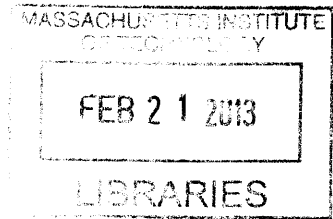# ATMOSPHERIC PROTOTYPES:
RETHINKING SPIRITUALITY IN THE AMERICAN MOSQUE

BY ALI QURESHI

BACHELOR OF ARTS AND ARCHITECTURE
FLORIDA INTERNATIONAL UNIVERSITY, 2010

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE IN PARTIAL
FULFILLMENT OF THE REQUIRMENTS FOR THE DEGREE OF

MASTERS OF ARCHITECTURE
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

FEBRUARY 2013

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ATMOSPHERIC PROTOTYPES:
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IN PARTIAL FULFILLMENT OF THE REQUIRMENTS FOR THE DEGREE OF

MASTERS OF ARCHITECTURE

ABSTRACT

The thesis addresses architecture's role in defining spirituality in an American Islamic context. The problem stems from 'retrofit' mosques, or mosques which are adapted from previous structures not built as mosques. **The retrofit problem, a contextual challenge for mosques in America, suffer from a lack of spirituality and visibility in the urban realm.** The thesis is aimed at developing prototypes which can architecturally create atmospheres conducive to deep-thought/meditation/prayer in order to counter the experience of the retrofit space.

The thesis makes the claim that spirituality can indeed be produced through our physical built environments. Consequently, an argument is made that through micro architectural interventions, the spiritual health of a community can be restored and strengthened significantly.

Through the research, a spiritual void in the predominant retrofit mosque structures is highlighted. Being such, there emerges a need for an architectural solution to address this spiritual void. The thesis takes the position that in order for spiritual void to be overcome, an initial effort must be made on the scale of the individual. Consequently, this effort can then be solicited to the scale of the collective through the process of workshops and temporary installations.

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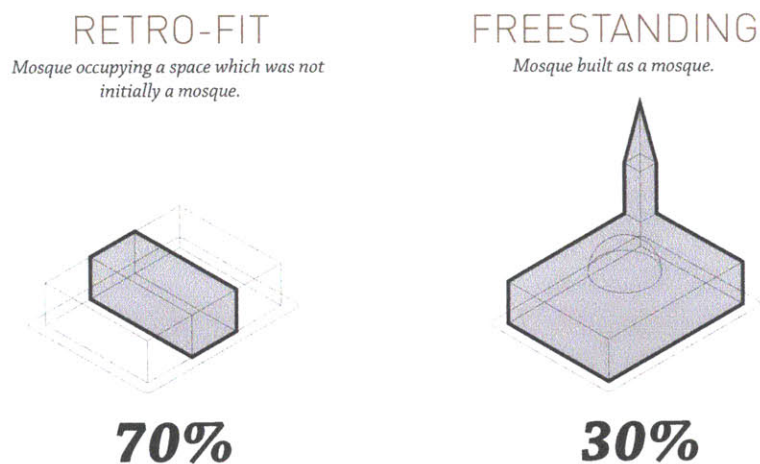
ACKNOWLEDGMENTS

CONTENTS

STATEMENT

The importance of prayer in Islam cannot be understated or taken lightly. It demonstrates an individual's capacity to engage in a personal relationship with their Creator. Being such, the physical spaces in which prayer is conducted becomes the topic of great concern. Through the research conducted in this thesis, an analysis is made on the availability of spiritual space for the Muslim community in the American context. Ideally, the mosque should serve as a spiritual core for the communities it serves. **Unfortunately, A large number of mosques in America do not adequately fulfil this spiritual function. What can be done to counter this lack of the spiritual space?**

More specifically, what is architecture's role in defining a spiritual atmosphere in the context of Islam in America? When referring to 'spiritual atmosphere', I believe these are spaces which have a psychological impact on its inhabitant, and which allow for a mental transcendence from a physical into a metaphysical reality. This is achieved architecturally when a space sensitively harmonizes form, material, and experience such that it produces a degree of awe and mystery upon the inhabitant.

The prayer in Islam is an instance in which a worshipper is literally in front of their Creator, in direct communication with God. Being such, architecture can both reflect and produce this extraordinary moment.

Is this architectural need demonstrated in American mosques? First, an acceptance of the current condition is necessary in order for a thesis to emerge. The majority of Muslims in the American context constitute what can be seen as start-up communities with limited funds. Being such, mosque spaces have been converted from former offices, storefronts, houses, and churches. While they temporarily fulfil growing communities economic and logistical needs, the question must be raised; Do these retrofit mosques fulfil their community's spiritual needs? In most instances, the strictly utilitarian approach to mosque design, perpetuated by the communities need for pragmatic solutions to low budget prayer space, has trended to disregard the architectural sensitivity need to produce a spiritual atmosphere.

RETRO-FIT
Mosque occupying a space which was not initially a mosque.

FREESTANDING
Mosque built as a mosque.

70%

30%

AMERICAN MOSQUES

This observation is not intended to serve as a sweeping indictment of all retrofit mosques. It is understood that growing communities need time to develop appropriate architectural expression. The issue being brought to the table here is the observation of patterns which emerge from the retrofit approach to mosque that produce atmospheres which are notably non-spiritual and detrimental to the experience of prayer.

This being the case, what are some architectural strategies which can begin to alleviate the spiritual function of mosques? By taking a closer look at the parameters of the Islamic prayer, it can be seen that prayer can be performed both on the collective scale (i.e. a communal prayer at the mosque) as well as the individual scale (performed at home or outside of the mosque by an individual). Further analysis reveals that the majority of prayers the average Muslim in America performs are on the individual scale, with a collective prayer only being offered during the congregational friday mosque service. If this is a case, is there a way in which the spiritual quality of the individual prayer be amplified such that it compensates for the lack of spiritual atmosphere of retrofit mosques?

DAILY CONGRETIONAL PRAYER TIMES

CONGRETIONAL PRAYER TIMES THROUGHOUT THE WEEK

individual   congregational (jamaat)

The thesis makes the claim that spirituality can indeed be produced through our physical built environments. Consequently, an argument is made that through micro architectural interventions, the spiritual health of a community can be restored and strengthened significantly.

Through the research, a spiritual void in the predominant retrofit mosque structures is highlighted. Being such, there emerges a need for an architectural solution to address this spiritual void. **The thesis takes the position that in order for spiritual void to be overcome, an initial effort must be made on the scale of the individual.** Consequently, this effort can then be solicited to the scale of the collective through the process of workshops and temporary installations.

The individual spiritual device can then serve as an educational apparatus which can help communities assess the atmosphere of their own mosques. Through a series of temporary workshops, collective mosque communities will be able to experience prayer the Protomosque.

The modeling of the individual prayer space as an intense architectural moment in which all sensorial elements are engaged explores a spatial typology in the lineage of muslim prayer spaces which has largely been ignored. If this individual space can allow users to engage in prayer beyond simple physical movements, but rather as a sensorial internal/external experience, the reality of a lacking spiritual atmosphere in American mosques can successfully be countered.

The prototype is conceived of as a strategic architectural capsule which wraps the worshipper in the various movements of prayer. The notion of producing a 'capsule' space is critical for the purpose of creating an immersive environment in which there is some degree of architectural control of atmospheric devices. Formally, an emphasis is placed on the fluidity of the capsule and its ability to smoothly negotiate the spatial parameters of prayer movements. The project's ambition to achieve a prototypical, economical, and self-assembling geometry necessitates the capsule to inherit a faceted formal logic. Once the 'capsule' is architecturally formalized, a secondary layer of sensorial devices are integrated into the form in order to create spatial and experiential amplification. These two components, the spatial and sensorial devices, is what allows the individual prayer space to be a unique atmospheric prayer experience.
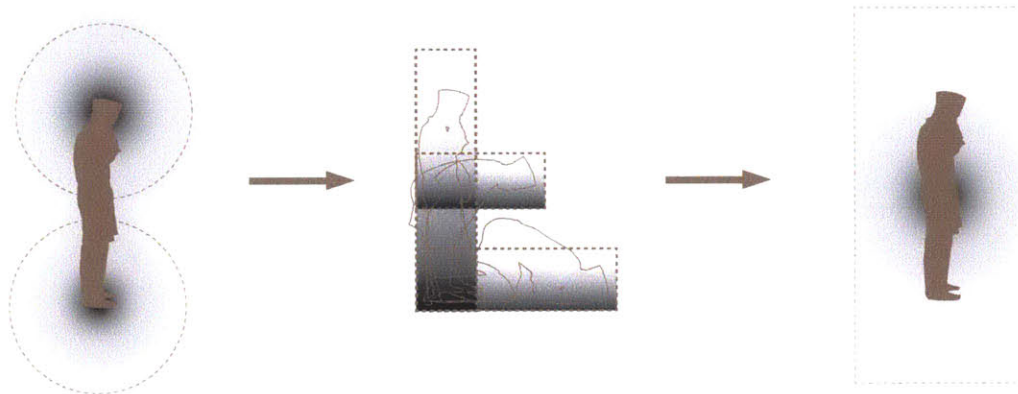
Furthermore, if this individual space can be prototypical in its nature, and made accessible both physically and economically to a wide demographic, its capacity for spiritual transformation at a collective scale can be significant.

Ultimately, the project attempts to demonstrate that through sensitive architectural interventions, the experience and quality of prayer can be substantially improved. If it can be demonstrated that an architectural prototype at the scale of an individual does indeed help to qualitatively improve the experience of prayer, this begins to have significant implications on larger scales of collective prayer. The spatial qualities of the prototype, once thoroughly explored and tested, can be distilled and re-deployed in larger constellations of collective prayer. The thesis as a whole dwells in the ambiguous threshold between architecture and spirituality, and this exploration can potentially inform others about architectures' capacity to produce atmospheres which evoke contemplation, curiosity, and meditation.

PART I: THESIS
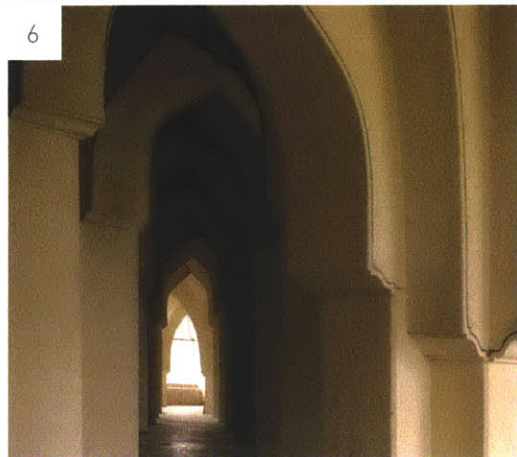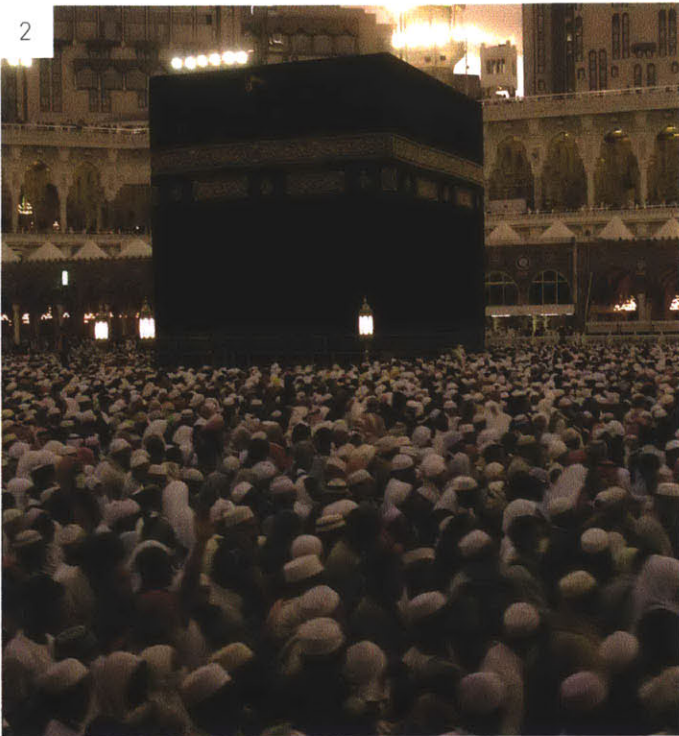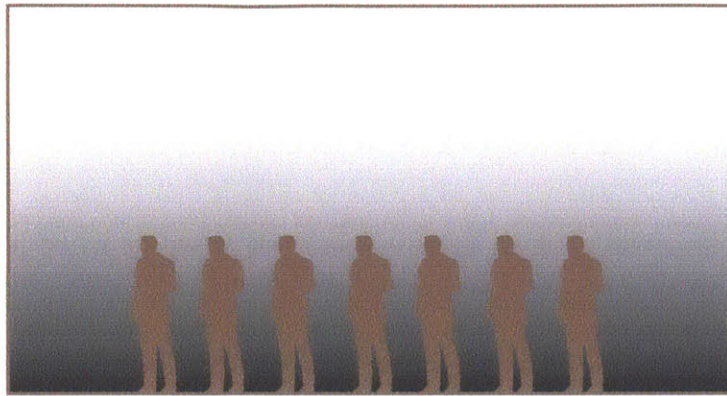
COLLECTIVE
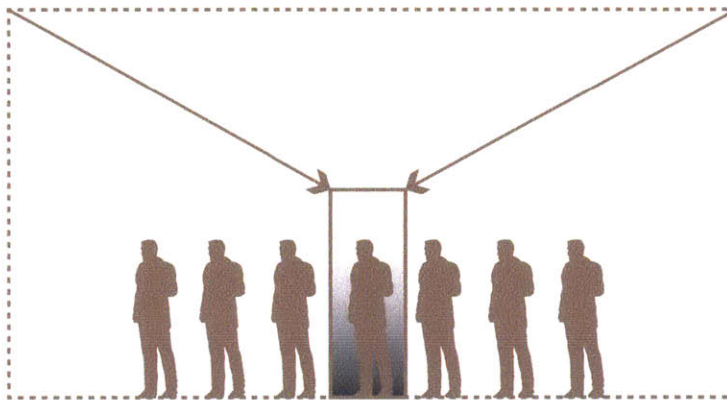
INDIVIDUAL

DEFINING SPIRITUAL ATMOSPHERES

1. **Cloud:** Representitive of the unknown, fog has come to signify the aura of mystery and serve as a visual and atmospheric trigger for spiritual contemplation.
2. **Collective:** Representitive of a global network of worshippers, reinforcing spirituality through unified collective action. (Holy Kaba: Mecca, Saudi Arabia)
3. **Light:** Representitive of Divinity as a force which allows for sustained life and growth.
4. **Cave:** Representitive of seclusion, atmopsheric moments of intense individual sanctuary which allow for deep personal reflection, prayer, and meditation.
5. **Space / aperature / light:** Representitive of the interplay between physical and spirtual realms, and strategic architectural devices which amplify atmopsheric qualities. (Hagia Sophia: Istanbul, Turkey)
6. **Rhythm:** Representitive of repetitive, trance like qualities in material and form which help to trigger a spiritual atmospheric condition.
6. **Vastness:** Representitive of the tremendous disparity between the scale of the individual as compared to the grandeur of nature/cosmic/divine scales which triggers spiritual atmosphere.

PROTO
MOSQUE ™
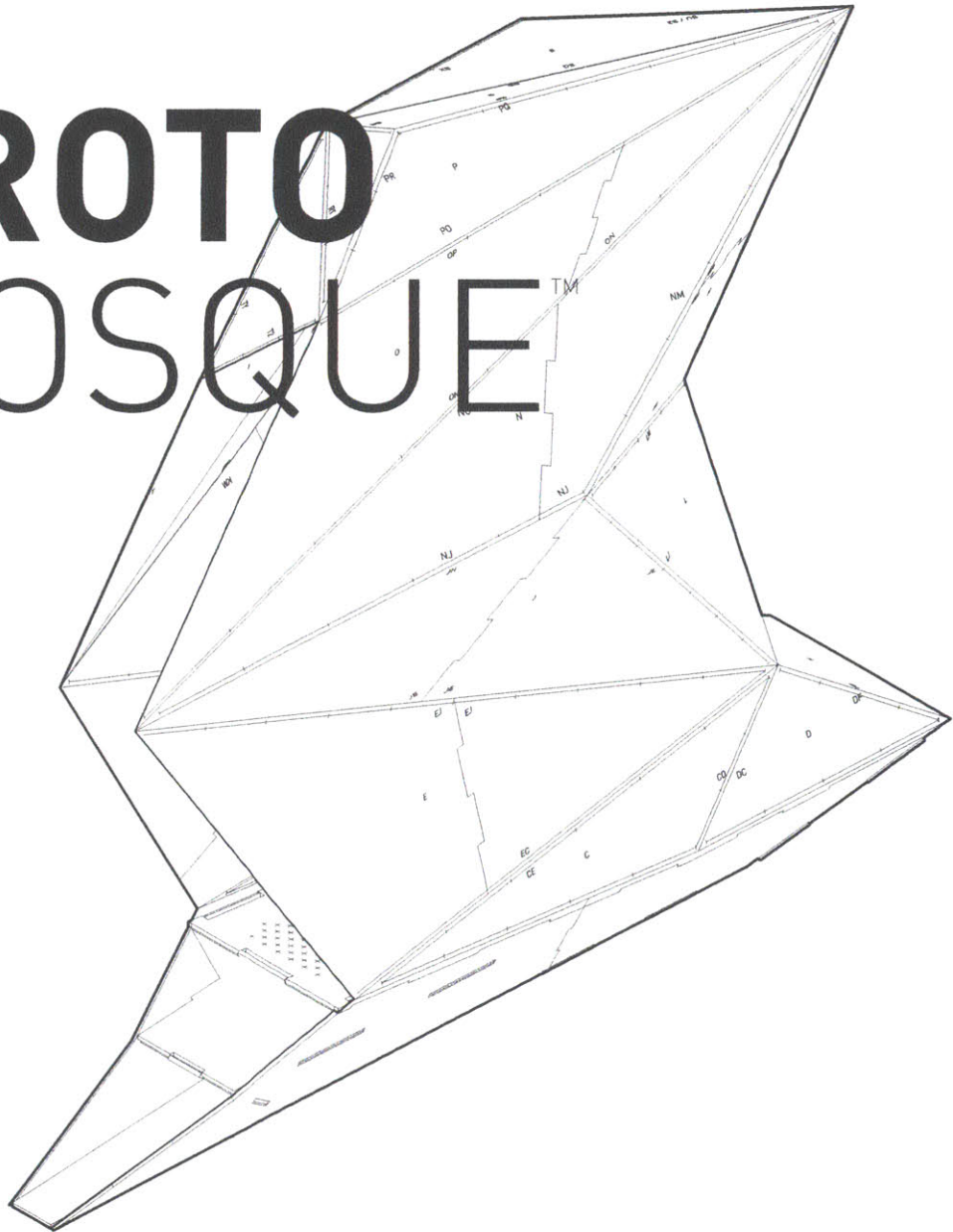
THE PROTOMOSQUE

Welcome to a unique prayer experience, blending innovative form and technology to produce a spiritual atmosphere. The ProtoMosque re-imagines prayer as an immersive sensory experience, enabling you to achieve a new spectrum of worship. A provacative combination of architecture and atmosphere come together to deliver a powerful new space for prayer.

SKIN

D.

B. C.

A.

BASE

heating
lamp

E.

speakers

F.

fragrance
lamp

G.

fog machine

H.

COMPONENTS
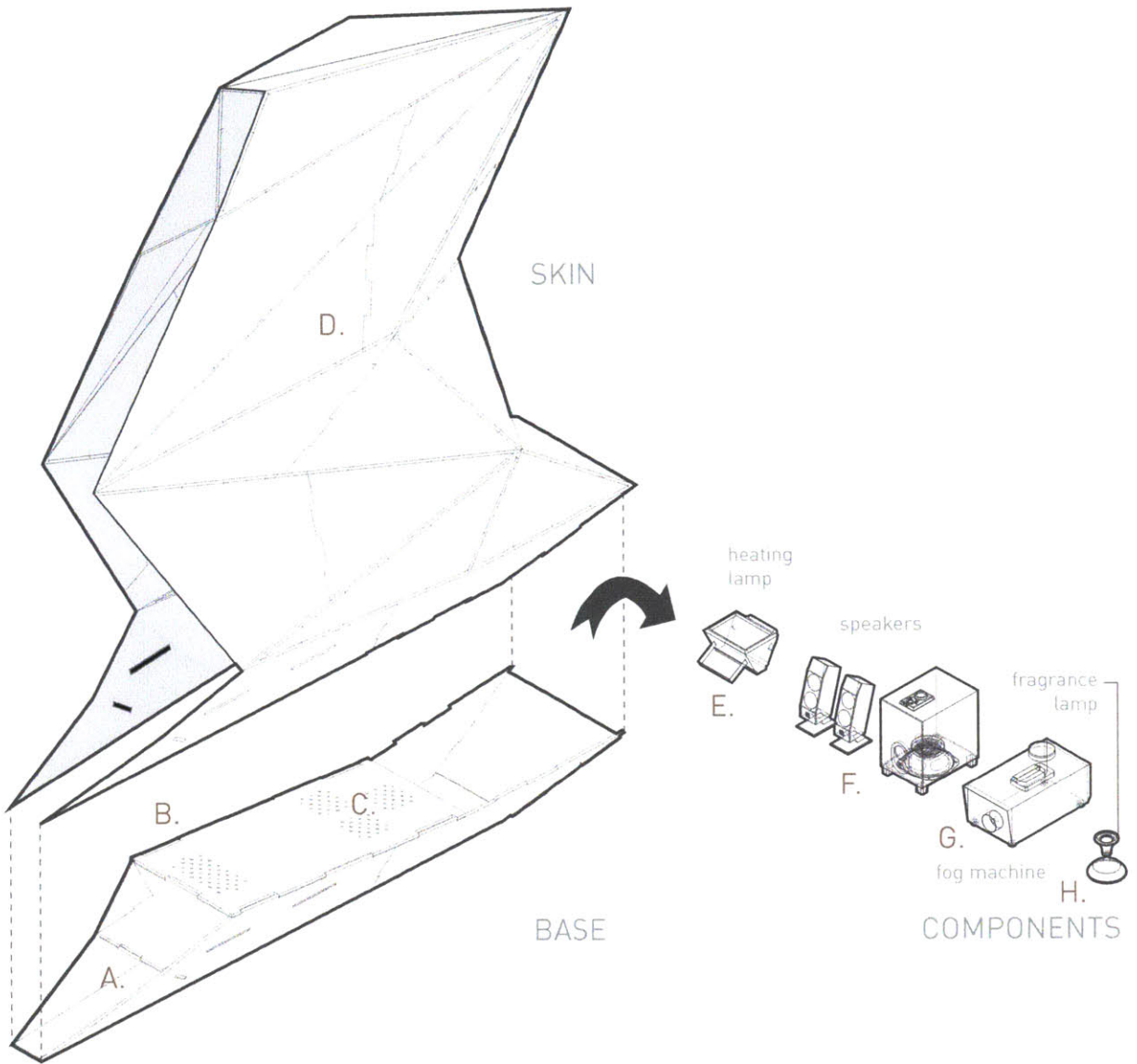
BASE

A. The base serves as the primary architectural mechanism in transitioning into the spiritual atmoposhere of the ProtoMosque. An initial series of steps creates a pocket space designed for the depositing of shoes and initiates a procession into the prayer space. **B.** The prayer surface is uniquely adapted to optimize the prayer experience. The surface is tilted slightly downwards towards the direction of qiblah, creating a physical pull on the worshipper. **C.** The moments of contact between the worshipper and the prayer surface recieve a sensorial response in order to deliver comfort and prolong the experience of worship.

