in that he points out the theory’s inherent imprecision and instability for research. He proposes instead that “a model of the sacred based on behavior rather than inner feeling is capable of development in a way that is open to public observation and verification.” (Comstock, 1981, p. 626) He emphasizes the interconnectedness of feeling with behavior and the necessity of taking a holistic approach that involves observations of behavior, interviews or surveys of feelings, and the consideration of a contextual code of religious behavior. Behavior, as judged by the relevant set of religious rules, is a valid indicator of sacred or religious ‘feeling.’

Another theoretical/methodological definition that may be helpful here is Long’s definition of transcendence as it relates to the sacred. He points out that the term is used in two different senses—that of the transcendental entity, and that of the psychological transcendental experience. When a state of numinous awe is experienced the interpretation of that experience will differ based on the individual’s ‘metaphysical and conceptual framework.’ (Long, 2000, p. 152) Long further claims that simply because an experience in transcendental it does not mean that it is also spiritual. To clarify his definition he enumerates three things which must be present besides the transcendental element in a ‘spiritual experience’—(1) the experience requires an explanation beyond the mundane, (2) the experience requires some focus and attachment towards which it is oriented, and finally (3) there would need to be a moral dimension to the experience. All of these qualifications help to provide working definitions of both ‘transcendental’ and ‘spiritual’ experience that I will attempt to follow.

One final source from which I gained insight into research methodology concerning these themes was Lynn Smith-Lovin’s “Behavior Settings and Impressions Formed from Social Scenarios.” (Smith-Lovin 1979) This article provides a clear overview of strategies for designing more objective measures of such subjective concepts as the way in which physical space can influence behavior. Smith-Lovin broke these effects of environment into four useful categories—(1) physical forces, coercive barriers, and suggestive structures, (2) physiological processes, (3) physiognomic perception, and (4) social forces.
Theory and Studies of Religious Spaces in an Urban/Rural context: The next group of articles focuses on different aspects of religious space in an urban context, as well as the effects that this context can have upon the user of such spaces. Two more general articles on this topic “God and the Growth Machine” (Newman 1991) and “Introduction to a Forum on Religion and Place” (Williams 2005) helped to give me a feel for more specific issues within this broader topic. For example, Newman’s article deals with the relationship between city growth and the urban church, more specifically the role that church organization play in aiding or thwarting city growth. Williams’ article, on the other hand, provides an over-view of recent studies into the influence of urban or rural context on religious facilities. It was from this article that I found Mary Jo Neitz’s study on the rural church.

While Ms. Neitz’s study dealt with rural rather than urban space it raised valid issues about meaning and expression in urban space mainly by contrast. For example, in her introduction to the study, Neitz points out that rural churches possess a special symbolic status due to their spatial location—closer to nature can be seen as more peaceful and closer to God. To create similar effects of peace and proximity to the divine in an urban context would present greater challenges and possibly call for a more creative design solution. Neitz’s team looked specifically at the viability of many small rural churches as their memberships drop. The team of Ms. Neitz and six ethnographers studied rural churches in six townships in Missouri and found that the greatest factor in the continued viability of declining congregations was a strong sense of community. This sense of community was often seen as linked to the community’s place of worship. This group identity was strong enough that even when one church’s membership dropped to an average of five attendees on a Sunday the congregation still refused to merge with a neighboring congregation. (Neitz 2005)

The Japanese Presbyterian Church [JPC] in Seattle, on the other hand, as studied by Madeline Duntly, is set in a truly urban context. Ms. Duntly studied this former Japanese missionary congregation in an attempt to trace its strong sense of corporate identity even though it is becoming increasing ‘pluralist’ and ‘multidimensional.’ She found that although the congregation no longer shares a common heritage, they have managed to forge a group identity though the use of corporate rituals, the remaking of space to suit new collective needs, and shared religious experiences. Since a similar pluralism is an aspect of most urban landscapes the urban church can become an important tool for creating a cohesive community and corporate identity. (Duntly 1999)

Interaction and Meaning in Sacred Spaces: My final four sources all deal with various aspects of meaning in religious space as well as the effect that spatial meaning can have on the user’s behavior. One of the easiest aspects of this to study in the built environment is the way in which cultural and religious meaning are expressed in a religious building’s physical form. This issue is addressed both by Amos Rapoport, an early leader in environmental-behavioral studies, and by Charles A. Heatwole in his 1989 study of Mennonite churches (Heatwole 1989).
In his article “Sacred Space in Primitive and Vernacular Architecture,” Rapoport investigates, through analytical sketches, the ways in which spiritual spaces were separated or differentiated from profane spaces in earlier cultures. This is an especially interesting study within the context of pre-industrial societies since that separation is much less marked than it is in our culture. Rapoport, in his comparison of religious buildings to typical private dwellings, found that there were often only very slight differences in external appearance. Small details or signifiers were commonly used to mark buildings as sacred. For example, a chapel may be of exactly the same form as a typical private dwelling, but be slightly smaller in proportion or be marked by a small plaque over the door. A church may consist of essentially the same forms as the surrounding homes, except that it is identified by having a red dome; it is unique in a display of color. In his conclusion Rapoport claims that vernacular cult buildings are worth further study from an environment-behavior standpoint because they “relate much more closely to the way people use them in fact rather than the way they are meant to use them.” (Rapoport, 1970, p. 31)

Heatwole also looks at small distinctions within a more vernacular form of religious building. His study, titled “Sectarian Ideology and Church Architecture,” examines the ways in which different doctrines find expression in the various churches within one particular religious group. His conclusions are based upon field observation of more than 50 Mennonite churches throughout Pennsylvania, Maryland, Virginia, Ohio, Michigan, Indiana, and Oregon. For each of these churches he noted the form of the building, its materiality, and its ornamentation. He found that it was possible, judging simply by the church building, to determine which Mennonite subdivision the church belonged to ideologically—conservative, moderate, or liberal. The most conservative Mennonite churches were simple one-story buildings, painted white, with no steeples, belfries, or ornamental symbol. They are built by members of the congregation and often don’t even have a sign. The most ideologically liberal Mennonite churches on the other hand are often difficult to distinguish from any other modern Christian church. Heatwole concludes that “interpretation of ideology is the most important determinant of contemporary Mennonite church architecture.” (Heatwole, 1989, p. 71)

Williams’ “Review Essay: Religion, Community, and Place: Locating the Transcendent” consists in a fairly broad overview of recent historical and sociological research on religion and ‘place.’ The author states: “Religion is intricately associated with place, both as social dimensions and as physical settings.” (Williams, 2002, p. 250) Williams examines issues of religion and immigration and how expatriates create new sacred spaces and how a site or shrine can embody the homeland. He describes issues of religion and community and how the two interact to create, inhabit, and manipulate space. In this section he also addresses the issue of ‘urban religion’ and defines it as “more than just the religion that happens in urban settings; rather…urban religion is a particular genre of religious phenomenon, one that brings with it specific challenges and responses.” (Williams p. 258) Finally, he reviews issues of religion and geography. He states that space has both geographical and social dimensions, and that both shape the religious expressions of people who live within them. (Williams)
Finally, Lily Kong’s study, entitled “Negotiating Conceptions of ‘Sacred Space’: A Case Study of Religious Buildings in Singapore,” brings together many of these issues of spiritual space and meaning. Kong’s study consisted of a questionnaire survey involving 500 randomly selected respondents from public and private housing with the aim of capturing a cross-section of Singapore society. In addition to the questionnaires, Kong conducted interviews, in English, with 23 interviewees from the various major religious groups. Her methodology is slightly different from the norm in this aspect since one of the things that anchors her paper is an analysis of personal meanings and values, whereas the personal used to be rejected as a valid level of analysis. Such a strategy seems to be very effective, however, in more subjective and personalized research such as this.

Part of the context for the study is that an interesting government policy exists in Singapore that the state has the power to buy any land at any time for the ‘public good’ and can arbitrary relocate religious groups. The destruction of these religious buildings emphasizes the feelings of people towards those spaces. As one interviewee said: “I felt it was holy. You can’t put your finger on it, but it was a sense of serenity—very calm, very peaceful kind of feeling.” (Kong, 1993, p. 345) Kong relates these perceptions of religious spaces to Otto’s notion of the numinous, as a place where “one’s god(s) may be found and where one may undergo a sacred experience, including a gamut of emotions…” (Kong 345) When these buildings are torn down, it is necessary for the previous users to reorganize their conceptions of the meanings of those spaces. Kong discusses some modes of emotional and behavioral adaptation to this loss, such as acceptance of the state’s actions and alternative notions of sacred space.