*pulling force
(towards qiblah)*
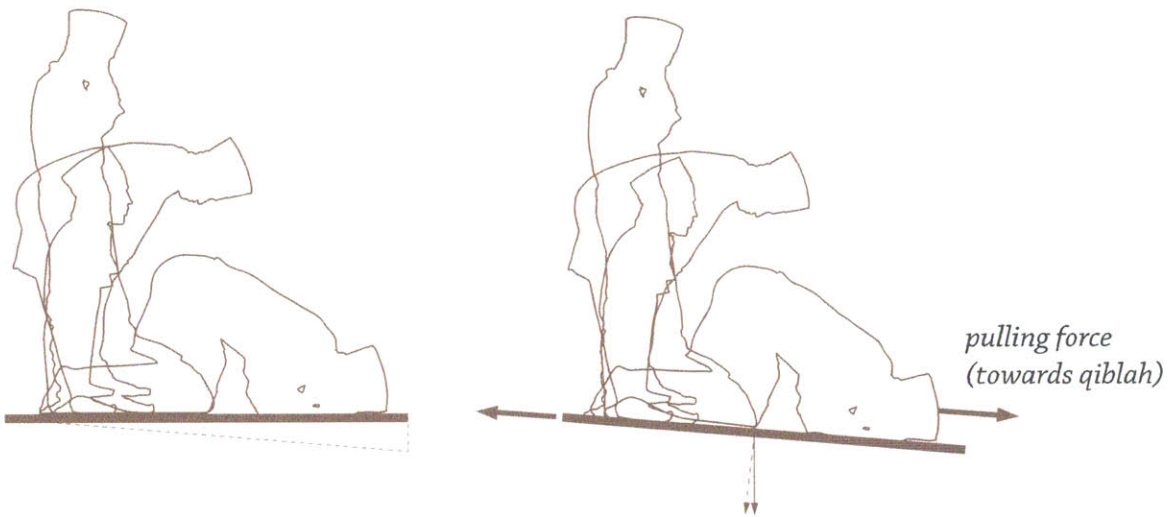
SKIN

D. The skin strategically wraps you in the various movements of prayer, creating an intimate spatial enclosure which replicates the notion of collective prayer.

COMPONENTS

E. TOUCH: Key moments in the prayer sequence are strengthened and prolonged by the sensation of heat. **F.** SOUND: An integrated system delievers an exceptional sound performance. Dual speakers allow for a full range of sound to be expressed with cystal clear clarity and depth, producing an immersive audio experience. **G.** FOG: A dense shroud of white fog produces a trancendental threshold between the physical and metaphysical realms of conciousness, allowing your worship to be concealed from the gaze of others and creating an intimate sense of focus and purpose. **H.** SMELL: Formulated blends of exotic oils and fragrances demarcate and reinforce the unique spiritual boundary of the ProtoMosque, as well as further induce a transition into a metaphysical consioucness.

9'

6'

7"
1'2"
7"

3'3"   4'4"

10'6"
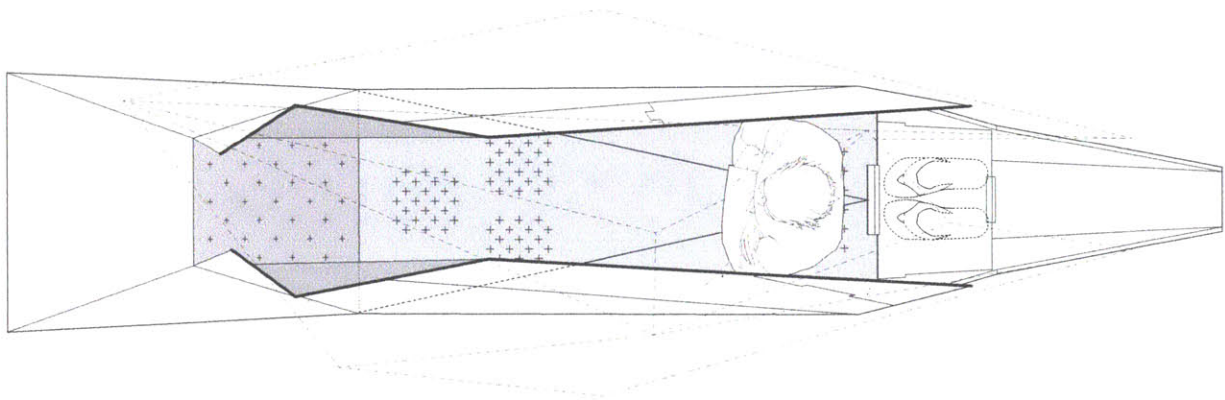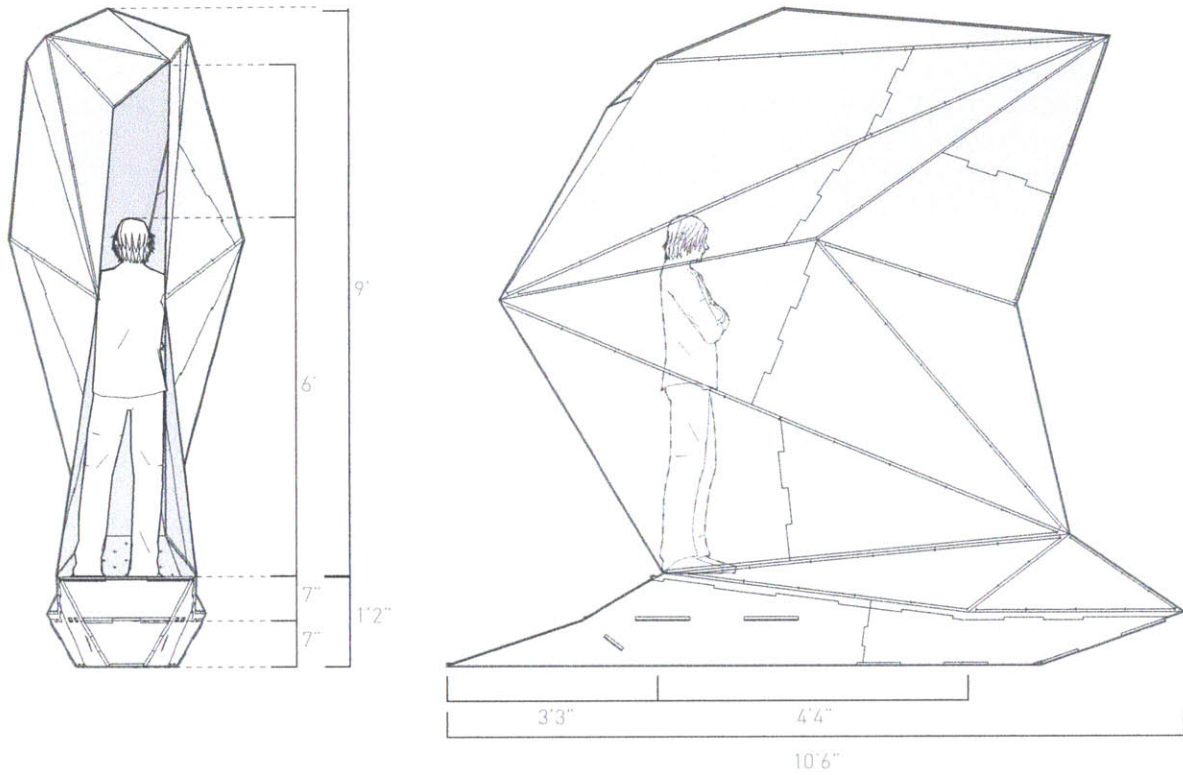
SPECS

The ProtoMosque is designed to simulate an ideal atmospheric condition for one worshipper. The dimensions of the space gently hug the worshipper, creating an intimate yet comfortable prayer / meditation zone.

2 sheets of plywood   **+**   Fog Machine
10 sheets of cardboard   Heating lamp
200 zipties   Fragrance lamp
20 screws   Prayer rug
                                     Speakers
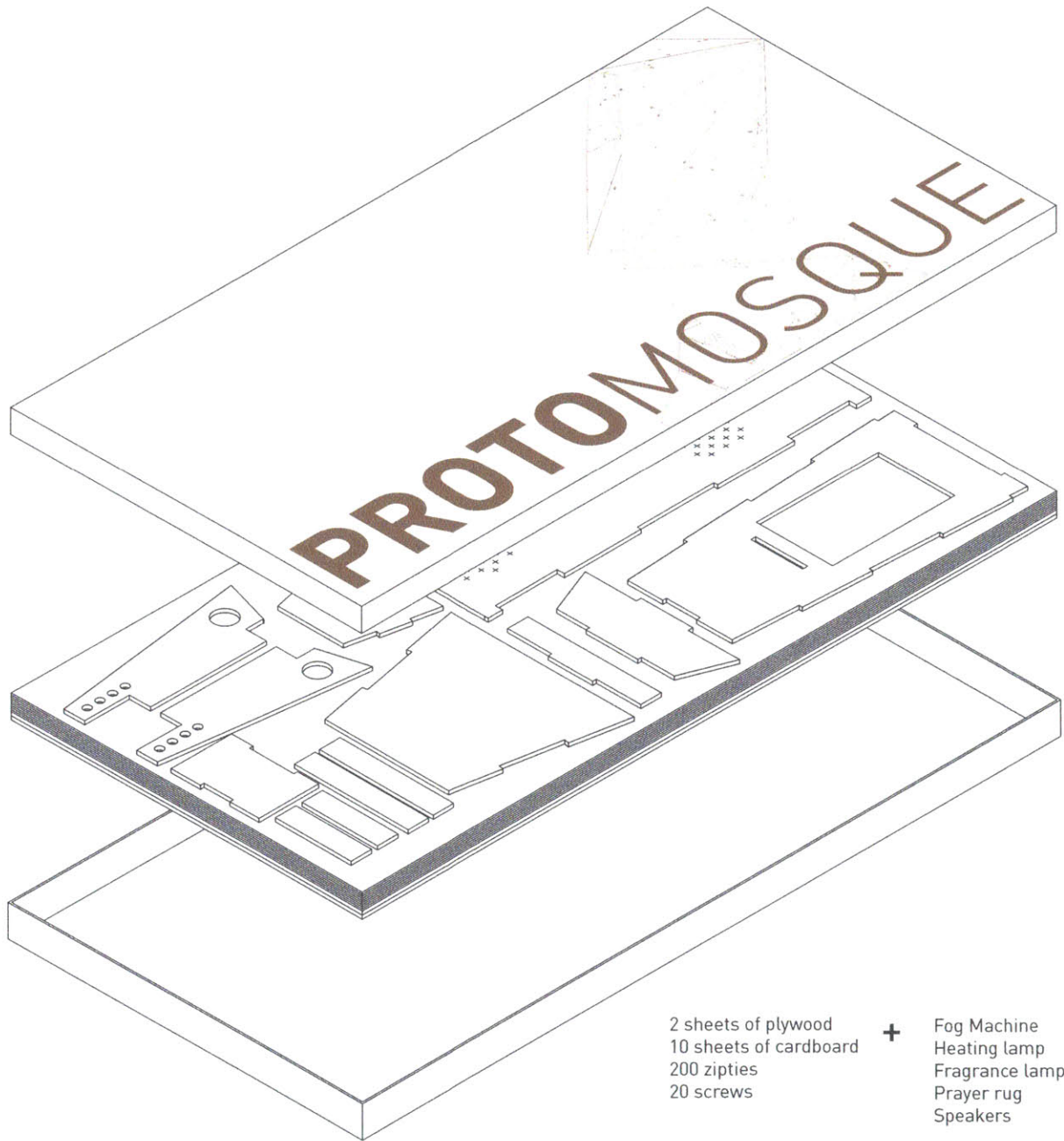
GETTING STARTED

Once the ProtoMosque kit arrives at your location, you are just a few simple steps away from your new prayer experience. Your kit should include:

PART LIST (BASE)

M-5

D

E

A-1

A-2

B-1

B-2

F

H

I

J

A-3 B-3 M-3 M-4

K

N

L

M-1

M-2
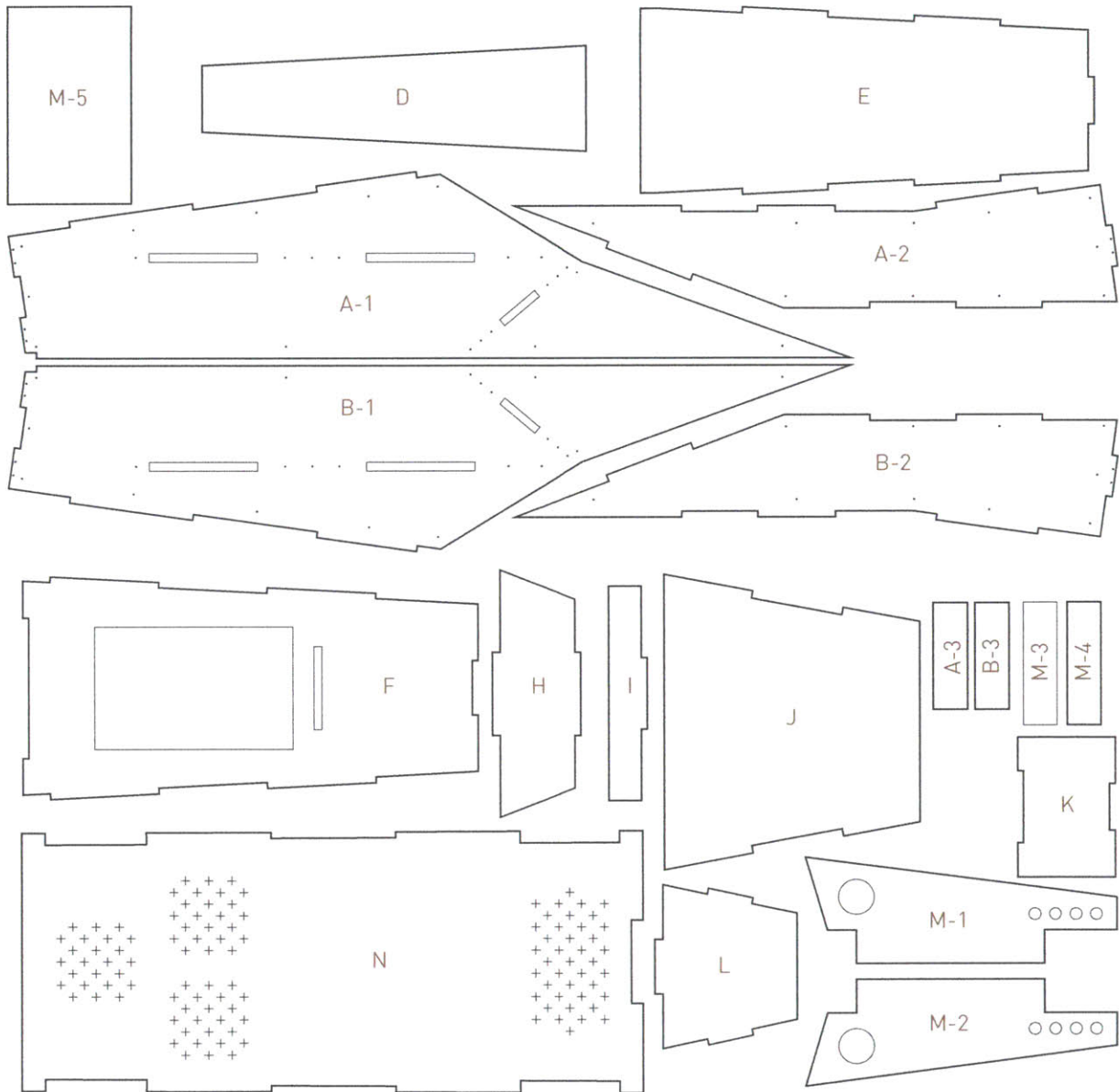
YOU WILL NEED:
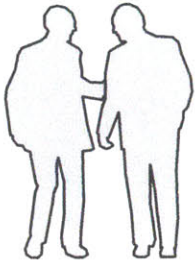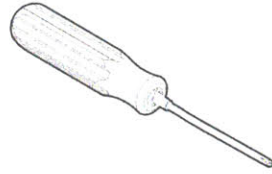
1-2 helpers   Screwdriver   Some open space
                                                        (mosque)
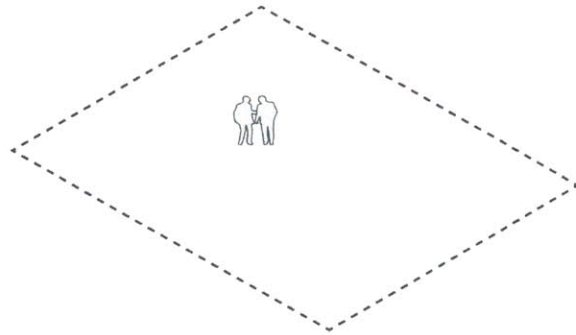
BASE ASSEMBLY

1. Assemble side panels, A(1-3) and B(1-3) as shown using provided screws.

A-3

J

A-1

E

A-2

A

L

D

2. Connect side panels with
J,E, L and D panels.

B

x6
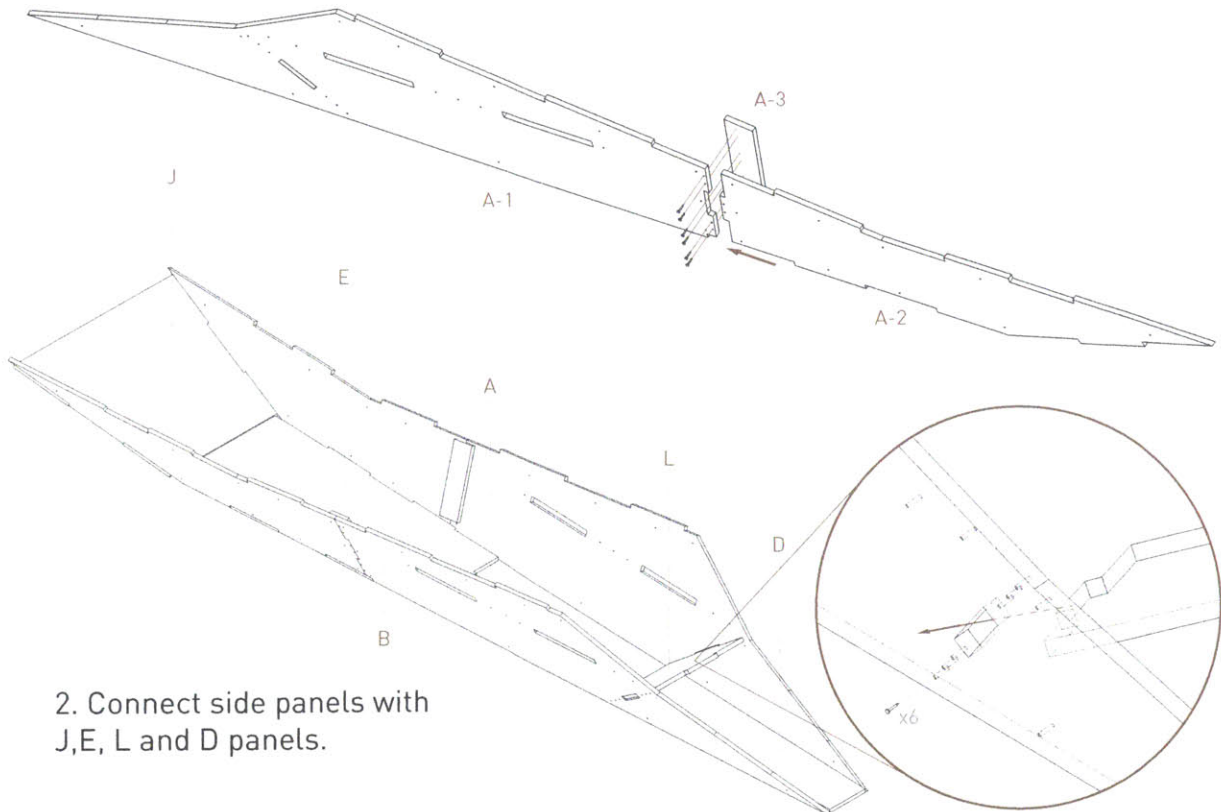
3. Assemble M Panels to construct the component housing as shown, use provided screws.

M-1

M-2

M-3

M-4

M-5
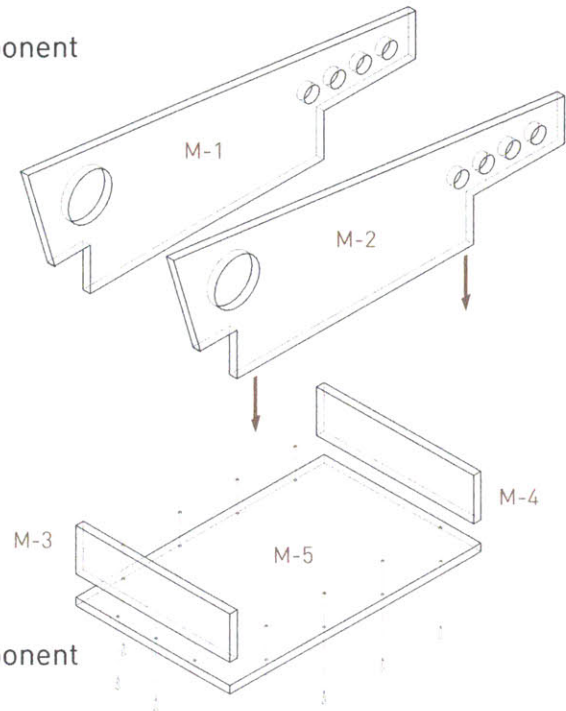
4. Assemble M Panels to construct the component housing as shown, use provided screws.
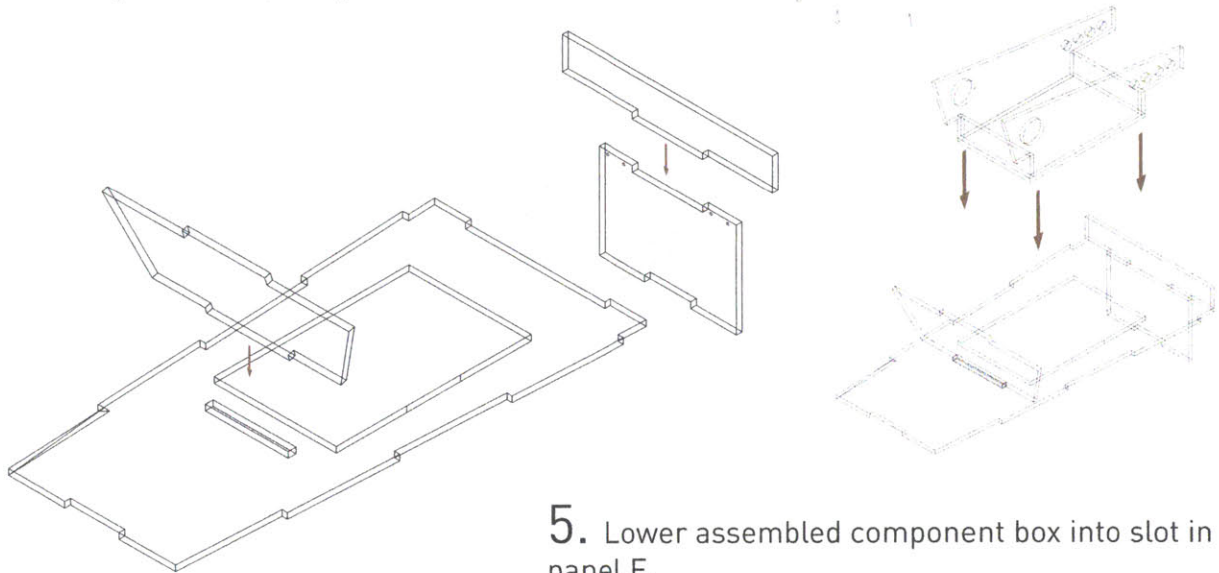
5. Lower assembled component box into slot in panel F.

6. Lower assembled component box and floor into
already assembled base structure.
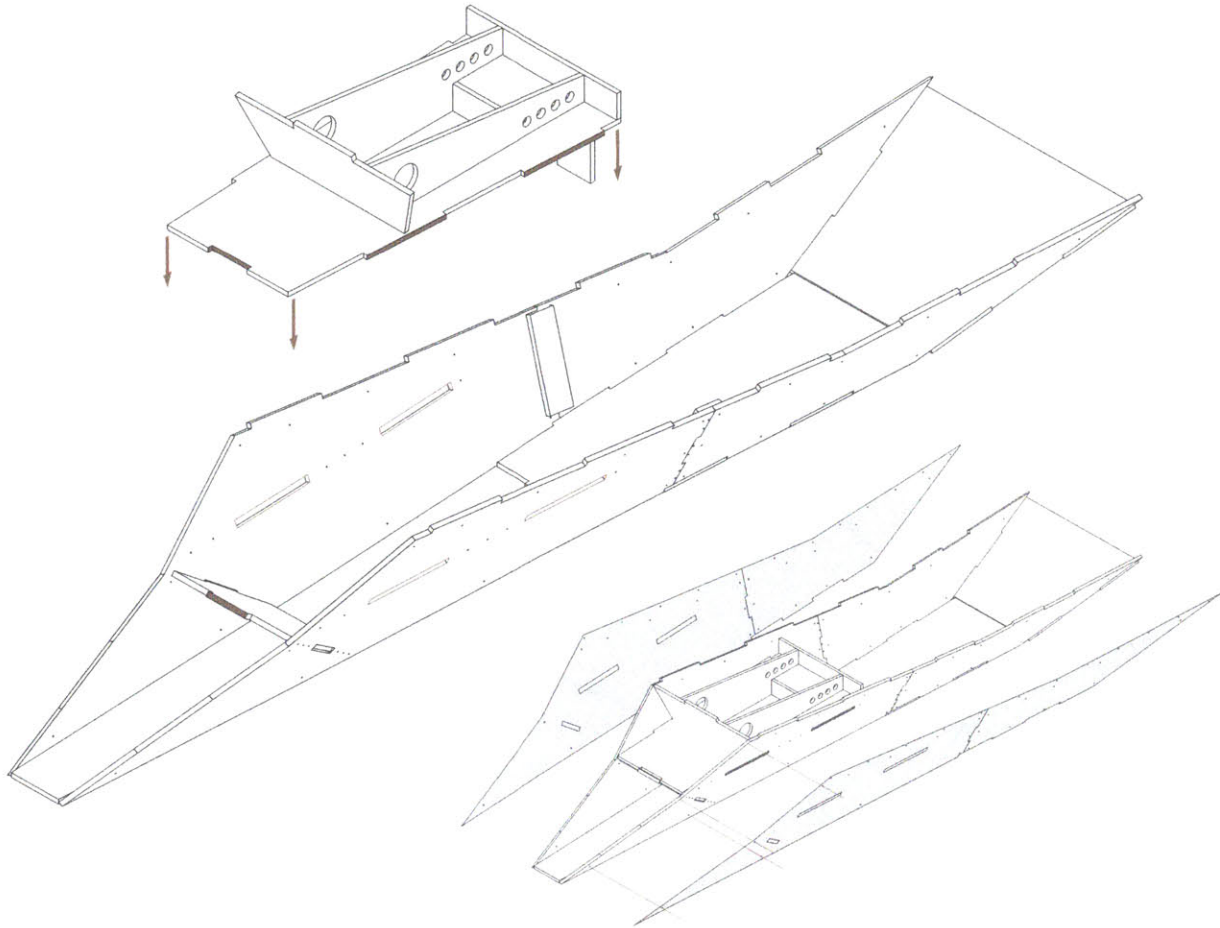
7. You have successfully completed the Base! Find and attach the skin panels that
correspond with base panels A and B. (The prayer surface, Panel N, will be positioned
in a later step)

PART LIST (SKIN)

TOP: M, N, O, P, Q, R, S, T, U, V, W, X, Y

LEFT: C, D, E, J, L

RIGHT: H, G, I, K, Z

TOP
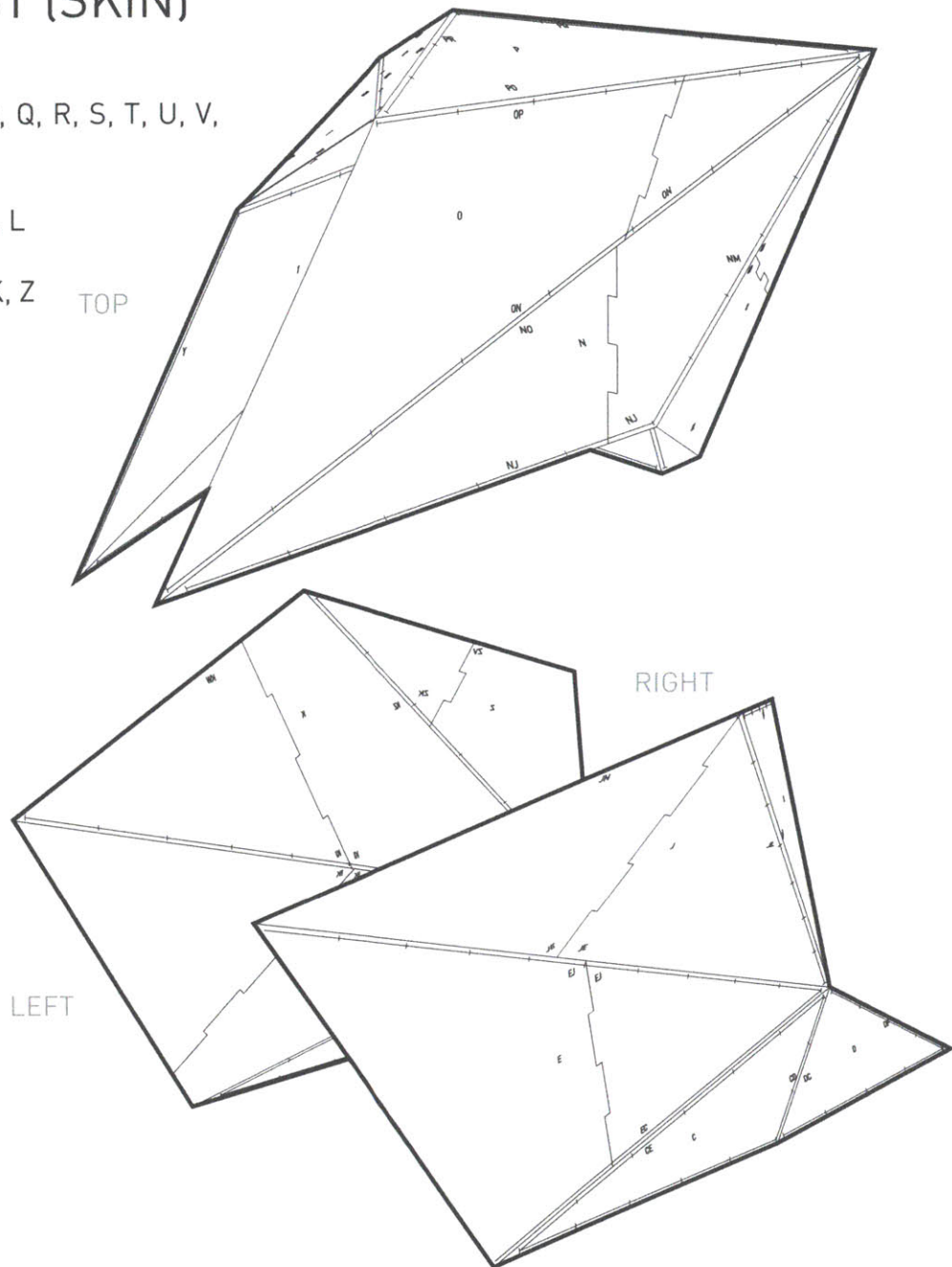
RIGHT

LEFT

1. Orient base in the space in alignment with the Qibla wall.
(the TOP, LEFT, and RIGHT skin panels will link into the base
once assembled). Begin sorting skin panels into TOP,
LEFT, and RIGHT piles.

TOP

Qiblah direction

LEFT

RIGHT
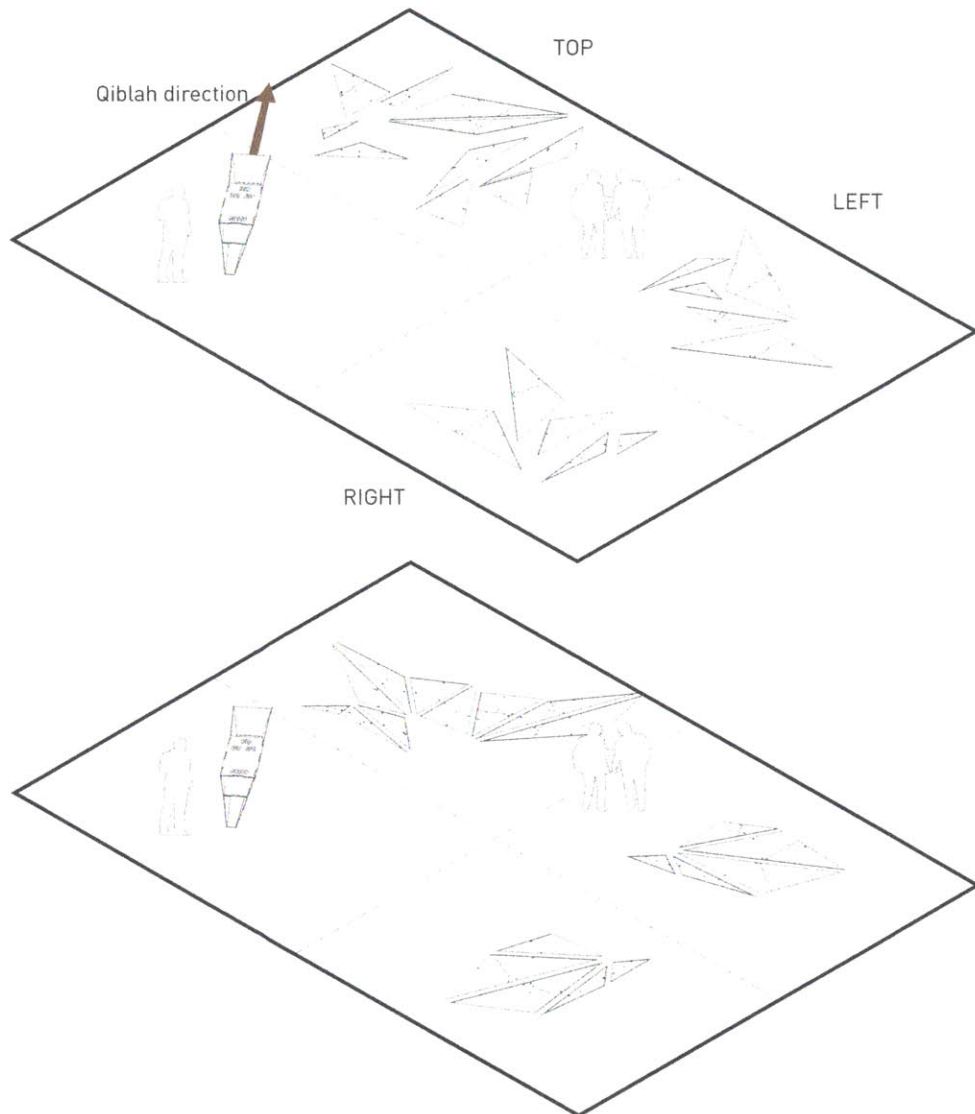
2. Organize piles so that each panel edge corresponds
to the appropriate edge of its adjacent panel.
(i.e. in panel U, edge UV corresponds to edge VU in
panel V)

3. Assemble oversized pieces, seperated by a waffled edge. Each waffled piece has a counterpart of the same letter. Use provided zipties.

P

OP

O

ON
NO

N

NM

M

NJ

J
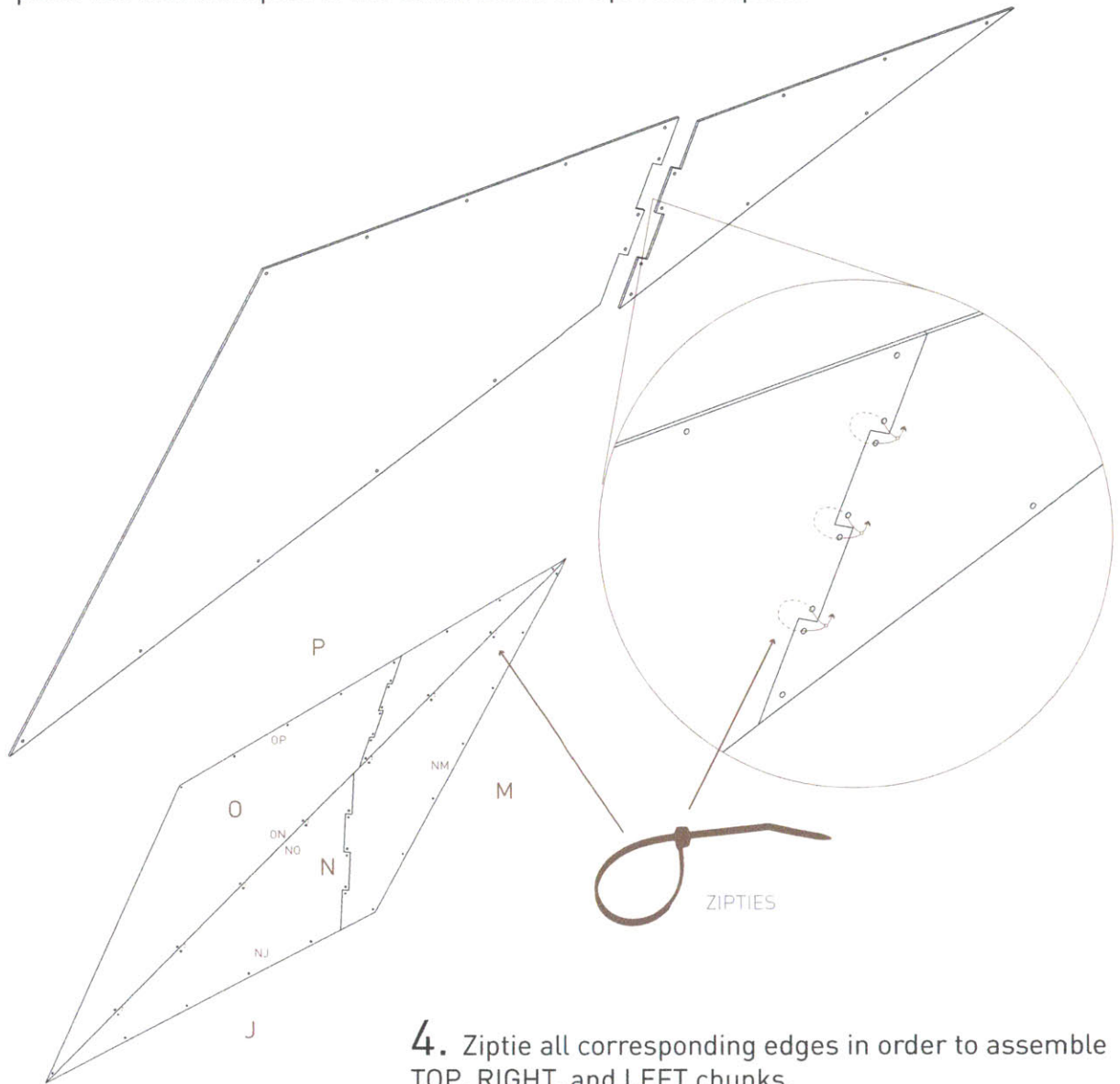
ZIPTIES

4. Ziptie all corresponding edges in order to assemble TOP, RIGHT, and LEFT chunks.

6. Tilt base with LEFT and RIGHT skin chunks, attach TOP (3 helpers needed)
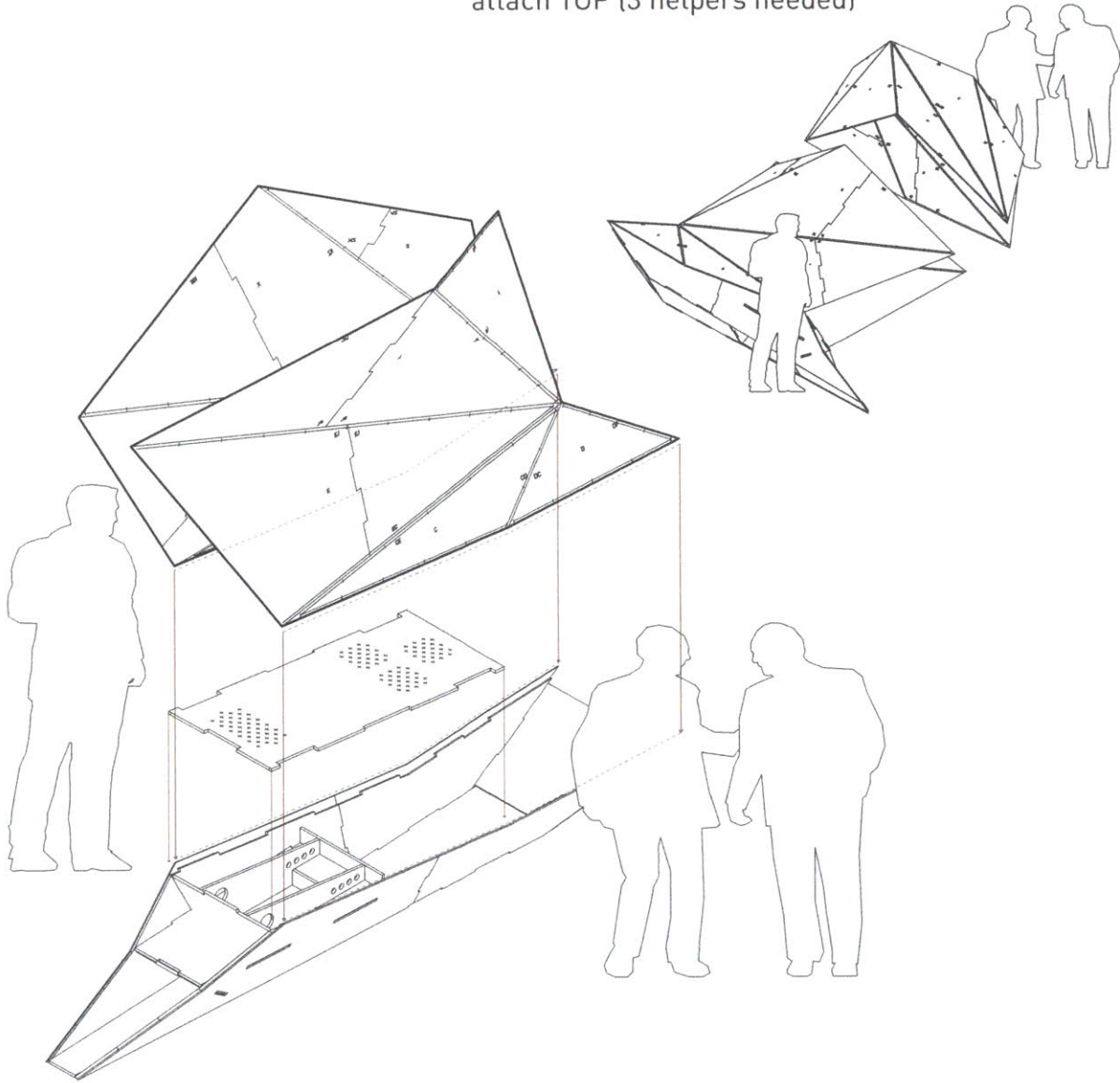
5. Bring assembled LEFT AND RIGHT chunks to base. Install prayer surface, then continue to zip LEFT AND RIGHT chunks to corresponding skin edges on base.
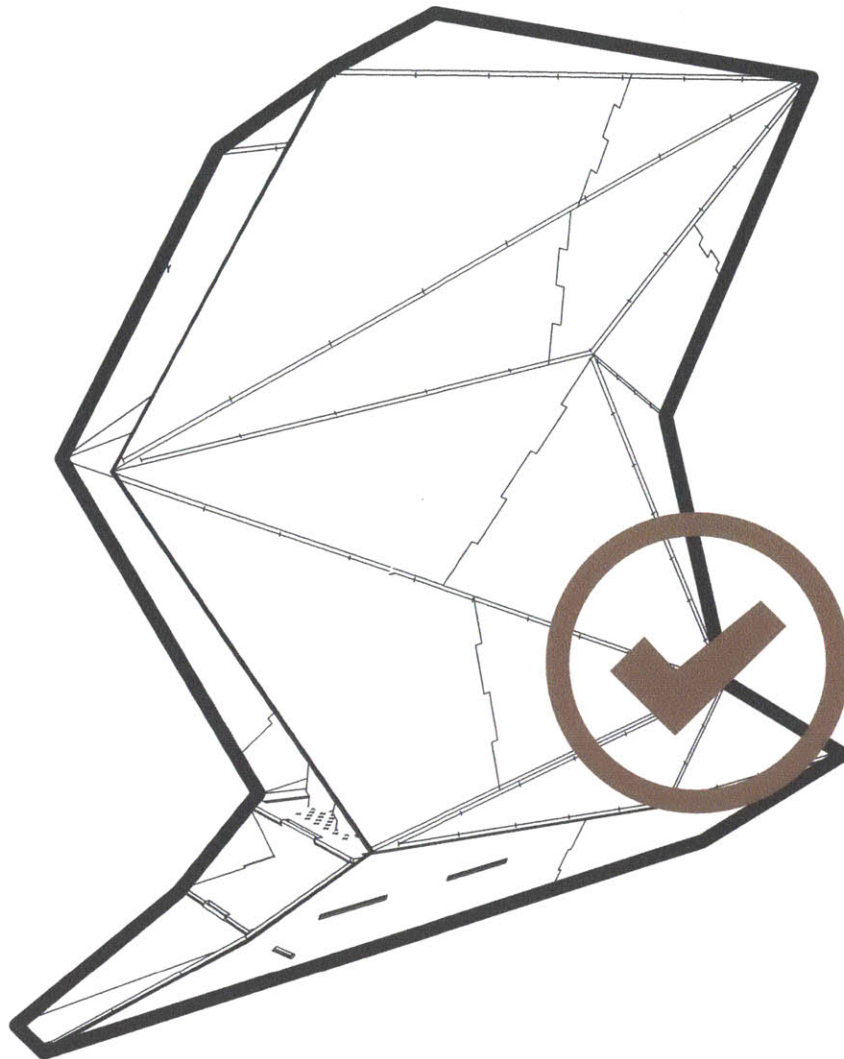
CONGRATULATIONS!