For example, many interviewees had a sacred space of some kind in their homes, either an altar, or a special place for prayer, or other religious space. These sites within the home gain their own sense of the sacred. One Chinese religionist considered it disrespectful to sneeze or yawn in front of the home altar. A Catholic woman does not like people to stand with their backs to the altar. These and other examples show that people tend to behave differently in and around those spaces. However, Kong points out that there exists a notion of ‘hierarchy of sacredness’ where a public religious building is more sacred than the house.

**Hypothesis and Questions Underlying Research:** It is just this notion of the sacred in public church buildings that this study addresses. It seeks to determine which area within a church building a user considers to be most ‘holy’ or ‘sacred’ and how their behavior and emotions vary as they approach or inhabit this space. It also seeks to determine exactly which architectonic elements contribute to this feeling of reverence or numinous awe. In both observations and interviews this study focuses on six separate but related areas: spatial transitions / progressions, lighting, materials, symbols / ornamentation / decoration, boundaries, and context.

The chief hypothesis with which I started my research was that the built environment does have a determinable effect on the user’s behavior and mental state, and that, through interviews and observations, principles and rules can be discovered which can aid in the conscious creation of religious spaces which facilitate a user’s experience of the ‘sacred’.
Method

For my research sample I selected eight churches in the densest portion of downtown Lincoln, Nebraska. These churches vary in style, age, and denomination, as well as in the demographic of their congregations. However, they are all of roughly equivalent size and possess a definite urban character and context. (See Appendix C for descriptions of the churches.)

As the first step in investigating each church building I conducted my own brief analysis of the six areas listed above and formulated a hypothesis about which spaces would be considered the most sacred and what details within each category contributed most to this ‘sacredness’. I then spent some time simply observing people’s behavior within the church and changes in their behavior as they moved through the space. All of this analysis and observation I recorded using mainly photographs and notes.

As Comstock claimed, it is possible to make a rough model of the sacred based on behavior through observation. (Comstock, 1981, p. 626) However, deductions made solely on behavior can be misinterpreted through many factors, including the researcher’s own personal biases. So I also sought worshipper’s own explanations of their feelings and behavior. The sample of people that I spoke to was not random. In most cases I approached people who seemed to have a more intimate connect with the worship space, or those who demonstrated interesting behavioral patterns. I also made an effort to search out those in roles of leadership such as ministers or staff on the hypothesis that they might be more motivated to think critically about the religious space that they inhabit.

I conducted these conversations again within the six categories outlined above. From this starting point I allowed opportunities for natural associations and input which the interviewees wanted to give. Some of the questions that I used included (See Appendix A for a complete list of questions):

• What do you feel to be the most sacred space within the church? Why?
• How does your behavior change as you get closer to this space?
• What marks the edges of this space; how do you know when you have entered it?
• How is this space different at night than during the day?
• Describe the spaces that you pass through as you travel from the street to the most sacred space in the church. How do you feel in each of these spaces?

These, and other questions like them, helped get the interviewee to think critically about their experience of the space and the architectural elements within the church. With the interviewees permission I recorded as many of these interviews as possible for my more accurate later reference. This consistent framework for the interview allowed space for individual input, but also allowed multiple points for comparison.
Results

In my observations I found several points of similarity, in the inhabitants of the buildings I studied, and a few differences. Occupants’ behavior definitely varied throughout the space. This was most noticeable in the Catholic churches as many worshippers performed rituals when crossing boundaries. Some of these rituals included blessing with holy water at the entries and bowing towards the altar before entering a pew. Catholics also seemed more inclined to kneel in prayer. There were other attitudes/behaviors, however, that were observable in every denomination.

The sanctuary, and especially the altar area, usually seemed to be regarded as a special space. The sanctuary was, in most churches, separated from the gathering and socializing spaces, usually by a physical barrier such as a door. Once worshippers crossed this barrier they became quieter and their actions and speech became more restrained. People within the sanctuary space seemed to move more slowly and deliberately and conversations often became minimal (though this varied). This restraint became even more evident as a user of the space got closer to the altar area. In most cases there was also at least an implied boundary, such as a railing or steps, which separated the altar area from the rest of the sanctuary. Before crossing this boundary, many worshippers where observed to bow towards the altar or kneel.