You have successfully completed the assembly of the ProtoMosque. Now its time to put it to use! The ProtoMosque is designed to simulate an extraordinary prayer experience. It also serves as a device which measures the spiritual atmosphere of your existing place of worship. Once you have prayed with the ProtoMosque experience, please use the following guidelines to begin addressing the spirtual atmosphere of your own place of worship:

1. Conduct a workshop so that the local community can experience the ProtoMosque. Generate a discussion about the importance of meditation and prayer, and how sensitive design is a critical to having a meaningful prayer experience. Conversation and thought about individual prayer becomes an opportunity for collective worship.
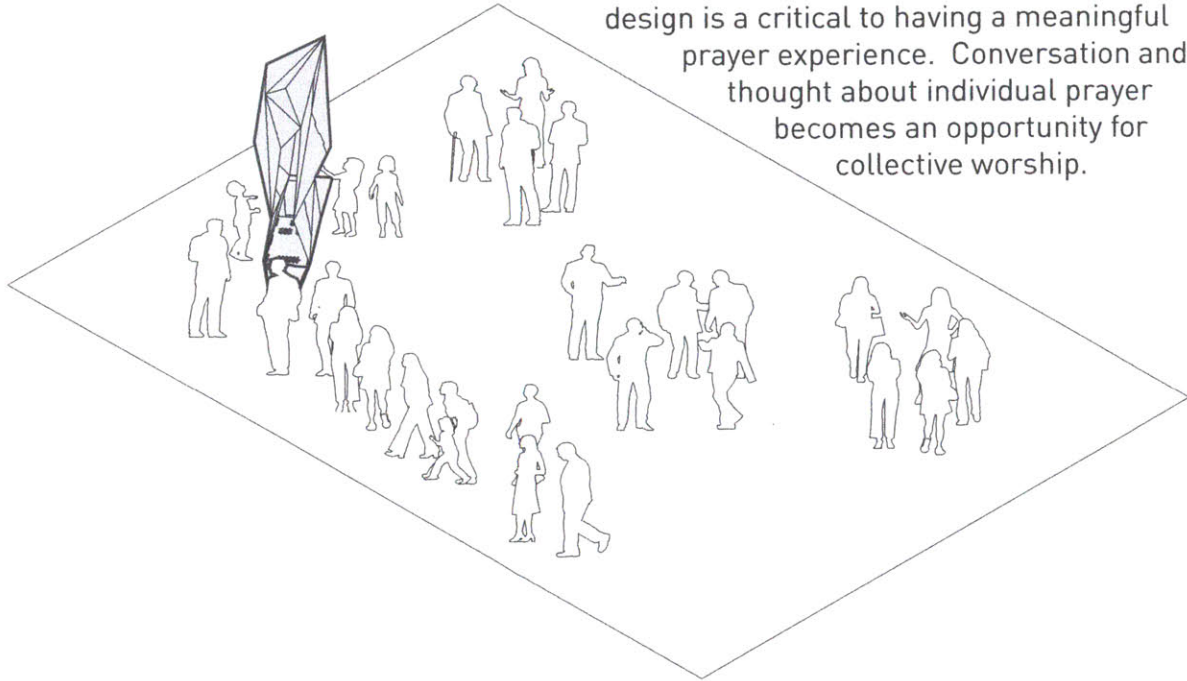
2. Conduct a survey to assess the atmospheric quality of your existing worship space, using the ProtoMosque experience as a litmus. (survey included at the end of this booklet)
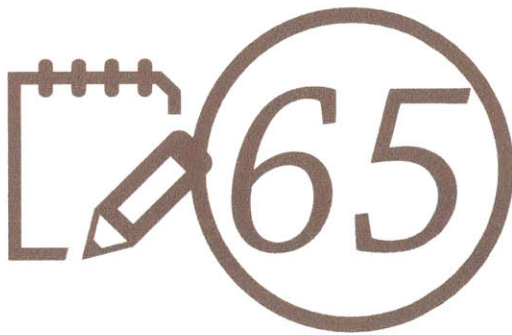
3. Contact a ProtoMosque respresentative for a consultation on how to retrofit your space of worship to be an optimized spiritual atmosphere.
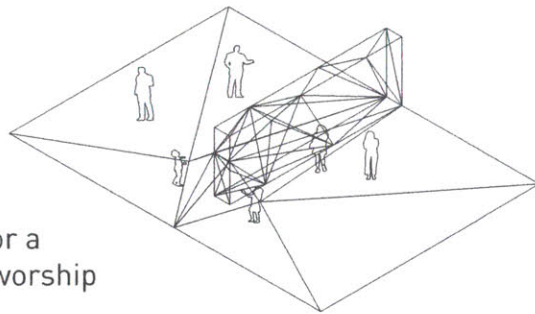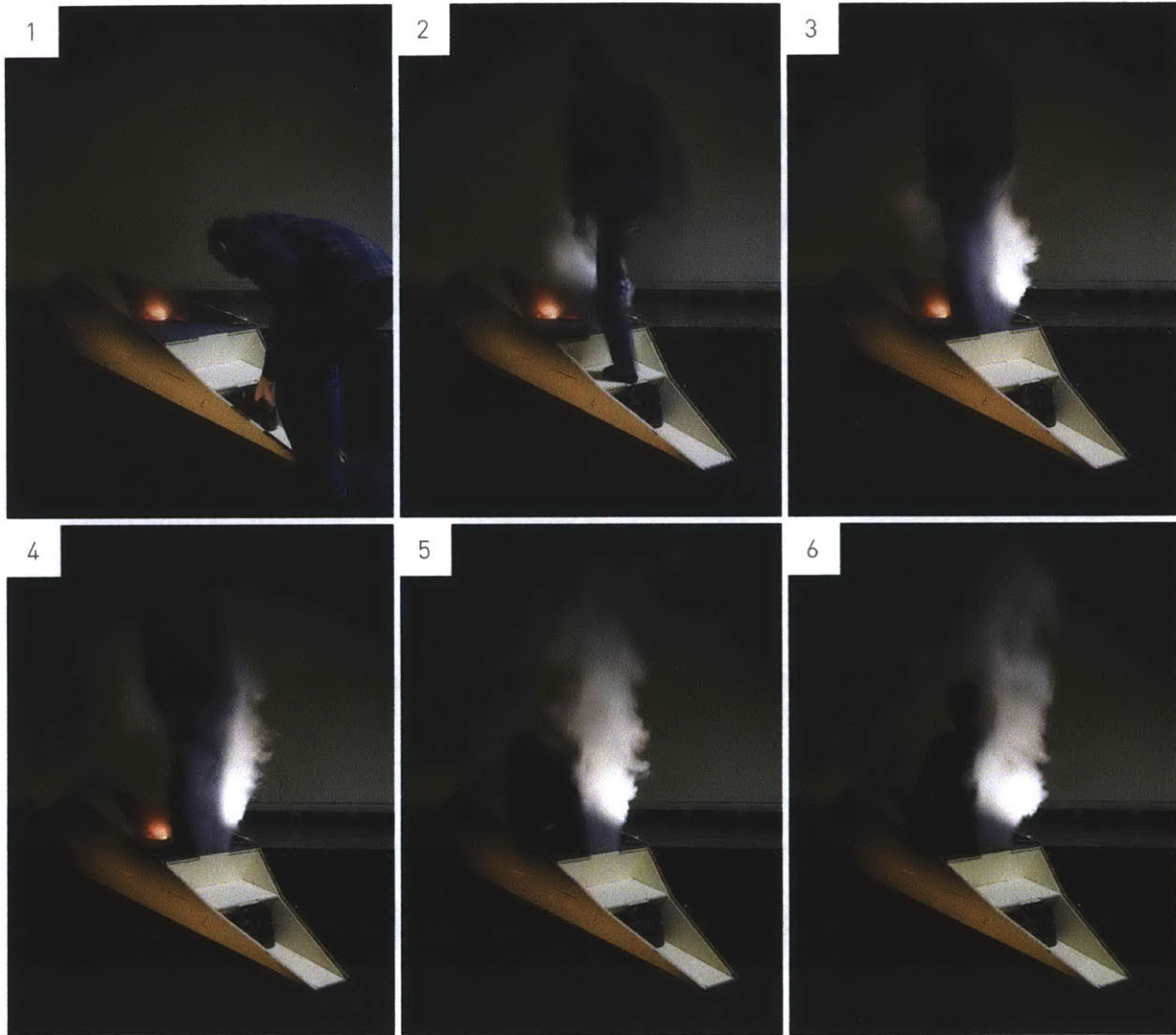
1. As you approach the ProtoMosque, shoes are removed and deposited, initiating a procession to the prayer space. The action of removing shoes creates a ritual which begins to establish a relationship between worship and space.

2. A strategic step creates a physical barrier between the ProtoMosque's context, and its protected prayer space. This step symbolizes the need for an intermediate architectural threshold to facilitate the transition from a physical to spirtual mind frame.

3. A threshold of fog amplifies the threshold experience and signifies the worshippers entrance into the spiritual realm of the prayer space.

4. The fog serves as both a spiritual threshold, as well as visually obscuring the movements of the worshipper from the outside world.

5. The visual obscurring becomes crucial to prayer focus during the intimate moments of prayer.

6. The fog also serves an atmospheric function, creating a hazey interior environment, diffusing light in unexpected ways, creating awe and intrigue within the prayer space.
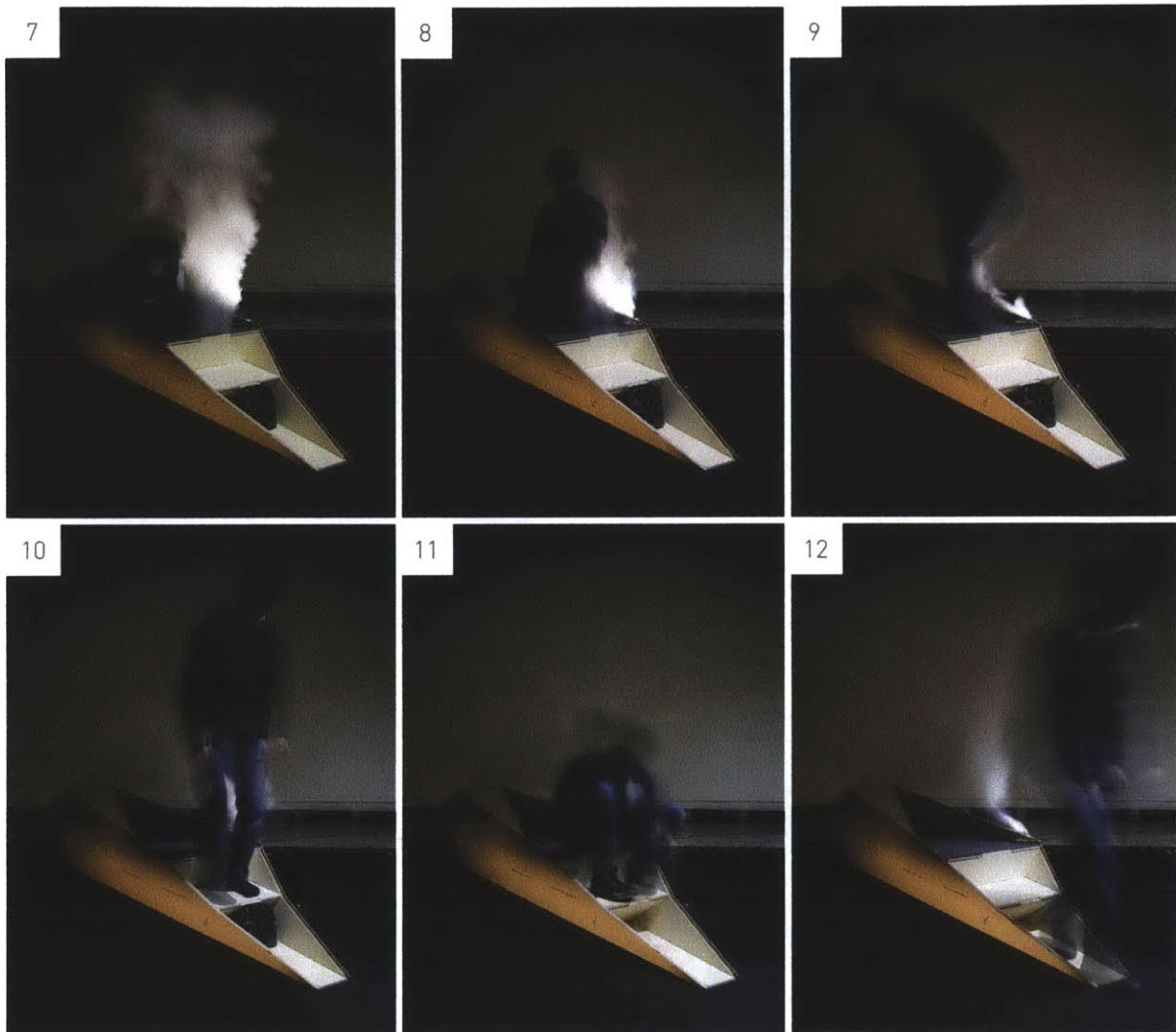
7. The prayer sequence is further amplified by specific adjustments of the prayer plane. The surface is tilted downwards in order to create a physical notion of pull, a pull which is most noticebly felt in the moment of prostration.

8. Atmosphere, audio, temprature, smell, posture are all calibrated in order to create an idea comfort level for the worshipper. The creation of this intimate atmosphere helps to prolong the worshippers prayer duration, and encourages a lingering in a spiritual mindset of meditation / pondering after the prayer has ended.

9. The ProtoMosque is a spiritual sanctuary, and allows its users to re-enter the physical world once spiritually fulfilled.

10. The intermeriary step prepares the user to transition back into the physical world and mindset.

11. The step serves as a platform in which the worshipper can comfortably put his/her shoes back on.

12. The worshipper exits the ProtoMosque with prayer and spiritual needs fulfilled.
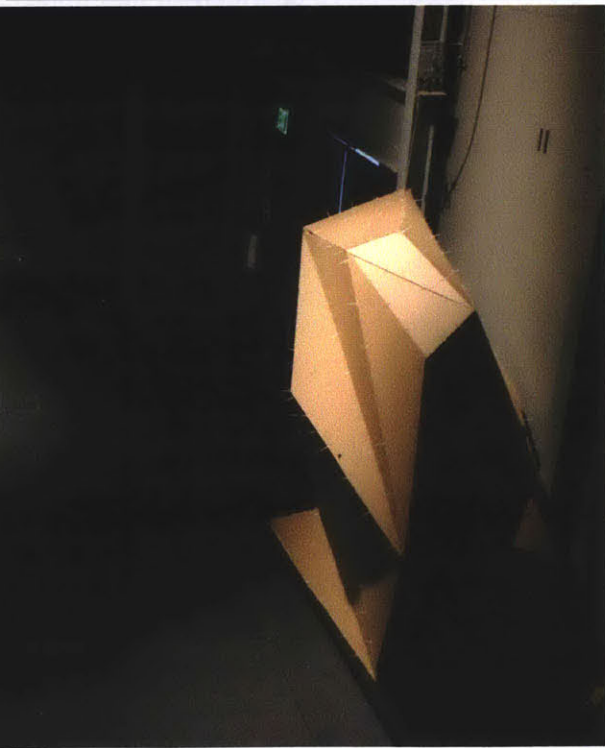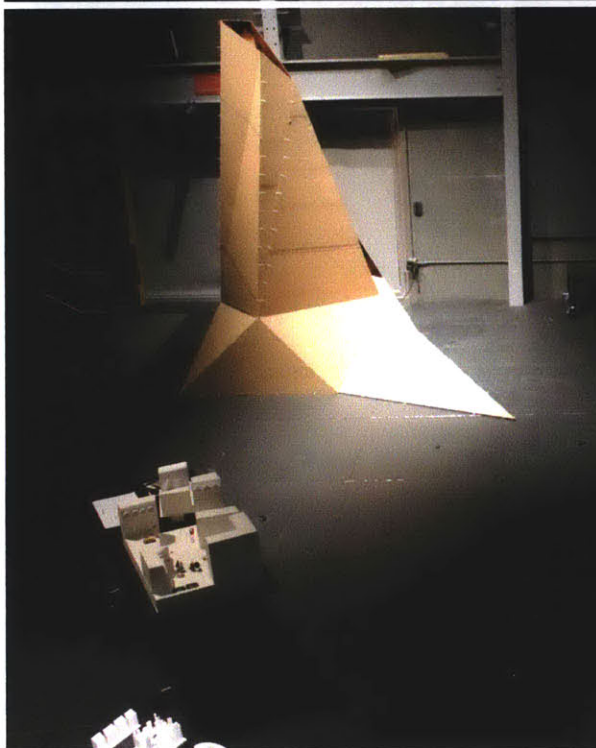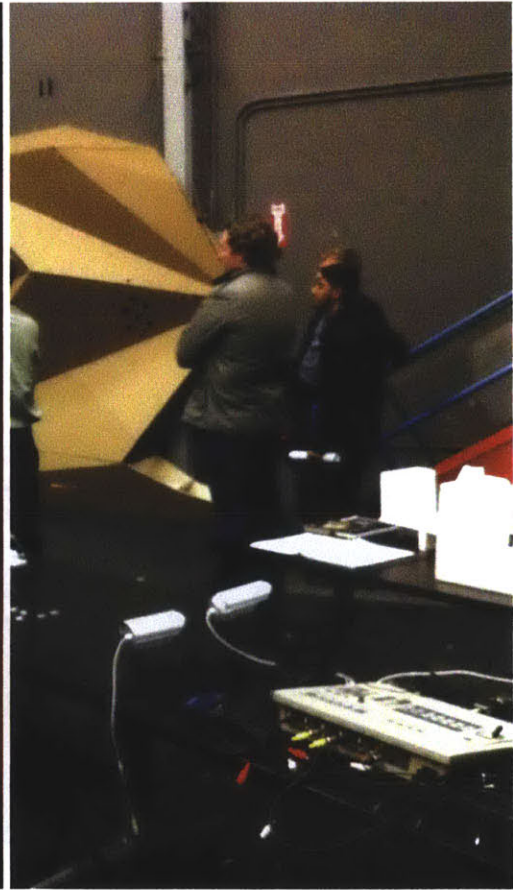
PART II: THE SEARCH

STATEMENT

The mosque typologies as they exists today have failed to properly address the unique contextual challenges and opportunities of the American context. The mosques of America have largely neglected the communities in which they have been inserted into, but instead have trended to alienate themselves and its patrons. The predominant American (non-Muslim) perception of mosques are dark, distant, unapproachable and impermeable structures. While most Americans would view that mosques threaten and disrupt American social order, this thesis will attempt to demonstrate how a mosque which has been sensitively designed for its context will help reinforce and strengthen American social order and the notion of community.

Additionally, the thesis will critique the external as well as internal workings of existing American mosque models. There exists major internal shortcomings mosques in the way they have addressed the needs of its patrons, with a failure to establish a mosque model that is well suited for growth. An exploration will be made that focuses on developing new prototypes that deal specifically with mosque design in varying scenarios within the American context by amplifying its presence, rather than attempting to obscure/conceal/camouflage it. More specifically, the city of Boston has been selected as a testing ground in order demonstrate the prototypes potentiality of retrofitting into the notion of an American city. Spanning from the human to the urban scale, a series of projects will attempt to address issues of interface and retrofit into an American framework. A new public visibility is crucial as Islam continues to grow, dispelling social stigma and bridging strong interfaith communities.

At the **human scale**, the prototypes will try to troubleshoot common shortcomings of the uniquely american 'retrofit' typology (adapted mosque spaces from previous retail/commercial/residential space) such as disorganization, clutter and the resulting diminishment of the mosque experience. The thesis makes a claim that these shortcomings, though they are seemingly trivial, have a tremendous impact on the essence and spiritual quality of the prayer.

At the **urban scale**, the project will explore a new juxtaposition of the Islamic prayer and a vibrant urban plaza. The hope is to demonstrate a new potential for the prayer to interface with its urban context, putting the inner-workings of the mosque on display. Using the previous two projects as a method for testing ideas and collecting data, the project at the building scale will be an attempt to consolidate both the inner and outer workings of a properly functioning 'American' mosque. The main goal of the building scale is to find an architectural expression which is ' Islamic' but also uniquely american, giving the Islamic community in Boston a unique self-identity which is harmonious and compatible with the communities around it.

1. *human scale*

2. *urban scale*

H

U

B

2. *building scale*
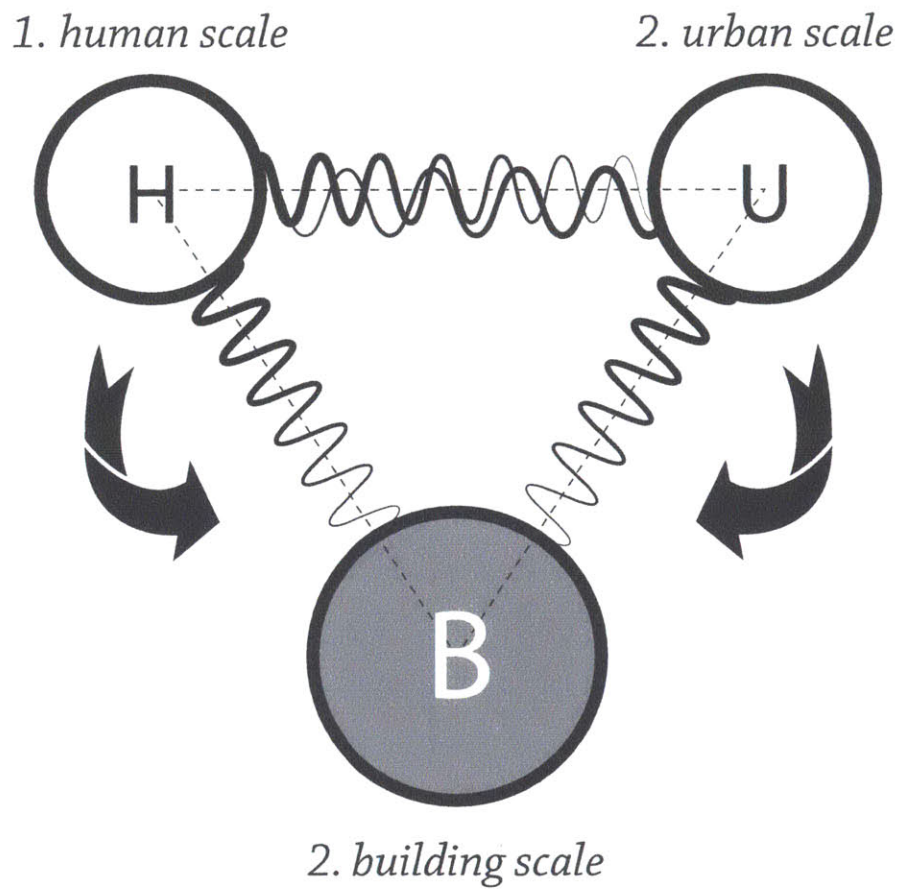
DIALECTIC METHOD
The argument of the thesis is tested and resolved first through the human and urban scales, which ultimately will inform the Architectural scale.