In choosing seats for private meditation and prayer, users of the space usually sat in the front half of the available seating, though not in the very first rows. If other people where already in the space, new arrivals would distance themselves as much as possible. Separate, discrete spaces, such as alcoves and dimmer corners where often preferred. However, if there were candles lit, users would often choose places closer to the candles.

All of these observed behaviors where further expanded and augmented by in-depth interviews with users of the spaces studied. Most of those interviewed were in complete agreement that the altar space was the most ‘sacred’ space within the church, although one student from the University Lutheran Chapel felt that the altar, and sanctuary in general, was treated with less respect and reverence than it should be and for that reason refused to name a sacred space. She said: “I suppose the altar would be the sacred space but…it seems we treat it more casually…plus it doesn’t really look different…it doesn’t look like a holy space.” Other students made similar comments about the lack of visual distinction in the altar area in the University Lutheran Chapel (see figure B-ULC-6). As another interviewee said: “the only thing we have behind it [the altar] is a brick wall that looks like the rest of the sanctuary...there’s nothing that makes it different.”

The identification of the altar as the most sacred space was especially strong for the Catholics since they believe that Christ is physically present in the Tabernacle that sits on the altar. One interviewee said: “…it is such a sacred space you realize that Jesus is present fully and completely there... that just takes over you and you’re a lot more reverent and peaceful…as you get closer to the alter where there’s the step up that’s more sacred, and then the tabernacle obviously is the most sacred.”
Another worshipper at the Newman Center agreed: “it [the most sacred space] would be the gold box right up front...we believe that Christ is substantially there...it would be in this church the front and center.” (see figure B-NC-9)

Protestants as well as Catholics acknowledge that they behave differently around these most sacred spaces. One minister I spoke with described approaching the altar this way: “I’m quieter, I’m more respectful, not cavalier, I’m not going to have a cavalier conversation with a buddy...it doesn’t feel right, it tends to be cleaner...and the use of candles sets it apart as sacred space.” Another worshipper describes the behavior of himself and others within ‘sacred space.’ He says: “My actions are just a lot more deliberate and I’m usually a lot more conscious of the space I’m in and the presence that I’m in when I’m there...to watch the sacristan...it’s noticeable to see the care and deliberateness of her movements as she operates within that space. For her, I know it’s a prayerful space, so in the context of her trying to scrape wax off of an alter cloth I know she is in some ways praying.”

The ‘most sacred’ space cannot exist by itself, however. There must be intermediate spaces that an occupant moves through to reach the holy space, and these spaces in turn help to prepare the user for the final space. In the Newman Center a longer hall hung with religious artwork connects the offices to the worship space. One staff member described it this way: “there’s that hall of pictures, that’s great....it’s kind of an appropriate transition space as you head to the chapel…the transition into the chapel itself is very dramatic, you walk in and you see everything.” (see figure B-NC-4)

Other characteristics of both the transitional spaces and the sanctuary itself have a conscious, perceived effect on a church’s inhabitants. These general characteristics are usual related to the volume of the spaces. Many of those interviewed described such effects. One interviewee described her transition into the worship space this way: “it’s just a huge difference from the outside world to walking through the sanctuary doors and hearing people worship God...it’s definitely, like okay, I’m here now… even if I would go in on, like, a weekday to just pray or play the piano or something it’s different. Just because it’s such a large space that at that point in time it’s extremely quite, it seems like no matter what’s going on in the sanctuary it’s much more controlled than what people might do outside of the sanctuary...it seems like it’s treated like a set-apart space.”