HUMAN SCALE
prototype development

SITE:
MIT RELIGIOUS ACTIVITIES CENTER, BUILDING W11

PROTOTYPE TESTING FOR:
-MICROENVIRONMENTS
- PARTITION WALLS
- CASEWORK FURNITURE
- INTEGRATED STORAGE
- CARPETS
- PULPIT
- LIGHTING / SOUND SYSTEMS
- PRIVATE MEDITATION SPACES
-PORTALS / DOORS
- SCREENS
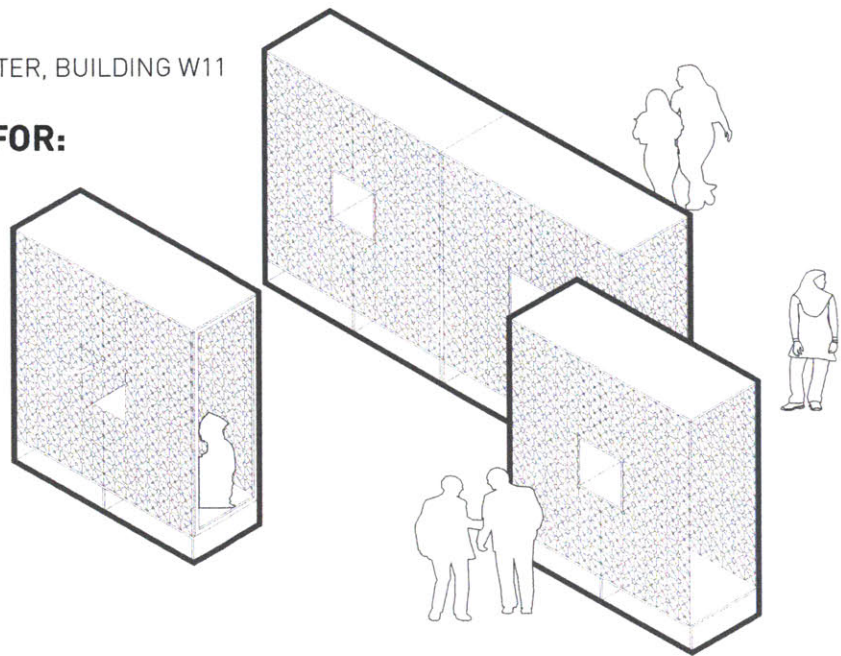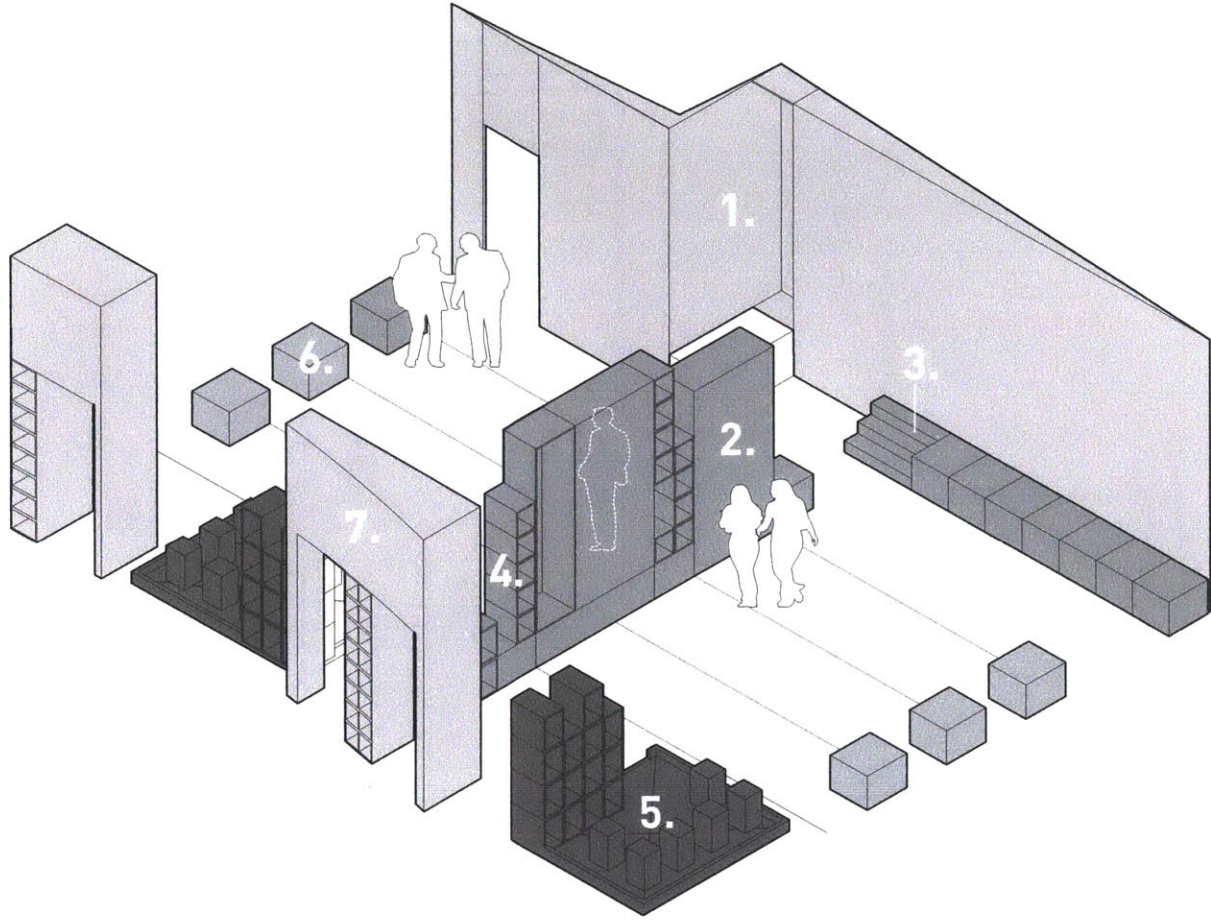
1. Reconfigures the spatial misalignment with the qiblah, maximizing the effeciency and organization of the prayer space.

2. Introduces a new spatial type to the mosque, an amplified zone of prayer and meditation. A parrallel can me made of a private study room within a larger area for study, such as a library.

3. Introduces a new spatial type to the mosque, an amplified zone of prayer and meditation. A parrallel can me made of a private study room within a larger area for study, such as a library.

4. Consolidates all mosque storage needs while spatializing the partional wall. The thickened wall accomodates storage/display and also introduces a new spatial type, the private prayer room.

5. Maximizes the drainage surface of the bathroom to cut with durable surface, allows for more worshippers to perform abulution in an orderly fashion.

6. Can be positioned anywhere throughout the prayer space to create seating or work surfaces.

7. Enhances the entry sequence into the prayer space, and clearly deliniates entrances for both genders. Also creates function spaces for shoe storage.
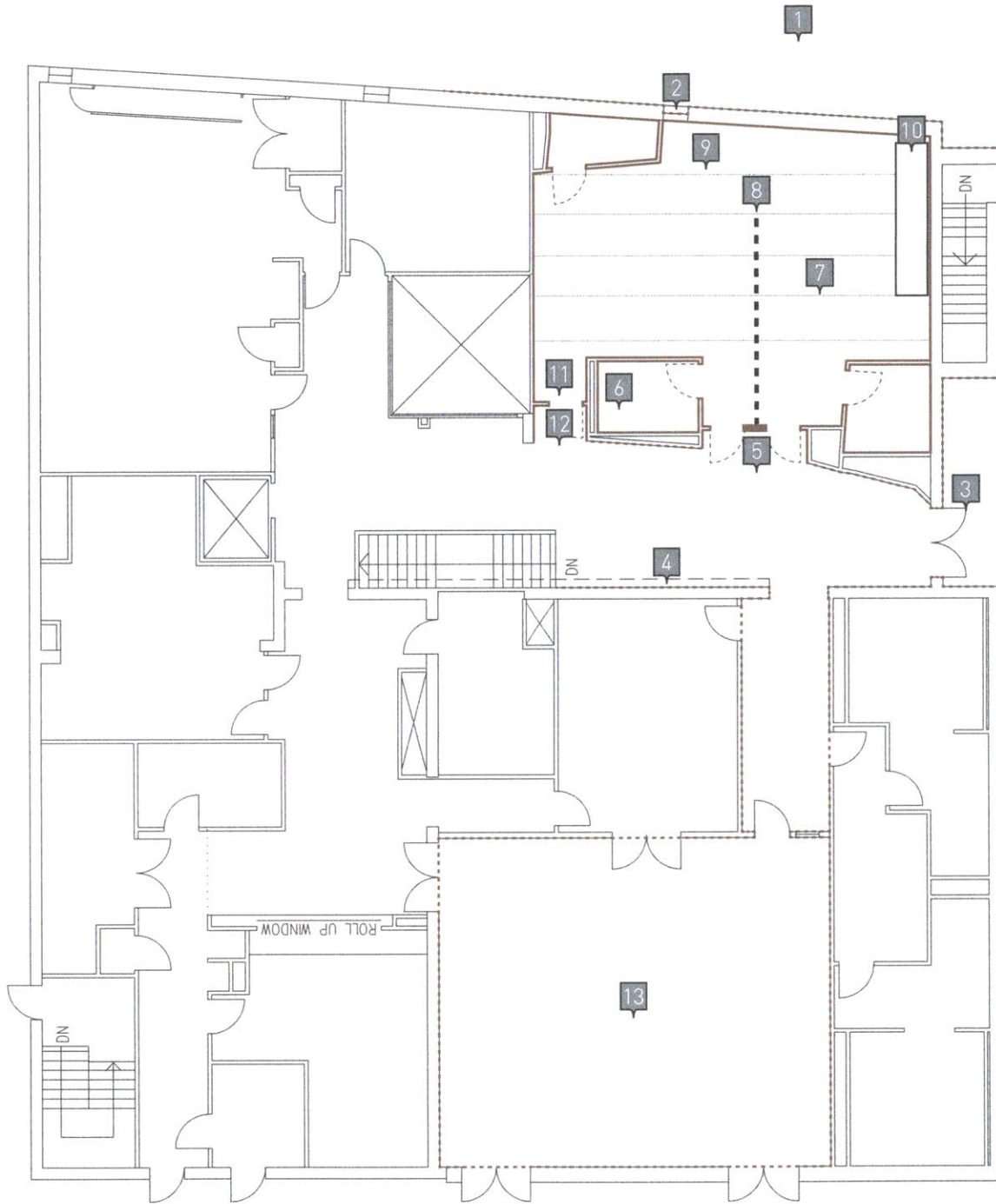
[1] Street Presence
[2] Window
[3] Building Entrance
[4] Infographics / Public interface
[5] Mosque Entrance / shoe storage
[6] Abulution rooms
[7] Prayer carpet

[8] Gender partition
[9] Minbar / Mehrab
[10] Quran storage
[11] Mosque niche (rear)
[12] Exterior niche
[13] Overflow space (Friday)

interface

interface

interface

interface

education

education

threshold

clutter

threshold

surface

surface

clutter

clutter

surface

clutter

clutter

STORAGE

IMAM'S
NICHE (MEHRAB)
GENDER PARTITION

DN

BOOK
STORAGE

*women's
prayer area*

BOOK
STORAGE

men's prayer area

MISC.
STORAGE

RECEPTION/
BULLETIN

WOMEN'S
ABLUTION

MEN'S
ABLUTION

X

blocked entry

TEMP.
STORAGE
(SHOES)

DN
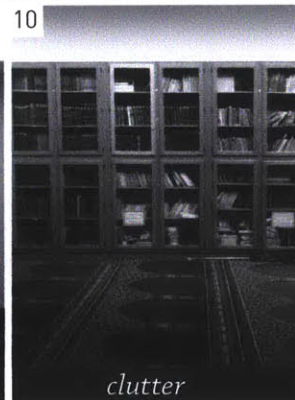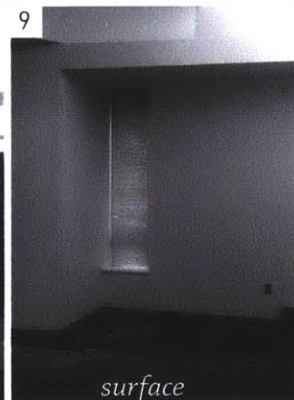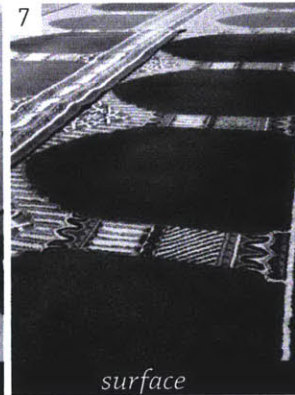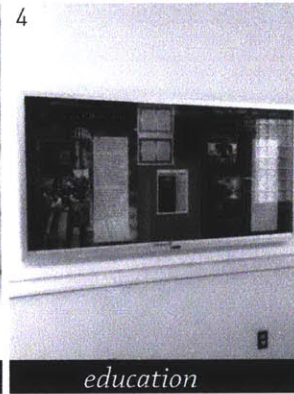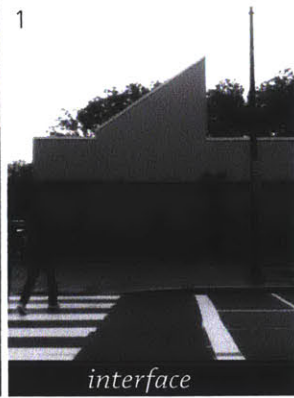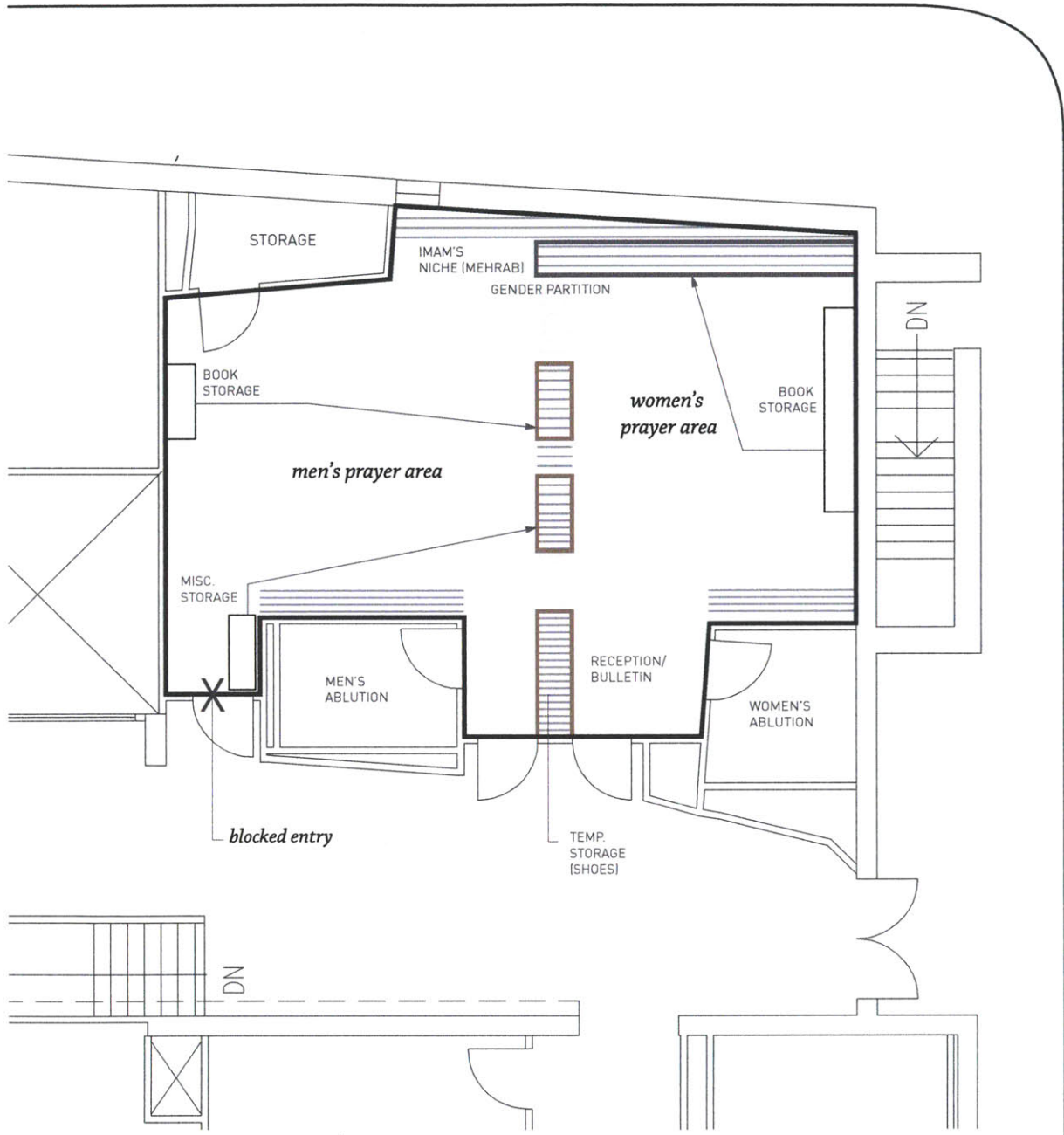
CONSOLIDATED STORAGE/PARTITION
Consolidation of auxilary spaces strengthen the clarity of the prayer space, which in turn strengthen the ability to perform meaningful worship.

oriented towards
Makkah

prayer rows

MEHRAB
(perpindicular)

PARTITION
(parallel)

x3   x9   x5

x6   x7   x7

x2
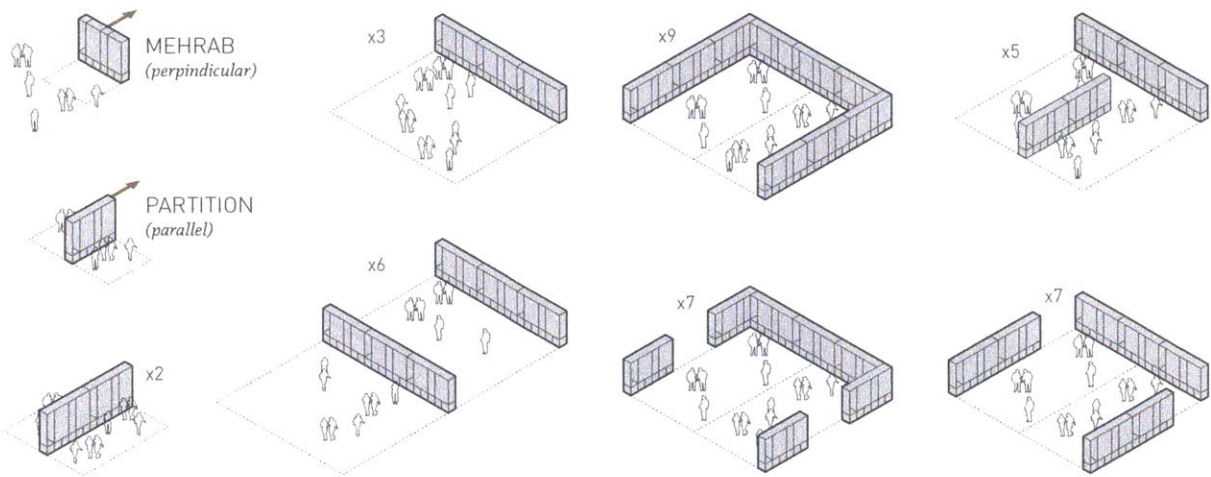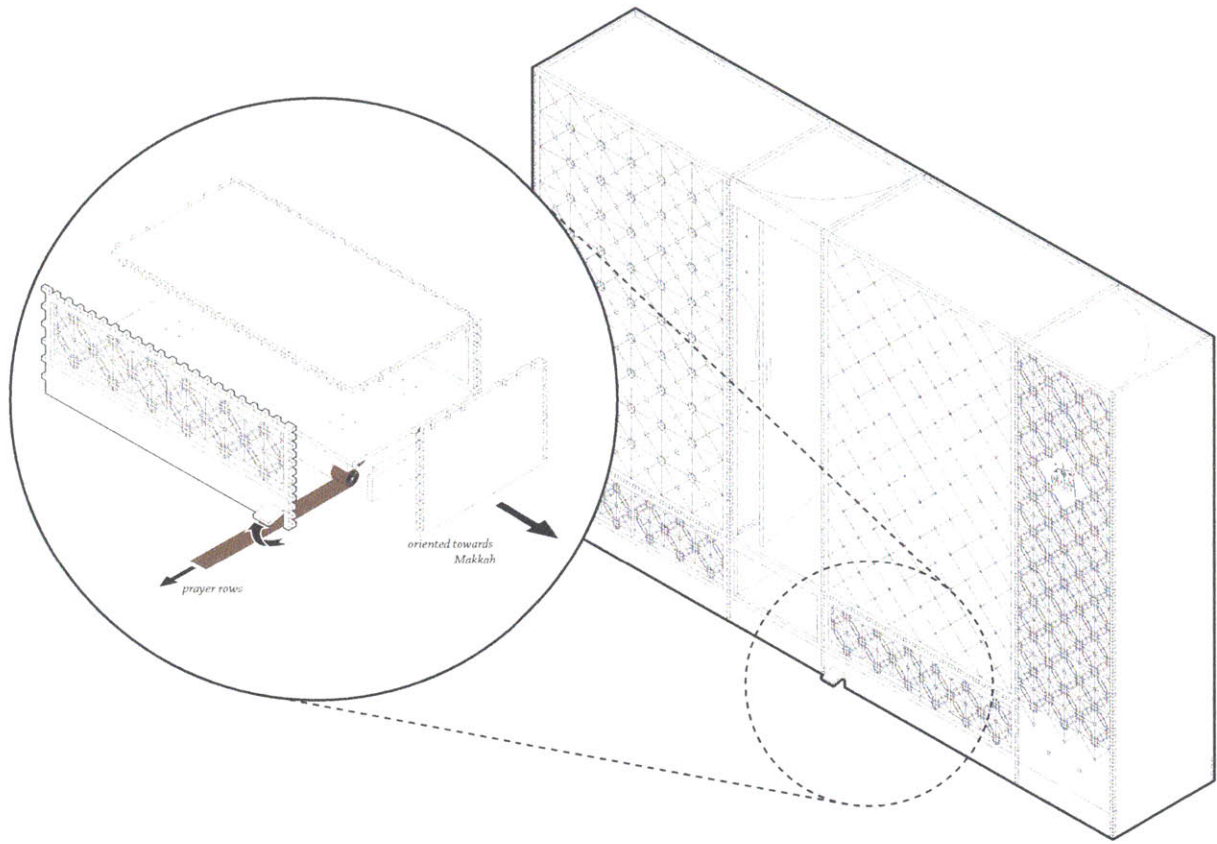
INSTANT MOSQUE
The mobile partion wall has an integrated device which can establish prayer rows, provided the user orients the wall towards the direction of Makkah.

FRAMED STRUCTURE
Reconfigures the spatial misalignment with the qiblah, maximizing the effeciency and organization of the prayer space.

MEDITATIVE SPACE
Reconfigures the spatial misalignment with the qiblah, maximizing the effeciency and organization of the prayer space.

ACCESS
Reconfigures the spatial misalignment with the qiblah, maximizing the effeciency and organization of the prayer space.

Non-private zones

BULLETIN
A designated surface for the community to utilize in order to inform patrons of events.

INFILL SCREEN
In order to optimize the cost and precision of the screen and its apertures, tiles are laser cut and assembled onto a pre cut infil panel.
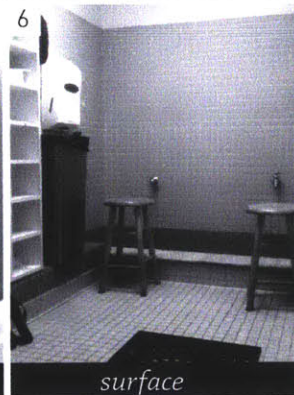
PORTABILITY
The transportability of this meditation has the potential to turn any space into a temporal mosque. The implications of the insertion of 'the mosque' into alternate realities will be explored in the Urban scale.

FORMAL LOGICS

Explorations of component based architectural devices were used to find atmospheric potentials. Formal logics such as brick, frame, sheet, and ground were used to organize a series of studies
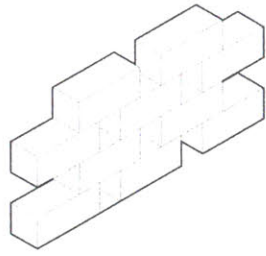
BRICK

Variables:

Porosity, Density, Component relationship vs. overall form,
Resolution, Modularity vs. mass customization, spatiality
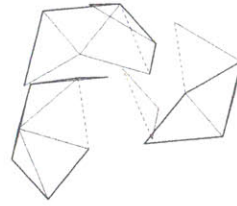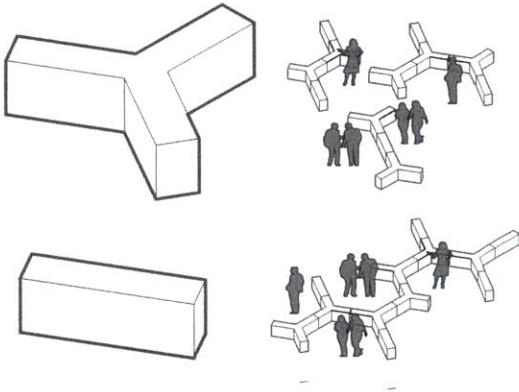
FRAME

Variables:

Porosity, Density, Component relationship vs. overall form,
Resolution, Modularity vs. mass customization, spatiality

PRIMITIVE

VERTICAL
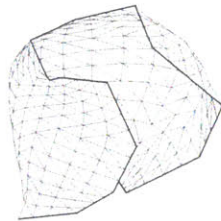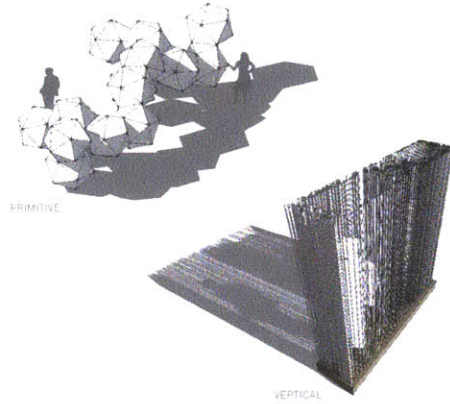
SHEET

Variables:

Porosity, Density, form, spatiality, seams,
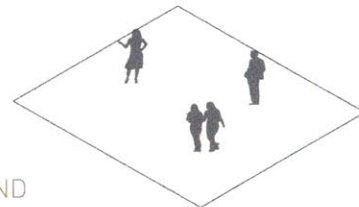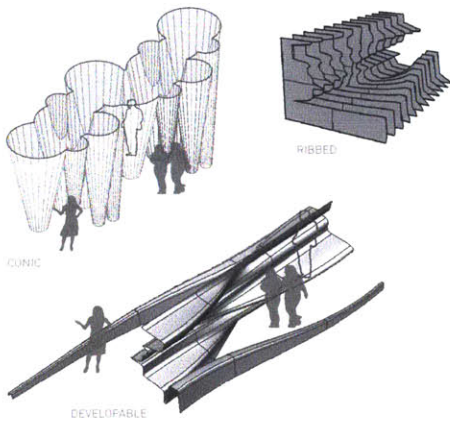
GROUND

Variables:

Continuity, smoothness, rupture, material

RIBBED

CUNIC

DEVELOPABLE

STEP   GRAIN   VARIED

TRENCH   INTERLOCK   DIRECTIONAL

BUMP   SLOTS

RHYTHM

OPTIC
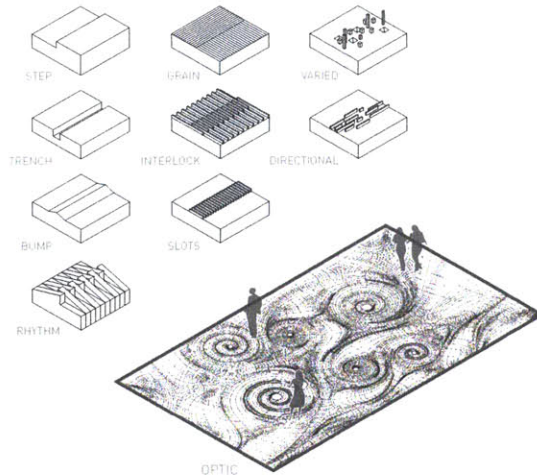
URBAN SCALE
prayer park typology

PROGRAM:
- PRAYER SPACE *(10,000 sqft. / 500+ worshippers)*
- AMPHITHEATER / PUBLIC FORUM *(5,000 sqft.)*
- REFLECTION POOL *(4,000 sqft.)*
- INFORMAL SEATING / LOUNGE *(2,500 sqft.)*
- INFORMATION CENTER *(2,500 sqft.)*
- CAFE / DINING *(2,500 sqft.)*
- COAT/SHOE ROOM *(600 sqft.)*
- ABLUTION ROOMS *(1,500 sqft.)*
- BATHROOMS *(1,500 sqft.)*
- STORAGE *(1,000 sqft.)*
- MEETING ROOMS *(x5 @ 500 sqft. each)*
- ADMINISTRATION   OFFICES *(x5 @ 300 sqft. each)*

TOTAL SQFT.: *~ **35,000 sqft.***
TOTAL AREA: *~ **1-2 acres***
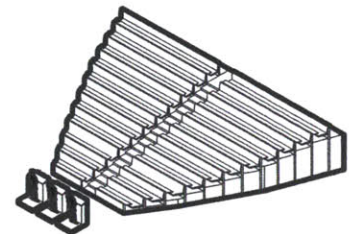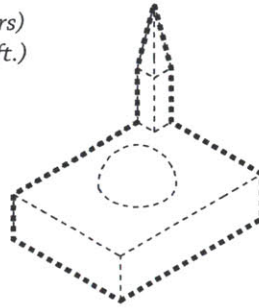
public forum / amphitheater

Qibla

Religious
Urban

Typical programming
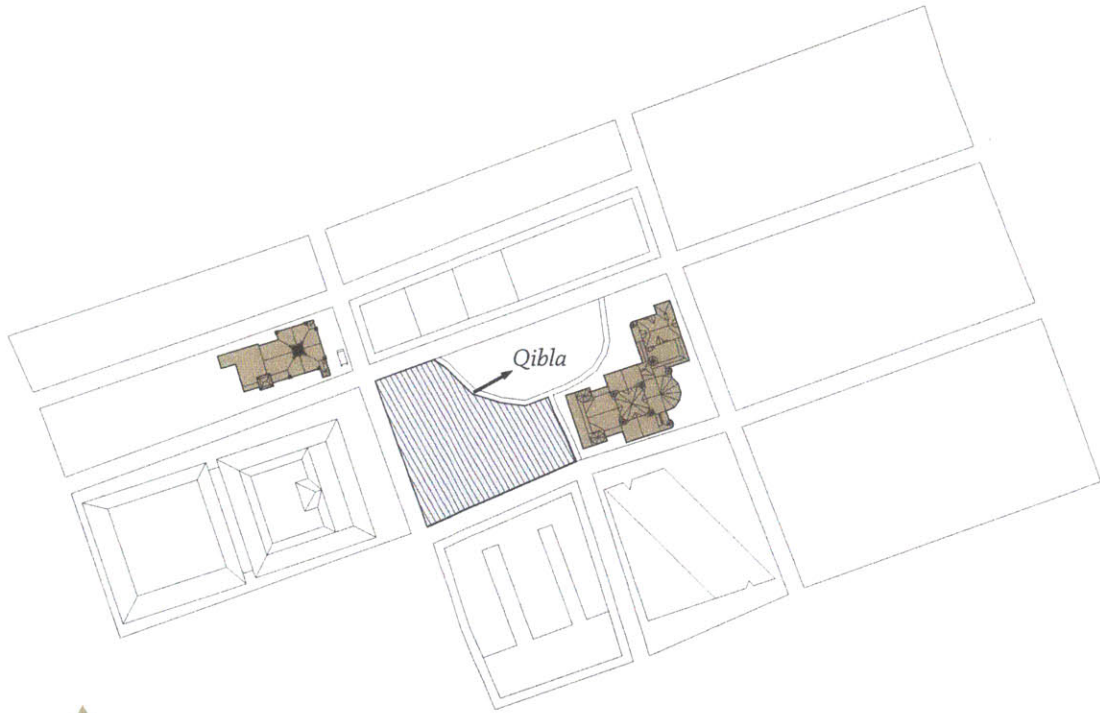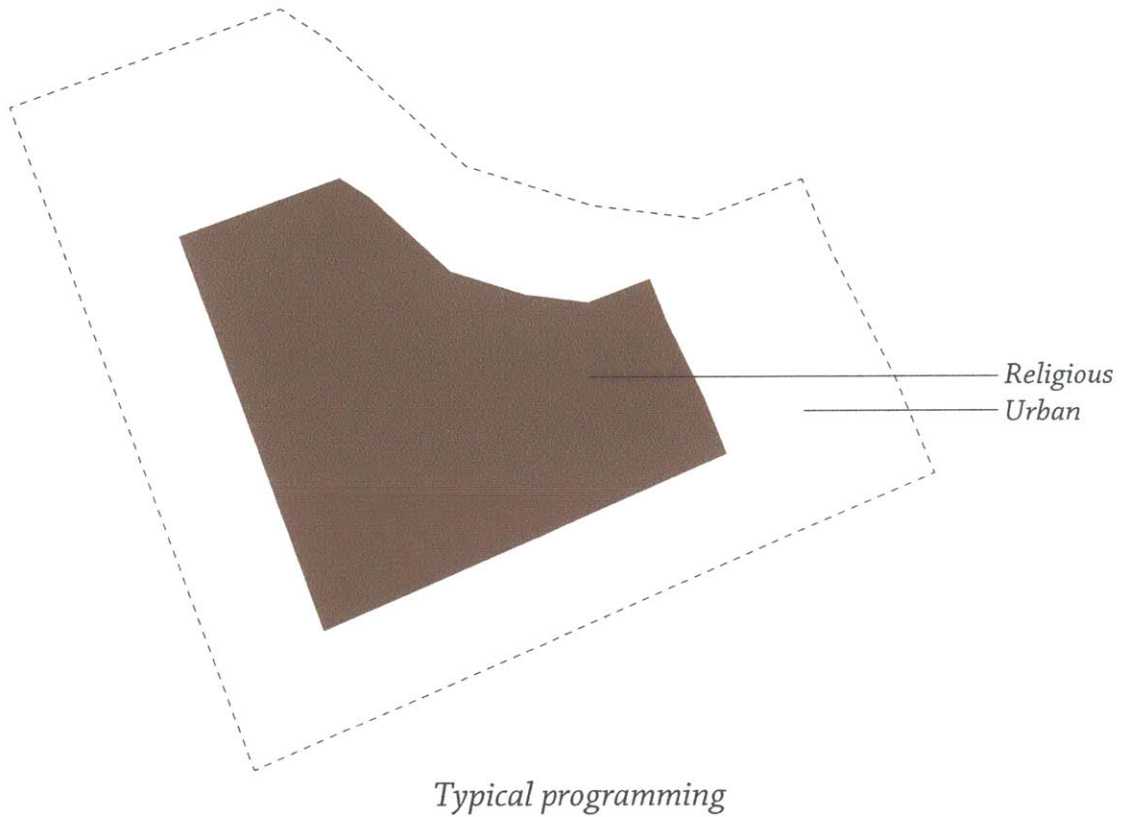
SPIRITUALITY IN THE URBAN REALM
This investigation questions the typical presence of spirituality or religion in the urban realm. Religous institutions are often concieved of as protected islands of sanctuary, which are often intimidating and non-approachable for people of differing belief systems as a result. What if spirituality could be harmoniously woven into the urban fabric in attempt to abolish notions of exclusivity, concealment, and anxiety that fortress like religious institutions typically perpetuate?
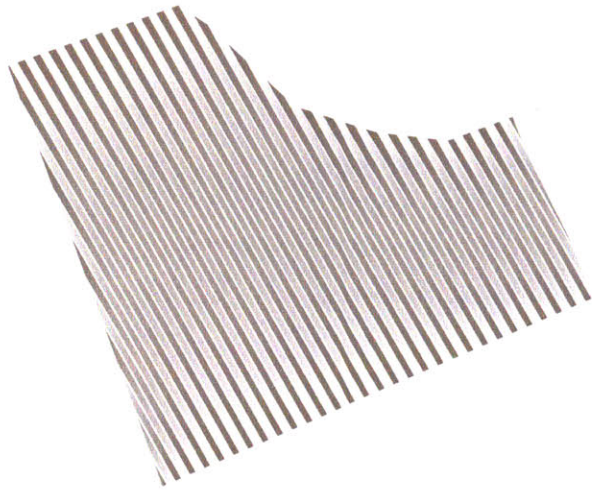
Religious and Urban activity intertwined
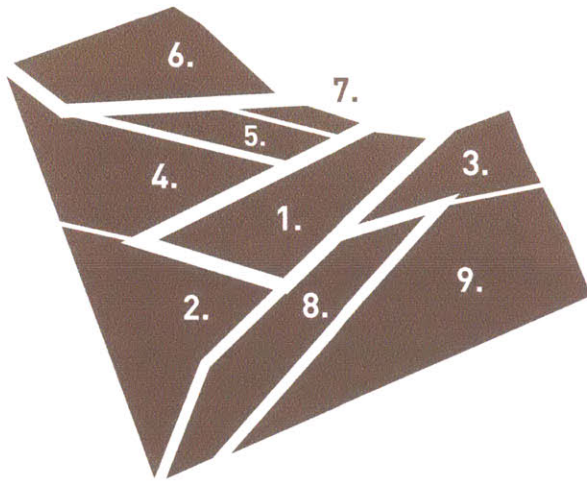
Program distrupts and alters urban intertwining
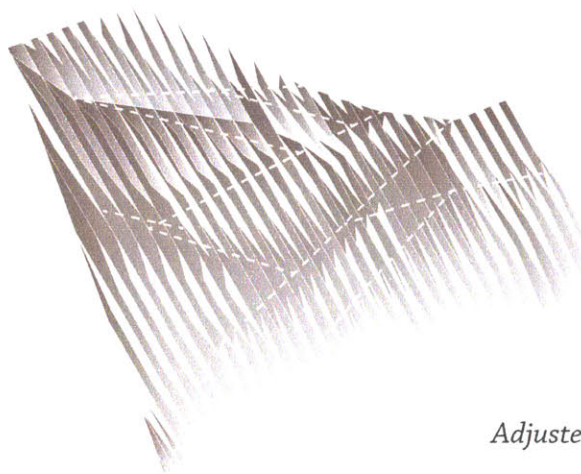
Adjusted intertwining
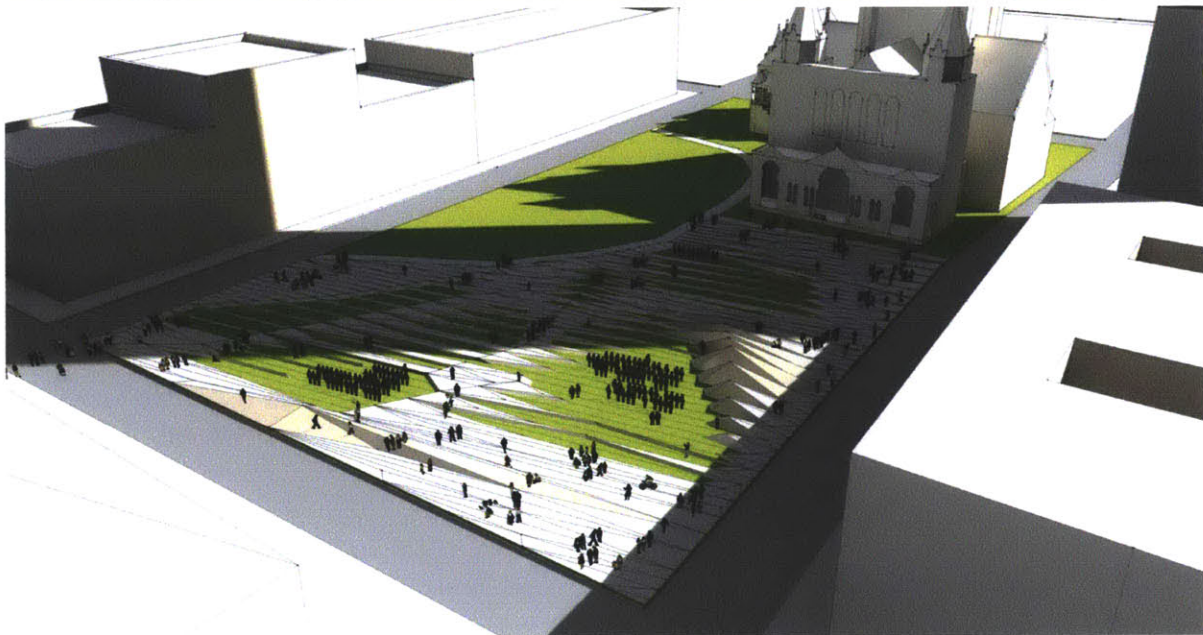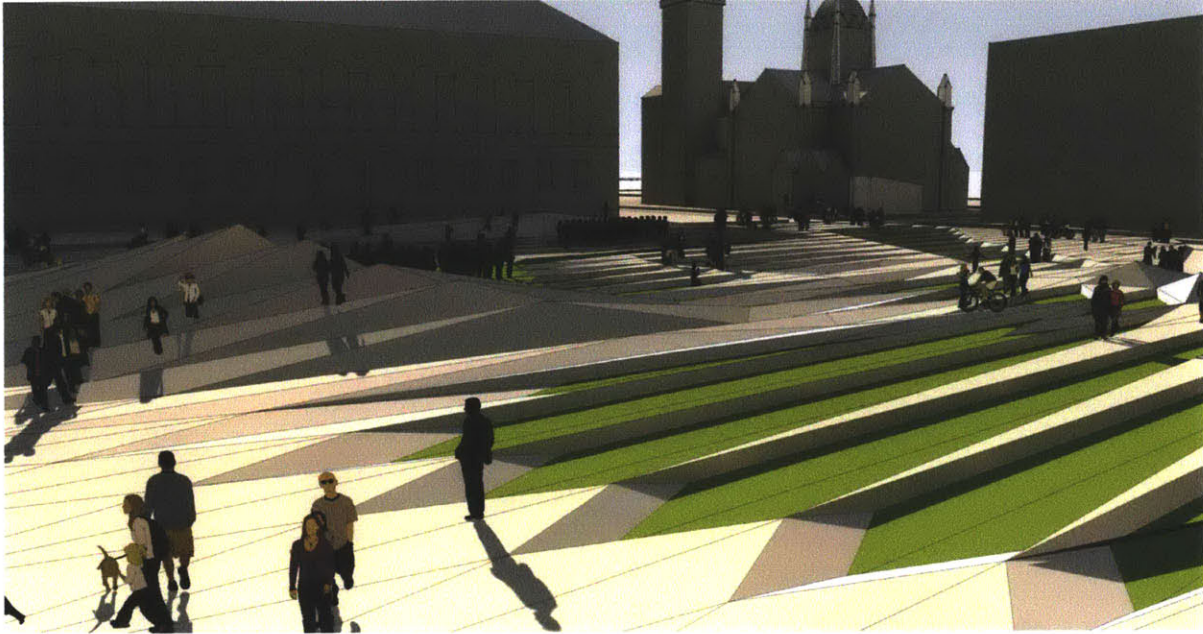
'PRAYER PARK' TYPOLOGY

The resulting iteration is a new typology of prayer space which operates covertly under an outdoor urban framework. By a simple directional coding, the mosque becomes a communal urban asset while still satisfying congreational prayer parameters. In addition to this, the unveiling of the inner mosque serves the social function of dispelling stigma and anxiety which may exist in its non-muslim context.

evoking a sense of spirituality (the mosque as a sensory experience)

TASTE   TOUCH   SIGHT   SOUND   SMELL

?

Flooring
Carpet
Abulution
Worshippers

Facade / Interface
Screen / Partition
Minbar / Mehrab
Worshippers
Carpet
Imam
Shoes

Imam
Children
Worshippers
Conversation
Abulution

Abulution
Bathroom
Carpet
Shoes
Food

"Spiritual
Experience"

BOUNDARY TYPE	MAX. SEPERATION	PARTIAL SEPERATION	MIN. SEPERATION	ELEV. SHIFT	
HARD					ELEV. CHANGE
SOFT					
UNDULATING			ATMOSPHERIC		

ATMOSPHERE AND THE SENSORY EXPERIENCE

Zooming into the experiential level of the mosque, a series of studies were conducted in order to understand relationships between space, boundary, and atmosphere and the resulting spiritual affect produced by varying ratios of each.

lack of spiritual quality

lack of visibility

lack of spiritual quality   *lack of visibilty*

"NEW PROTOTYPES FOR THE AMERICAN MOSQUE"

light *texture* *sound*	*country / city / campus* *muslim / non-muslim*	*ground* *envelope* *space*
Material / Sensory	*Social / Political*	*Form / Aesthetics*
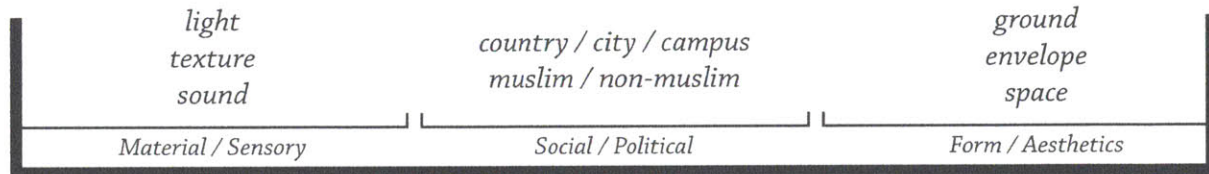
ATMOSPHERE

Spirituality is an atmosphere.   **Spirituality is a mental state.**

ARCHITECTURAL DEVICES

	Ground	*Wall*	*Light*	*Sound*	*Threshold*	*Aperture*	*Screen*
Gradient							
Formal							
Directional							
Variable							

ATMOSPHERE MATRIX
A formal matrix is developed in order to begin to understand how parameters charged with varying constraints and parameters produce atmosphere as they are manipulated.

consciousness over multiple prayer cycles

God-consciousness gradually increases

God-consciousness

Spiritual spectrum

Self-consciousness

Prayer space

Transitional space

Transitional space

Mosque threshold?