Others that I talked to also noticed the acoustical properties of the space. One member of St. Mark’s-on-the-Campus said, “one of the most important things in the space, to me, is the sound...it’s such a clear, focusing sound...in that way it’s much more a traditional, gothic building...it’s live.” This same interviewee also mentioned the importance of the volume and height of a space, as did many others. One of these said: “in a large space you have more of a chance to grasp the bigness of God, as apposed to a smaller space.” Another said: “when you first step into the sanctuary space with the high ceiling it does lend itself to a sense of other-worldliness...it’s not just a mundane space.” And finally, a minister I spoke with said this about the height of his church: “I think the scale of the height of the ceiling adds an element, of like, the celestial, too...you’re in God’s house...it does have that element of size, dimension to it that ‘this is bigger than me, you know, which is a thing that God wants to communicate, too.”
Aside from spatial volume and acoustic qualities, the way a space is lit can also have a profound impact on the user. Many of those I talked to had strong feelings, either of like or dislike, for the way their place of worship was lit. For example, one woman felt that, “it’s like we’re worshipping in a dungeon or something…I never think about the ceiling height…it’s the windows, where the windows are placed…it’s the natural light that makes me closer to God.” Each of the churches that I visited carefully controlled natural light, from the large, detailed stain glass windows of First Plymouth, St. Paul’s, or First Christian to the clear elevated slots of St. Mark’s-on-the-Campus to the distinctive blue wash of the Newman Center or to the single cylindrical skylight that accents the altar at First Baptist. (see images B-FPC-7, B-SPAUL-4, B-FCC-7, B-SMARK-5, B-NC-6, and B-FBC-9)

Several of those I interviewed stated a preference for being in the sanctuary at night. One man said: “being in here at night and the lighting…it becomes more of an experience.” The space was described as feeling different when all of the artificial lights are on: “when all the lights are on you feel more of the community aspect of the church.” Many of those interviewed connected the experience of the space to the lighting. For example, one person described first entering the space this way: “you see the sanctuary and you see the sacred space and you see the cross up on the wall...along with the light and stuff, as well, that helps you to kind of calm down and get in the mood for mass or whatever worship service may be going on.”

The Newman Center especially has a unique natural lighting condition which clearly invokes a special emotional response in those who use the space to pray during the day. “The way the church is designed with the different peaks and the blue stained glass, the whole space is drowned and flooded...it’s very inviting, very comforting to go in there, especially when all that blue light is in there.” Another person described it similarly: “it feels like you’re underwater...it creates a black-light effect...it has a bit of an other-worldly feel which I like...I also like the spotlights, there’s a number of spots that are focused particularly on the alter, the tabernacle, and then on the crucifix as well...in Catholic theology those things are all very closely linked.”

The importance of light, especially natural light, for creating focus was mentioned in connection with most of the churches I visited. Examples include the cylindrical skylight over the altar at First Baptist, the large stained glass windows across from the altar at First Christian, the parallel windows on either side of the altar at St. Mary’s, and the very large and brightly colored rose window behind the organ at First Plymouth.

The materials used in the construction of the sanctuary also held meaning for those worshipping in the space. Responses often varied as to how a material was interpreted, however. Some of the most diverse responses had to do with the use of brick in the sanctuary itself. One interviewee contrasted their worship space to another she had experienced: “the alter is pretty much beautiful but the rest of the area is very white and simple, and very clean...it’s tangibly holy...or what I believe holy would be...I’m not against brick...I’m against the dark, dark colors...there’s no white...it doesn’t feel holy.” One man that I interviewed found brick to be a ‘churchy’ material, “the brick is cold...it does have a formality...there’s an elegance to it...but it's hard to keep warm....you don’t get a sense of it being a comfortable space."
Many of those I spoke with described stone as an appropriate or meaningful material for a church. One woman found the economic value of such materials to be important, she said: “marble and, like, the more expensive and precious stones and stuff that helps to add to the worshipping aspect and how sacred that space is.” For another man, the material had historical connotations, “it [stone] creates an effect of permanence and stability...I think for most people of faith...there’s some connection with the ancient that we want and there’s a sense of desire for stability and continuity, and I think the materials that are used reflect that as well.”

One member of St. Mary’s that I spoke with also noted some of the symbolic importance these materials can carry. She said: “we have holy water at all the entrances which we use to bless ourselves before we go into our pew and that’s a sacred symbol for us...and wood, of course, the wood of the cross, so that’s definitely a major one.”

This connection between materials and ornamentation was one that many people implied. One man said that he disliked ‘wood-worky’ decorations, though he also grouped some banners in this category. He seemed to feel that wood work was often fussy and over-done. As he said, “for me, less is more.” On the other hand, on of the members of St. Marks-on-the-Campus that I spoke with found the simplicity of the space slightly disturbing. “It is very bare...here when people come in almost nobody talks to each other before the service...they kneel, or pray, or just sit quietly...at other churches I’ve been to you can’t hear the prelude because it’s more social hour...maybe the starkness doesn’t lend itself to chatting... and after the service people don’t stay here to talk...people come in, worship, and leave.” However, for others I talked to, this stillness and quite within the space of worship would be a very desirable effect.