Daily life

Mosque

Threshold

Transitional space

Mosque

Transitional spaces
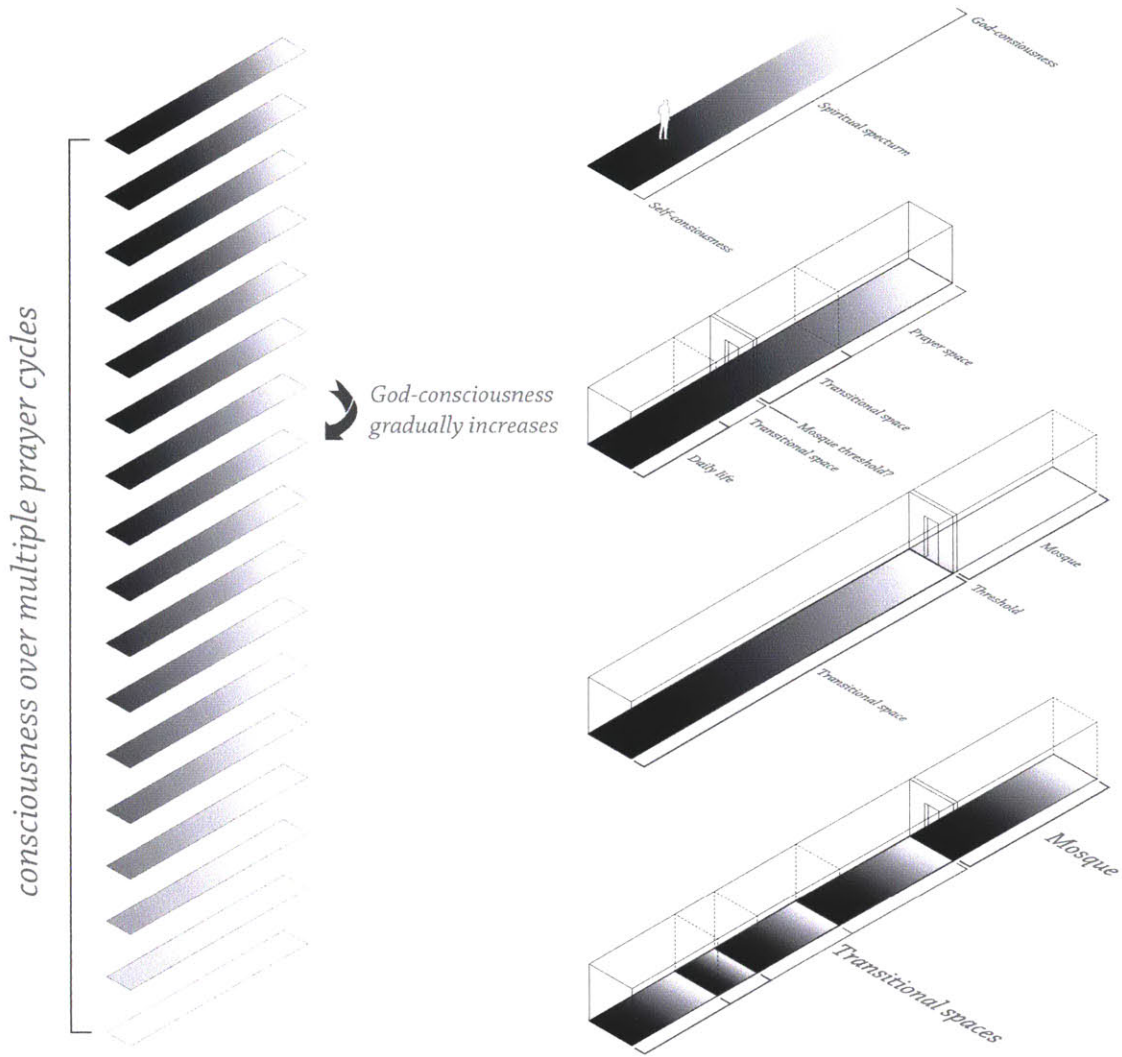
SPACE AND SPIRITUAL CONSCIOUSNESS

On a metaphysical level, the mosque is a conceptual filter, gradually purifiying spiritual consciousness over time. Ideas of physical sace an begin to be inferred to create architectural space.

INFERRING FORM

On the authority of Abu Harayrah (may God be pleased with him), who said that the Prophet (peace be upon him) said: God the Almighty said:

I am as My servant thinks I am. I am with him when he makes mention of Me. If he makes mention of Me to himself, I make mention of him to Myself; and if he makes mention of Me in an assembly, I make mention of him in an assemble better than it. And if he draws near to Me an arm's length, I draw near to him a fathom's length. And if he comes to Me walking, I go to him at speed.

Connection to Light
(spiritual realm)

Connection back to 'world' (physical realm)

Approach to Mosque / Entry
(connection to spiritual space)

Mosque

Interface zones
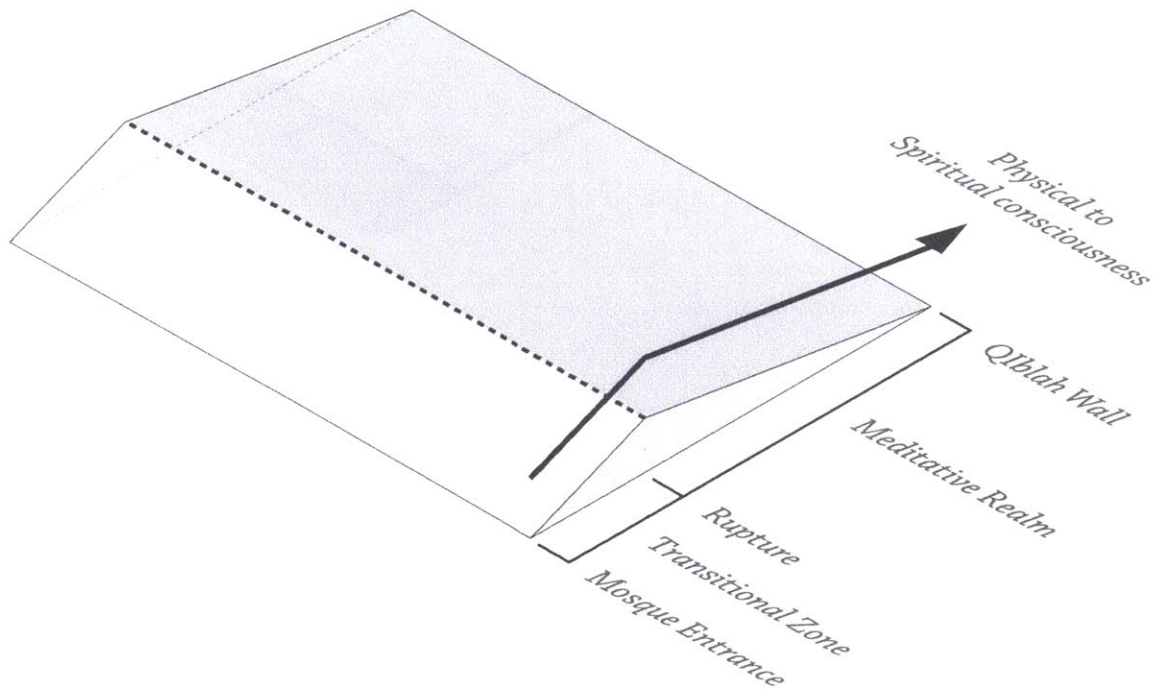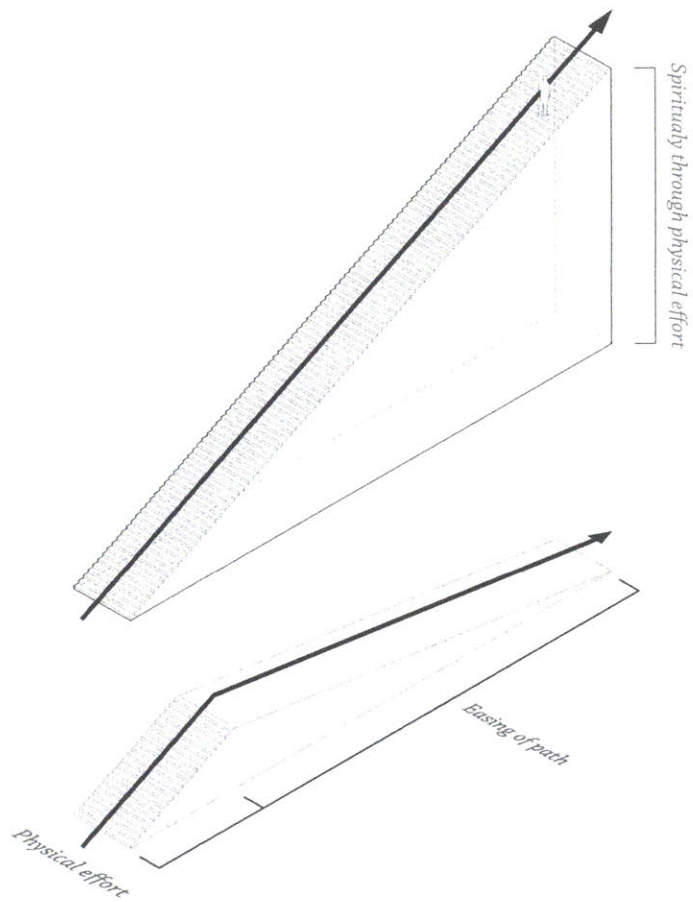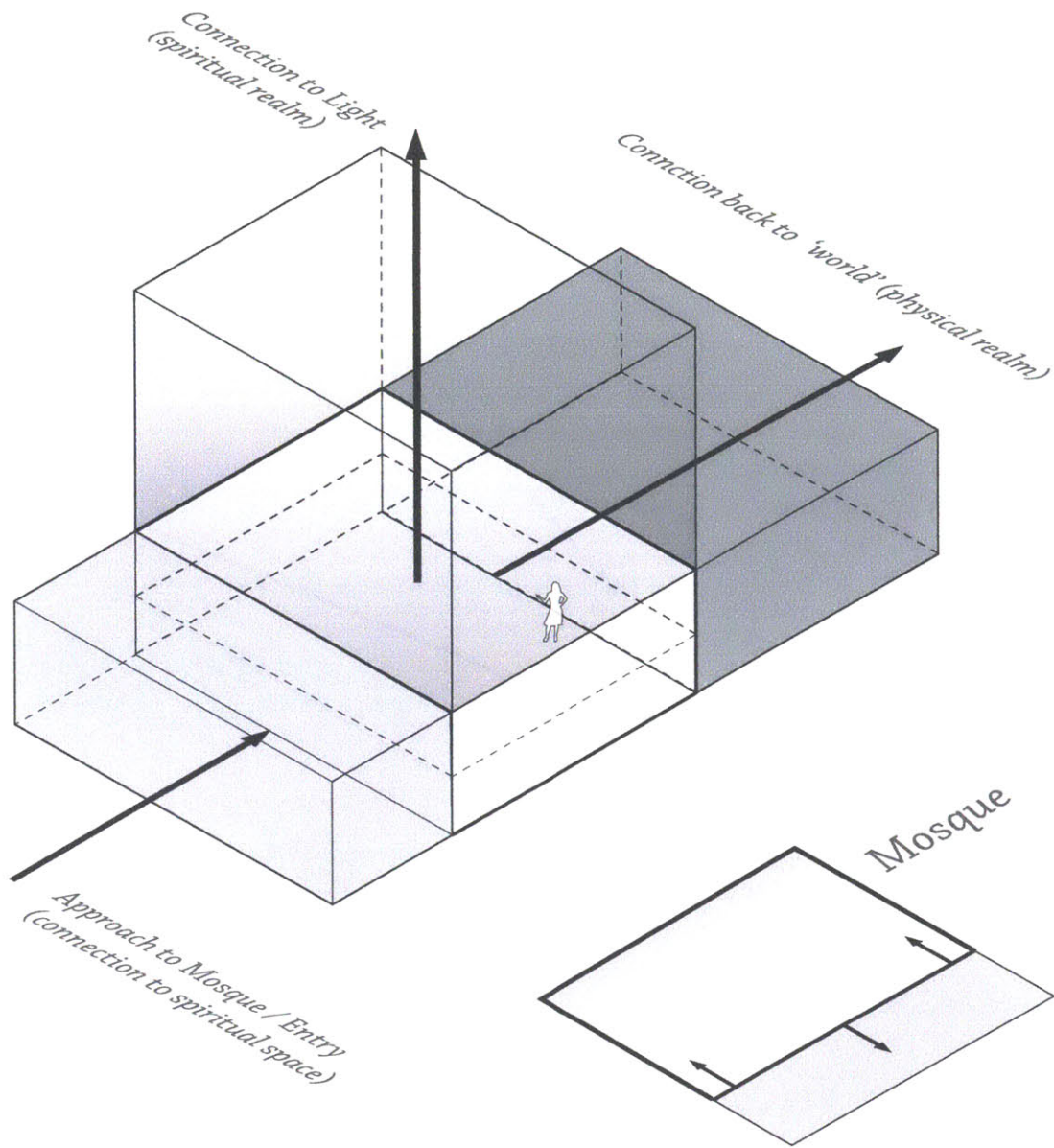
SPATIAL ADJACENCIES
The spiritual realm can always be framed by its relationships to its immediate context. Patters of contextual thresholds can be manipulated in order to create new spiritual constructs.
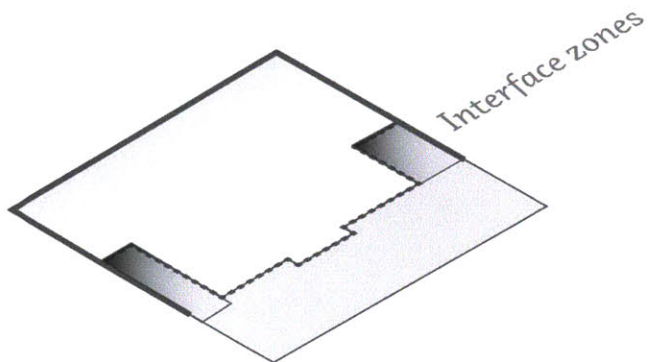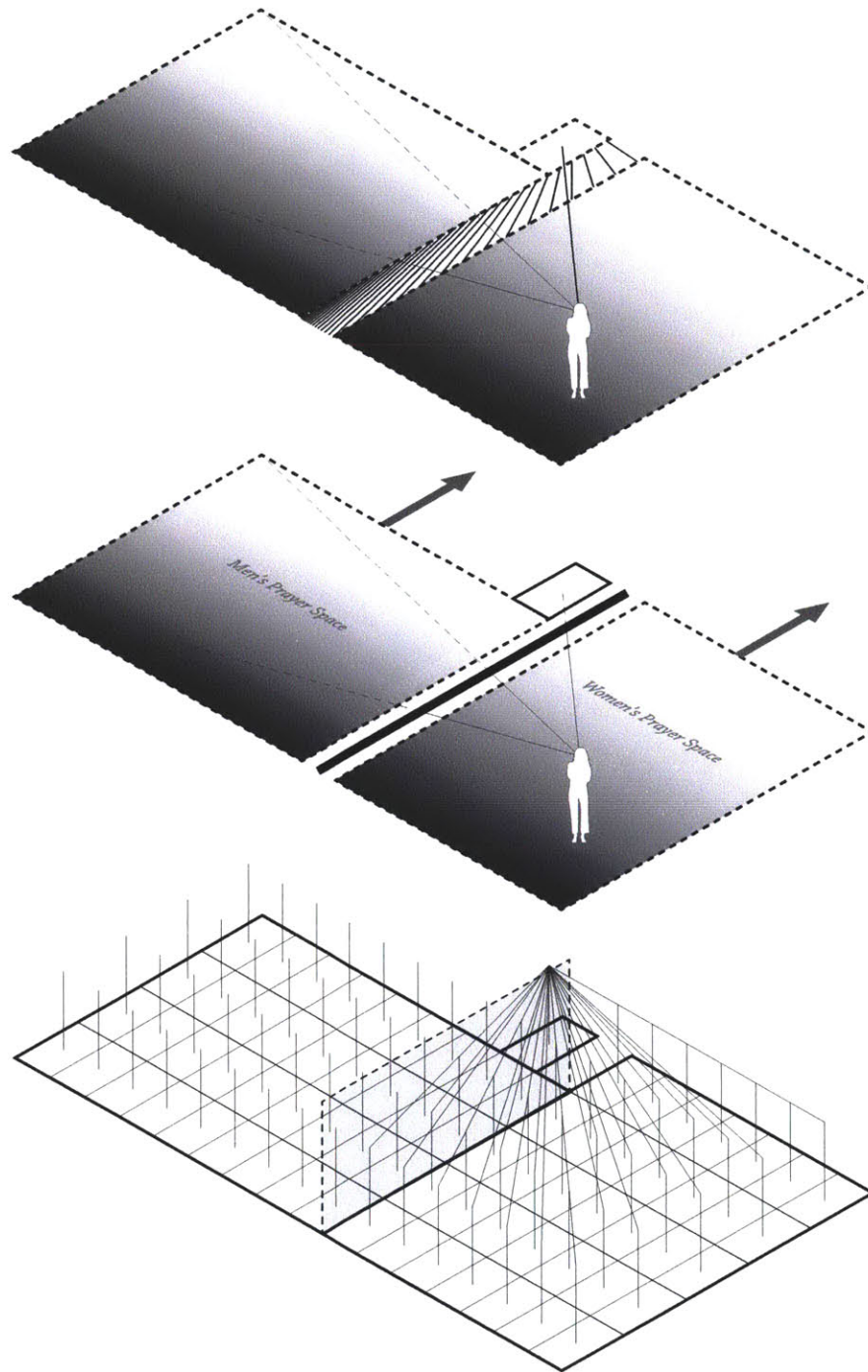
GENDER PARTITION (LATERAL CONFIGURATION)

A specific strategy was developed to counter a common gender problem in laterally configured mosques. Visual seperation is often required, but results in the women's prayer space losing its visual access to the prayer leader. Through this strategy, both visual seperation of the genders and visual connectivity of all worshippers to the prayer leader is achieved.

Gradation through pixelation
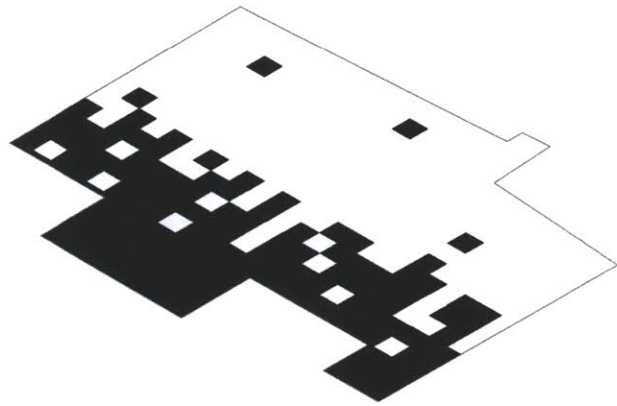
Gradation through prayer rows
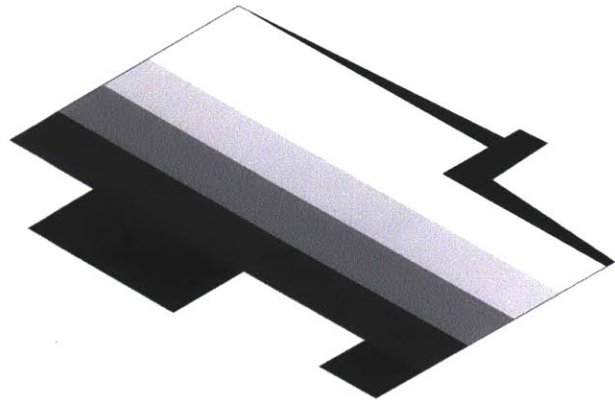
*visually registering the individual worshipper
in a collective place of worship*
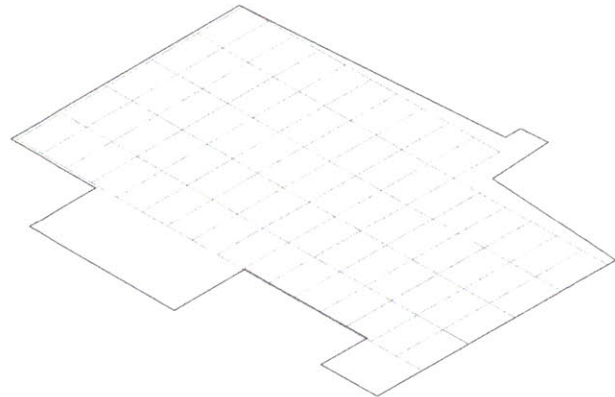
GRADIENT SPACE