Decorations and symbols within the church can have other meanings as well. For example, they can create a sense of history or identity for the congregation. First Plymouth supplies visitors with a brochure listing all of the artwork and symbols within the church and their meanings, history, and information about their creators. In St. Mark’s many of the decorations are hand-made, “one of the members of the congregation is a stain glass maker and she made the cross...and another one is a quilter.” Such objects seem to help to strengthen a congregation’s sense of history and identity.

Other interviewees discussed the importance of focusing upon some object within a worship context. One man said that a church needed “a dominant focal point...somewhere around the holy space...I think focal point can be the cross, the altar...something other than people.” Usually the object with the most meaning in the space was not the altar, but a cross or crucifix which the worshippers could focus on during prayer. One man I talked to described the effect of the crucifix in his church. “It’s not colored, it’s white marble so there’s something a bit abstract about it, but there’s a lot of power to it, too...I like that set against the cloudy background because it’s kind of like juxtaposed on what I guess would be a symbol for eternity...this timeless event against a backdrop of eternity...you almost have to focus on that...if you properly understand your faith it’s a source of inspiration.” (see figure B-NC-9)
It was more difficult to get people to comment on the context of a church or on its urban nature. The people that I talked with at First Christian told me that the church had been in three different buildings downtown. When planning for their last renovation a suggestion was made to move out of downtown, but no one I spoke with was really sure why they stayed, although they also did not have any complaints about the location. Their location also makes it possible to hold a small, noon service during the week that is attended by some of those members who work downtown.

Only one person that I spoke with, a man on the staff at the Newman Center had definite opinions about the building’s context and location. He said: “it [the church] has an urban feel to it, which I like...but it also has somewhat of a monastic feel...it has sort of a feel of both which is, I think, appropriate to the location...it’s tall, it moves upward, the facade, there’s quite a bit of windows, and its generally a pretty flat facade...it matches a lot of the buildings around town.” He also mentioned how the location of the church effects the experience of the sanctuary. “I don’t mind the other worldly feel to it. I think it’s appropriate because even though it needs to be kind of an urban space it’s nice to walk in and be able to escape from the hustle and bustle...when a large truck goes by the whole floor shakes. It’s mostly sound proof but it’s kind of a reminder that you’re still in the middle of the city and the hustle and bustle even when you’ve stepped into this other worldly time of prayer.”

Though less connected to this idea of urban context, another interviewee provided a powerful description of his experience when first entering his church from the street. He stated that this experience was heightened when the church sanctuary was empty or darker. “You walk into that space and there’s nobody in there...my impression is...I’m drawn to God, I’m drawn to pray, I’m drawn to linger there. It does have a feel of God space to it, and that’s essential...here you are, we’re here to do business with God...especially when there’s nobody else in there, and when it’s dark and you walk in there you really get the sense of in the old testament temple, opening the gate and going into the holy of holies. It evokes emotion in that way.”

As I have already partially described, people often responded to the same design element or building feature differently. Sometimes these differences seemed to be connected to demographic characteristics of the person being interviewed, such as Catholics having a stronger feel for space and hierarchy within their sanctuary than Protestants. Men often seemed to notice aspects such as volume and materials most clearly. They seemed to be put off by ‘soft’ or overly fussy decorations and materials, favoring clean forms, wood, and stone. Women seemed to respond most strongly to lighting conditions and decorations. However, there were many exceptions to both of these. Many differences appeared to be simply individual and the result of personal preference, history, and experience.
Discussion and Design Implications

Some design aspects of the space had a much more definite effect on a users emotions and behavior than others. Some of these most effective elements are: boundaries, volume of the space, lighting, materials, and symbols/decorations. Boundaries where most often represented by physical barriers such as doors, or implied barriers such as raised platforms or railings. These boundaries helped to divide spaces and set areas apart as more sacred than others. As users crossed these boundaries behavior changed.

Volumetrically, unusually large spaces and exceptionally high ceilings helped to enhance a users experience of the ‘holy.’ This ‘other-worldly’ effect was noted by most of those interviewed, though some stated that they would like to have a more comfortable, or intimate feeling. The dimension and scale of the spaces has a determinable influence on the users experience of that space.

Lighting was another noticeable aspect of the emotional experience of a religious space. Natural light was definitely preferred and helped to provide a sense of the natural world and the external environment. This was especially effective when light was provided without allowing views of the outside from the sanctuary. This was done in ways such as raising clear windows above eye-level and using stained glass. Lighting, natural or artificial, can also be used to create clear focus on those areas that the congregation considers most sacred. This was done in ways such as skylights above the altar or spotlights concentrated on a cross hung at the front of the sanctuary. One other lighting-related design consideration is the fact that worshippers felt more comfortable alone in spaces where the over-all light levels were lower. A lower over-all light level also makes it easier to create focus and contrast in a lighting scheme.

Materials were also vitally important to the way that users perceived the space. However, interpretations of materials were widely varied due to personal and cultural attitudes and experiences. Stone, either because of its costliness or because of its stability, helped to give worshippers a sense of grandeur and permanence. Wood was felt by many to be a ‘warm’ material while brick and stone were thought of as ‘colder.’ Carpet, where found, was usually disliked as either too informal or aesthetically unattractive. Such choices would vary depending on the congregations desire for grandeur or intimacy, but an understanding of what the materials mean to a congregation is essential for design of a sacred space.

Finally, symbols and decoration are of the highest importance within a religious context, but it seems that control is important. Too many objects within a ‘sacred’ space can be distracting to worshippers. Most of those interviewed voiced a preference for clear and undivided focus, usually on a cross or crucifix placed on or near the altar space. Other decoration and symbols in moderation can be used to give meaning to the space, provide and sense of history and community, and act as teaching tools for the worshippers.
When considering the design of a space that is intended to be perceived as ‘sacred,’ it is essential to take each of these elements into account. In an urban church the ‘innermost’ sacred space should become a place of intended focus. This space is further emphasized with lighting, materials, and symbols. This space is then divided from other spaces, and the outside world, through the use of physical and implied boundaries. Proportional and volumetric aspects of the sacred space and of the transitional spaces are also vitally important to users’ experience of the space.

Since this study was more of a general and exploratory nature, it may be helpful to do further research into each of these aspects to find further design strategies. In addition, because of the large influence of personal and cultural concerns, design strategies should be reevaluated and modified for each client. However, this study gives an indication that it is possible to design a religious space to produce a specific determined effect on its users behavior and emotions.

Conclusions / Final Summary

In this study, observations and interviews of worshippers in a Midwestern urban context led to the identification and analysis of several elements of design that have an influence on users’ perceptual and emotional responses. Some of these elements that had the strongest effect were: boundaries, volumetric characteristics, lighting, materials, and decorations/symbols. Each of these elements assists and enhances a worshipper’s progression from the urban street to the ‘sacred’ interior and influences them on an emotional and psychological level. Through the careful use of these elements, it is possible to create spaces that will have a, to some degree, determinable effect upon the occupant.
Primary Sources


Background Sources


Appendix A – Interview Questions

These questions provided a consistent framework for each interview, though the individual conversations became more detailed in some areas than others.

Spatial Transitions / Progressions / Boundaries
- What do you feel to be the most sacred space within the church? Why?
- How does your behavior change as you get closer to this space?
- What marks the edges of this space; how do you know when you have entered it?
- Describe the spaces that you pass through as you travel from the street to the most sacred space in the church. How do you feel in each of these spaces?
- Where in the church would you most like to spend time alone?

Lighting
- Where does light create focus in the space?
- What do you think of as the ‘brightest’ space within the church?
- What are the ‘dimmest’ areas?
- Does this have anything to do with the uses of the areas?
- How is natural light used? Are there any views from the ‘most sacred’ space to the outside?
- Are there any sources of illumination that you notice particularly or that have special significance?

Materials
- Does the ‘most sacred’ space use any special materials?
- If used in a church building what is the connotation of stone as a building material for you? Wood? Concrete? Brick? Glass? Fabric?
- What do you notice most about the materials of the church? Color? Texture?
- Are there any particular things in the church you like to touch? Smell?

Symbols / Ornamentation / Decoration
- Which symbolic elements or decorations in the church have the most meaning for you? Why? Do any effect you on an emotional level?
- Are there any decorations that you find distracting?
- Is travel through the spaces of the church marked by any particular signs or symbols?

Context
- Is there anything about the location of the church that makes it desirable for you?
- Do you feel any different worshipping downtown than you think you would in a suburb?
Appendix B - Images

FIRST BAPTIST CHURCH

FBC - 1
FBC - 2
FBC - 3
FBC - 4
FBC - 5
FBC - 6
FBC - 7
FBC - 8
FBC - 9
Appendix B - Images

FIRST CHRISTIAN CHURCH

FCC - 1

FCC - 2

FCC - 3

FCC - 4

FCC - 5

FCC - 6

FCC - 7

FCC - 8

FCC - 9
Appendix B - Images

FIRST PLYMOUTH CONGREGATIONAL

FPC - 1  FPC - 2  FPC - 3  FPC - 4

FPC - 5  FPC - 6  FPC - 7  FPC - 8

FPC - 9  FPC - 10
Appendix B - Images

THE NEWMAN CENTER

NC - 1

NC - 2

NC - 3

NC - 4

NC - 5

NC - 6

NC - 7

NC - 8

NC - 9
Appendix B - Images

ST. MARK’S-ON-THE-CAMPUS

SMARK - 1

SMARK - 2

SMARK - 3

SMARK - 4

SMARK - 5

SMARK - 6
Appendix B - Images

ST. MARY’S CATHOLIC

SMARY - 1

SMARY - 2

SMARY - 3

SMARY - 4

SMARY - 5

SMARY - 6
Appendix B - Images

ST. PAUL’S UNITED METHODIST

SPAUL - 1
SPAUL - 2
SPAUL - 3
SPAUL - 4
SPAUL - 5
SPAUL - 6
SPAUL - 7
SPAUL - 8
SPAUL - 9
Appendix B - Images

THE UNIVERSITY LUTHERAN CHAPEL

ULC - 1
ULC - 2
ULC - 3
ULC - 4
ULC - 5
ULC - 6
ULC - 7
Appendix C – Brief Church Descriptions
(For more details see photographs in appendix B)

First Baptist Church
Size/Demographic – small to medium sized, mixed race, middle-age to elderly
Urban Response – strong corner statement, verticality, monumental facade
Primary Spatial Progression – enter under portico into base of bell tower, through semi-circular gathering space into sanctuary, sanctuary is entered axially under balcony.

First Christian Church
Size/Demographic – small to medium sized, mostly Caucasian, middle-age to elderly
Urban Response – solid monumental facades, strong corner, deep set doors
Primary Spatial Progression – enter through solid street doors into gathering space, sanctuary is entered under balcony from side at right angle to altar.

First Plymouth Congregational
Size/Demographic – medium to large sized, mostly Caucasian, multi-generational
Urban Response – strong street edges, monumental facades, verticality
Primary Spatial Progression – steps from street lead up to courtyard, cross courtyard to large door in solid building face, doors lead into low gathering space under the balcony, pass from this space axially through screen to sanctuary.

The Newman Center
Size/Demographic – small to medium sized, mostly Caucasian, mostly student
Urban Response – strong corner, verticality, regular façade, entry set back from sidewalk leaving portico to hold edge.
Primary Spatial Progression – enter under portico to reception area, turn through doors, down hallway lined with artwork into gathering space, small lower transitional space leads axially into sanctuary.

St. Mark’s-on-the-Campus
Size/Demographic – small to medium, mostly Caucasian, primarily student and middle-aged
Urban Response – solid facades hold street edge around a central courtyard, verticality
Primary Spatial Progression – enter under portico into courtyard, through door into gathering space, through window wall axially into sanctuary.
St. Mary’s Catholic  
Size/Demographic – medium to large, mostly Caucasian, multi-generational  
Urban Response – solid monumental facades, verticality, inset doors  
Primary Spatial Progression – up stairs, through doors, through small transitional space into gathering space, through screen axially into sanctuary.

St. Paul’s United Methodist  
Size/Demographic – medium to large, multi-racial, multi-generational  
Urban Response – solid monumental facades, inset doors, verticality  
Primary Spatial Progression – through door into reception area, up stairs and turn into small transitional space, through gathering space under balcony radially into sanctuary.

The University Lutheran Chapel  
Size/Demographic – small to medium, mostly Caucasian, mostly student  
Urban Response – monumental forms and facades, holds street edge, verticality, scale  
Primary Spatial Progression – along back wall, through door, up stairs into gathering space, though low transitional space and through doors into sanctuary at angle from altar.


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