The concept of gradient coding is introduced for the first time as a strategy to metaphorically represent the idea of the mosque functiong as a device for gradual spiritual purification. The gradient also orients the prayer space, amplifying the directionality of the mehrab wall.
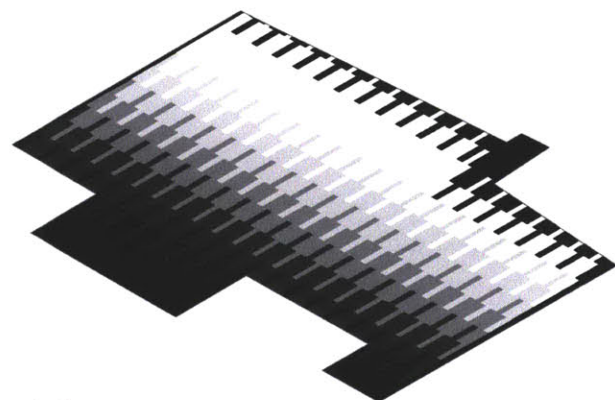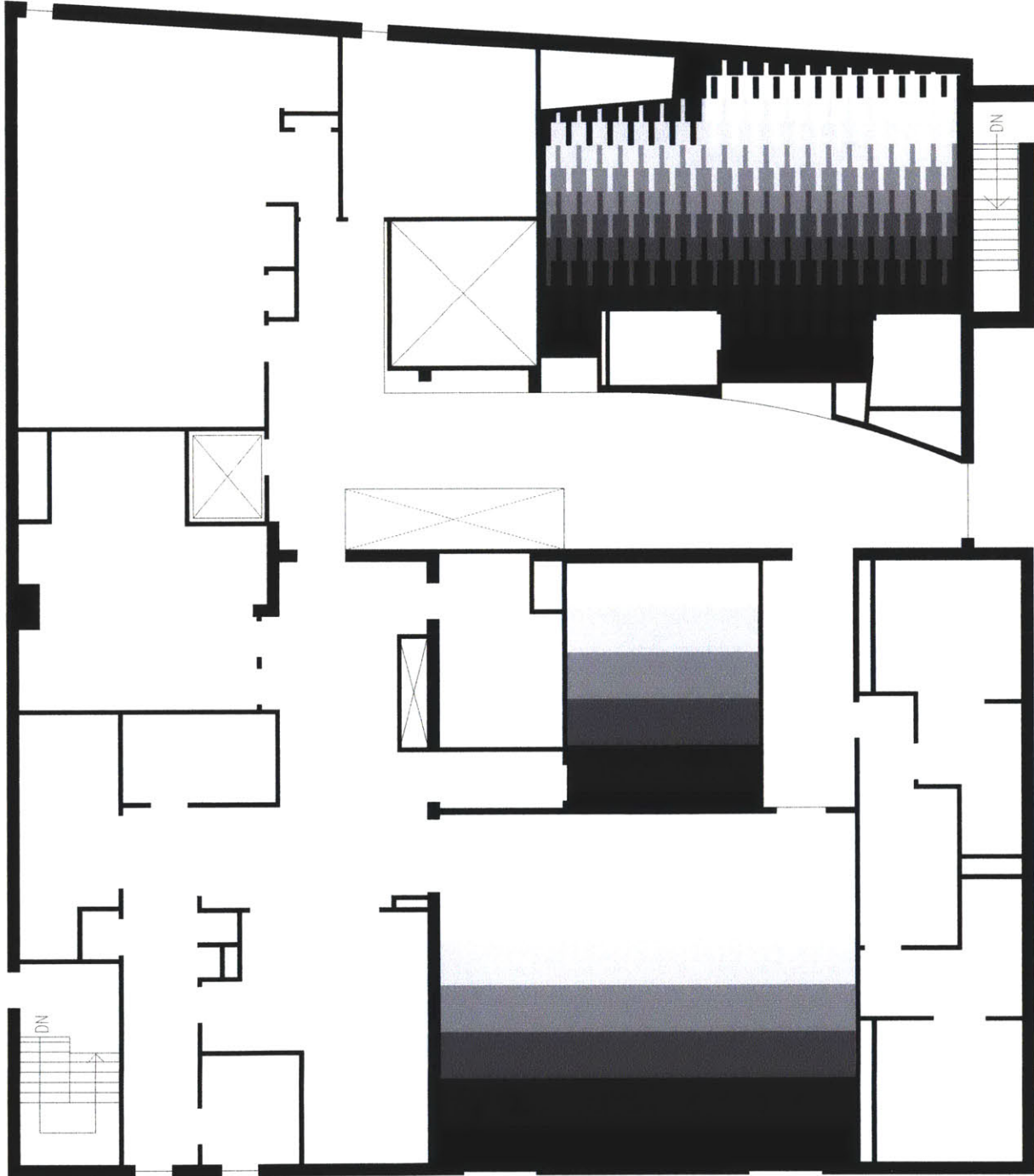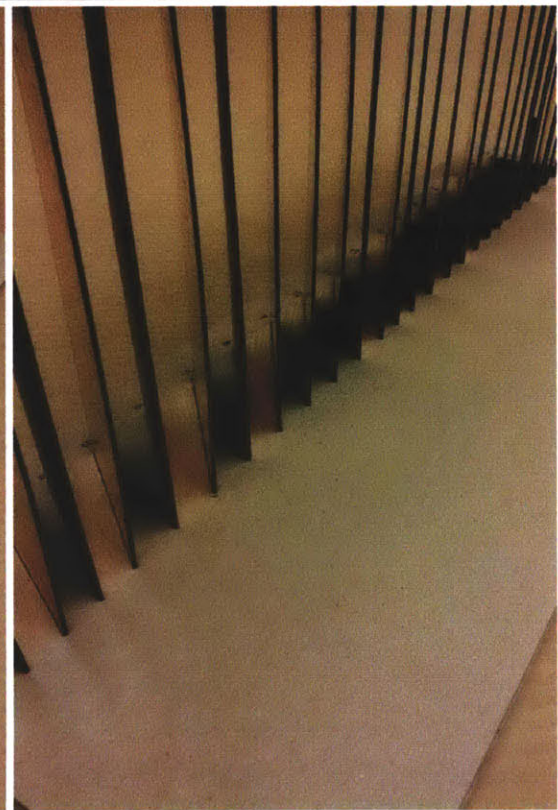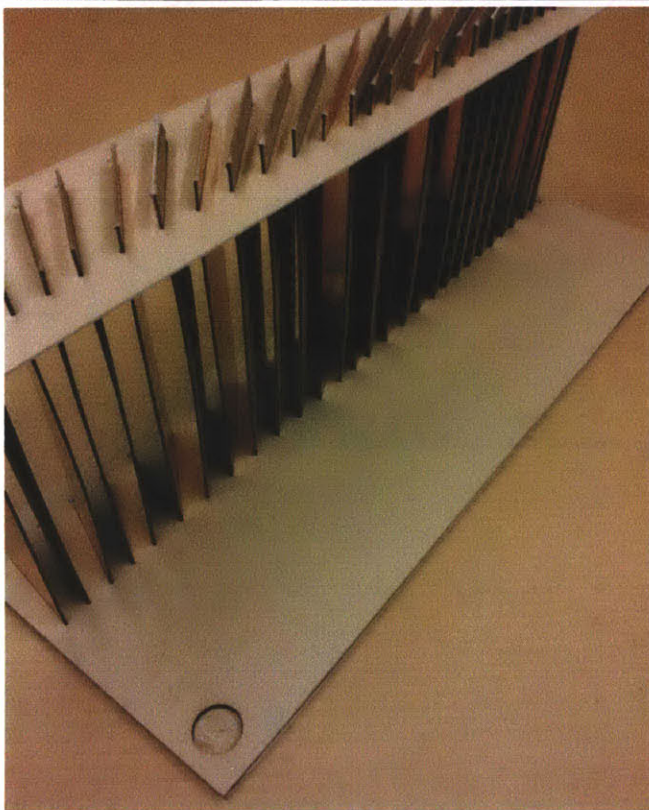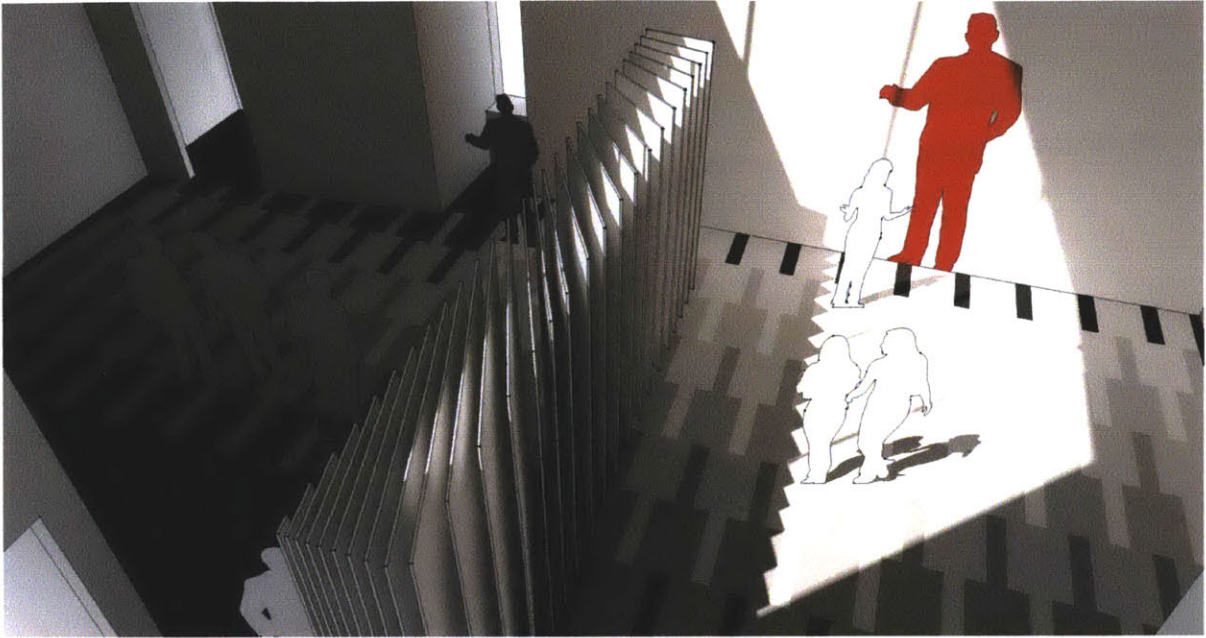
DIRECTIONAL PARTITION
A partition wall with the unique adaptation to seperate genders while still maintaining visual connection only when necessary.
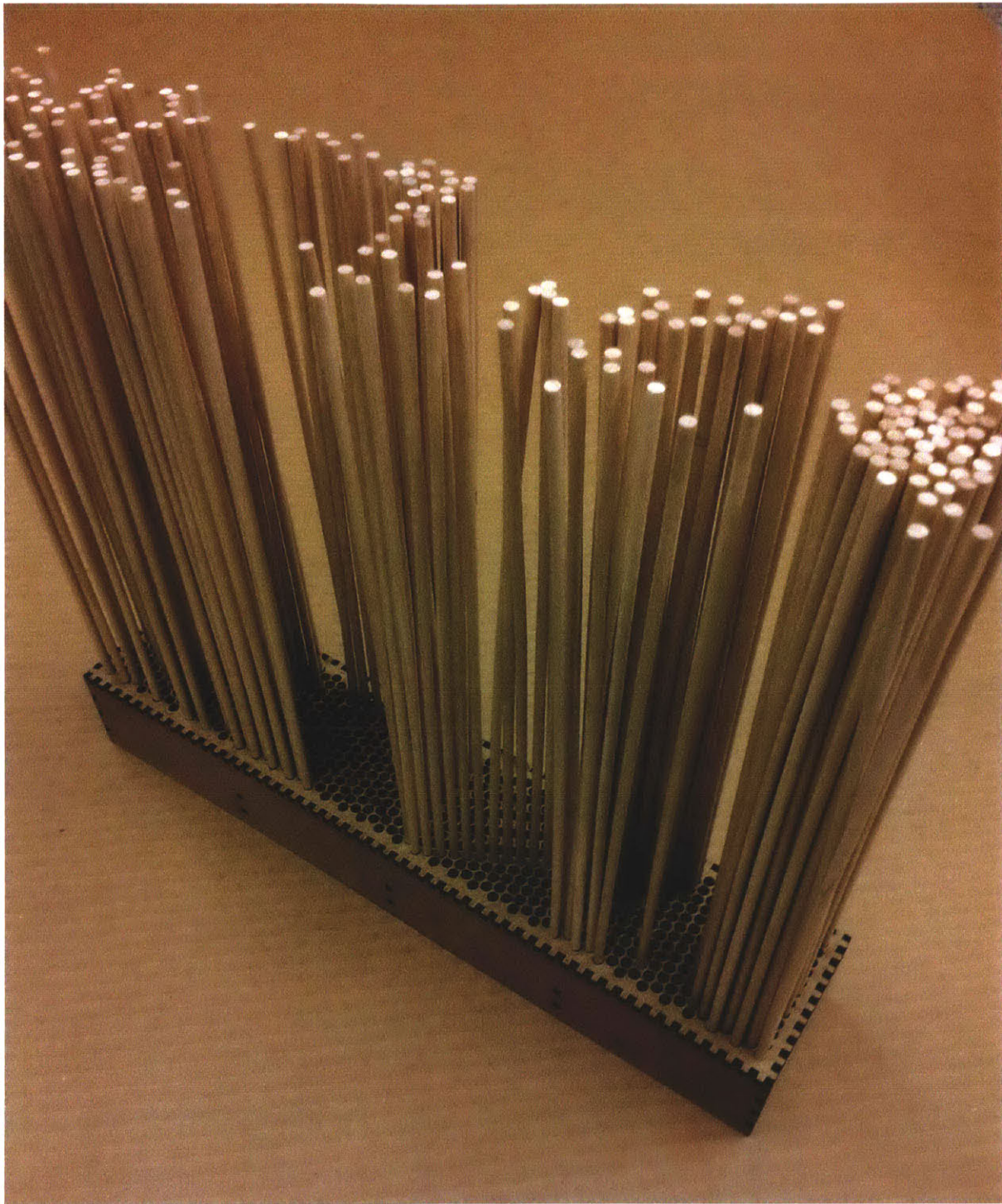
USER DEFINED PARTITION
A partition wall that does not prescribe any particular stance on gender seperation, but rather allows each community to interpret and manipulate this boundry.

ATMOSPHERE EXPLORATION
Atmopsheric prototypes are deployed
on an architectural level to manipulate
a building interior and exterior logics.

directional system
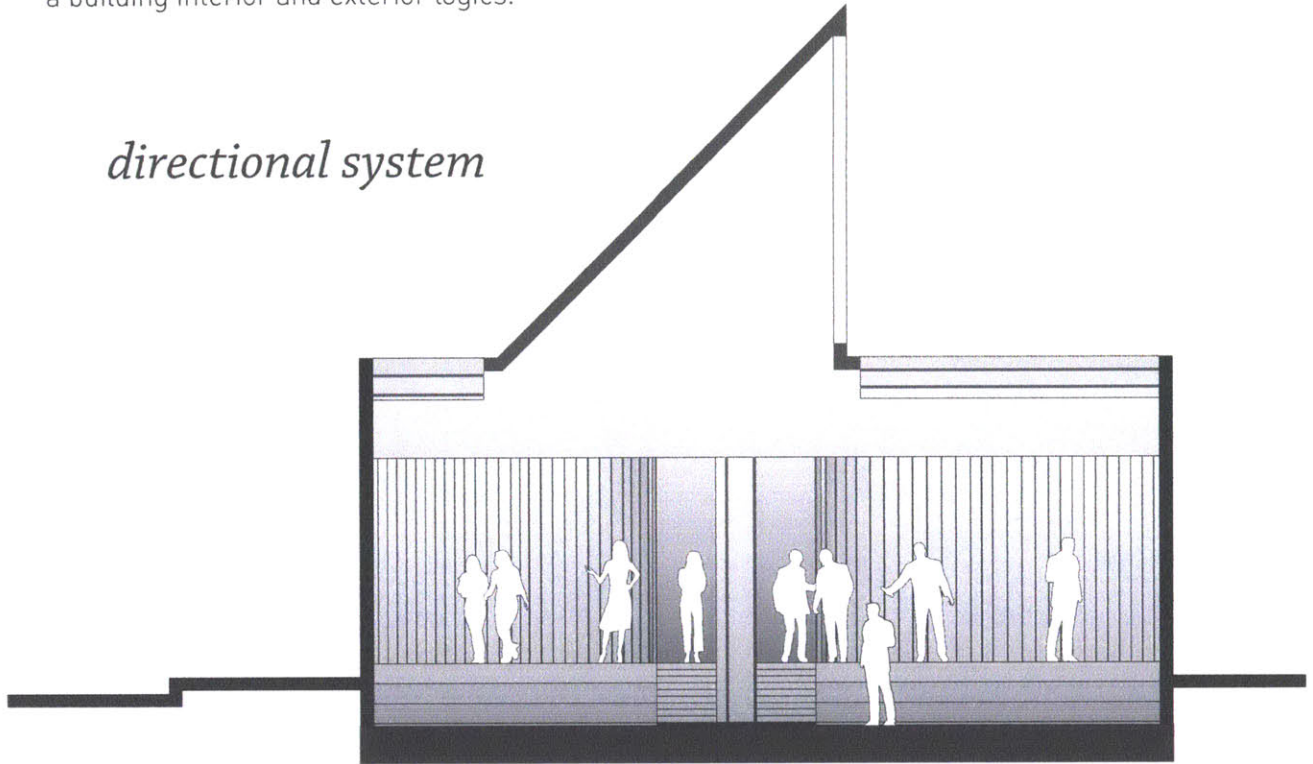
crystaline system
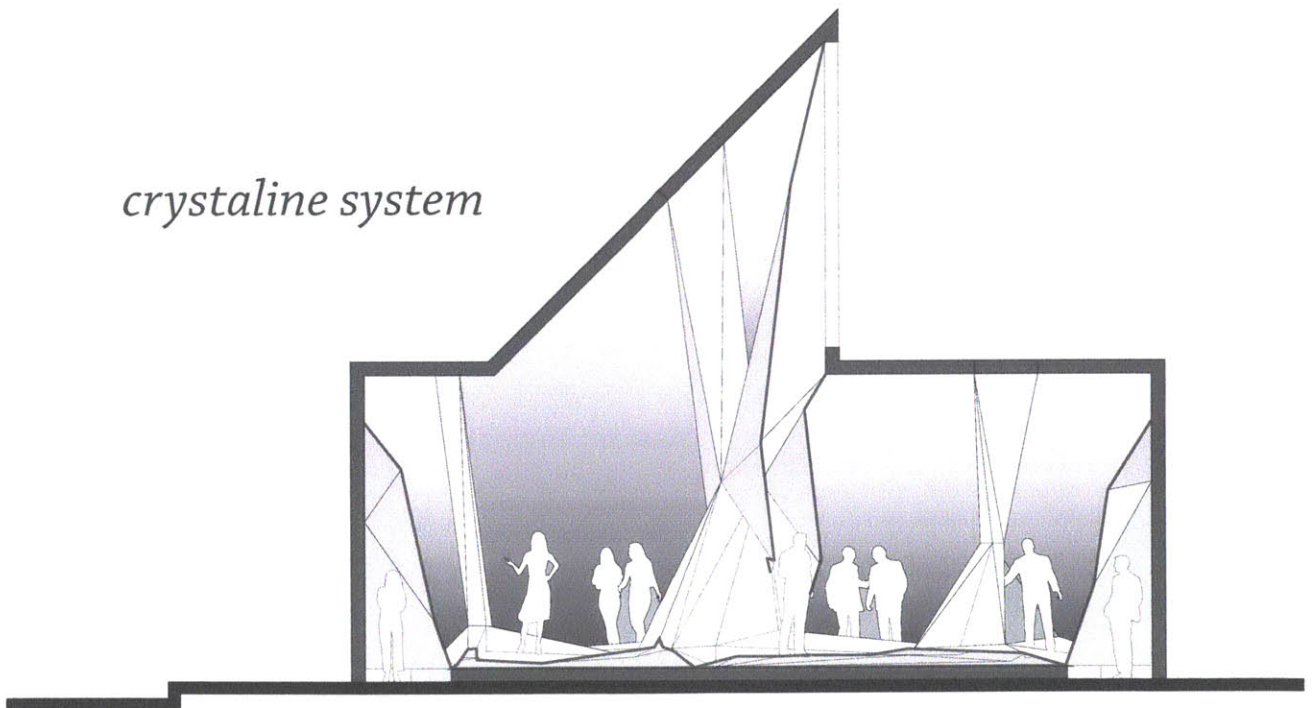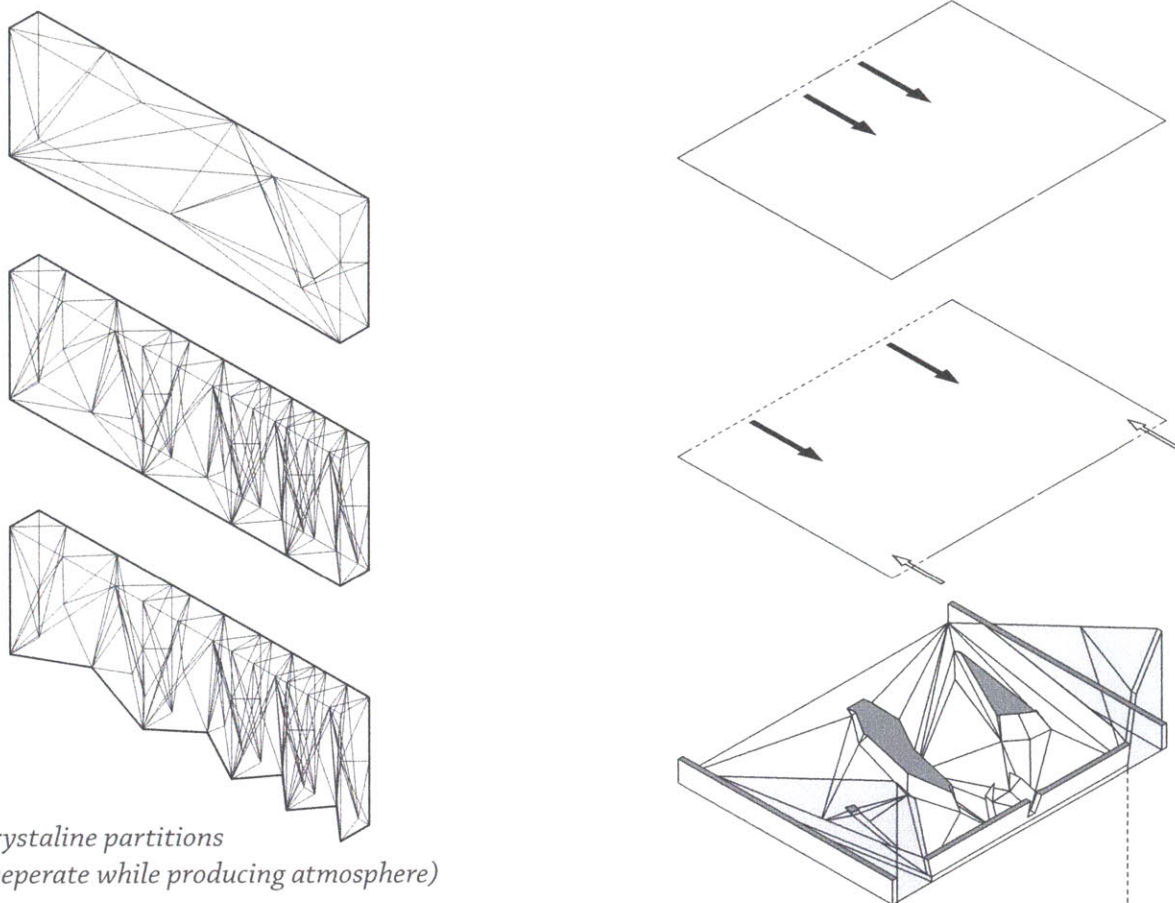
crystaline partitions
(seperate while producing atmosphere)
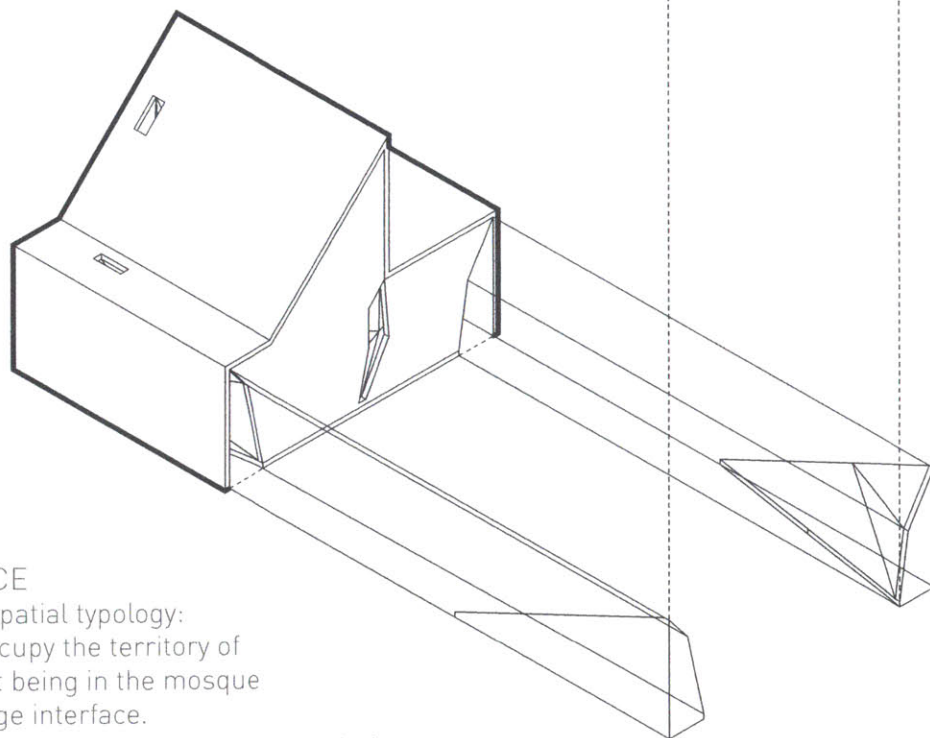
UBRAN INTERFACE
insertion of a new spatial typology:
urban space can occupy the territory of
the mosque without being in the mosque
in order to encourage interface.

(67)
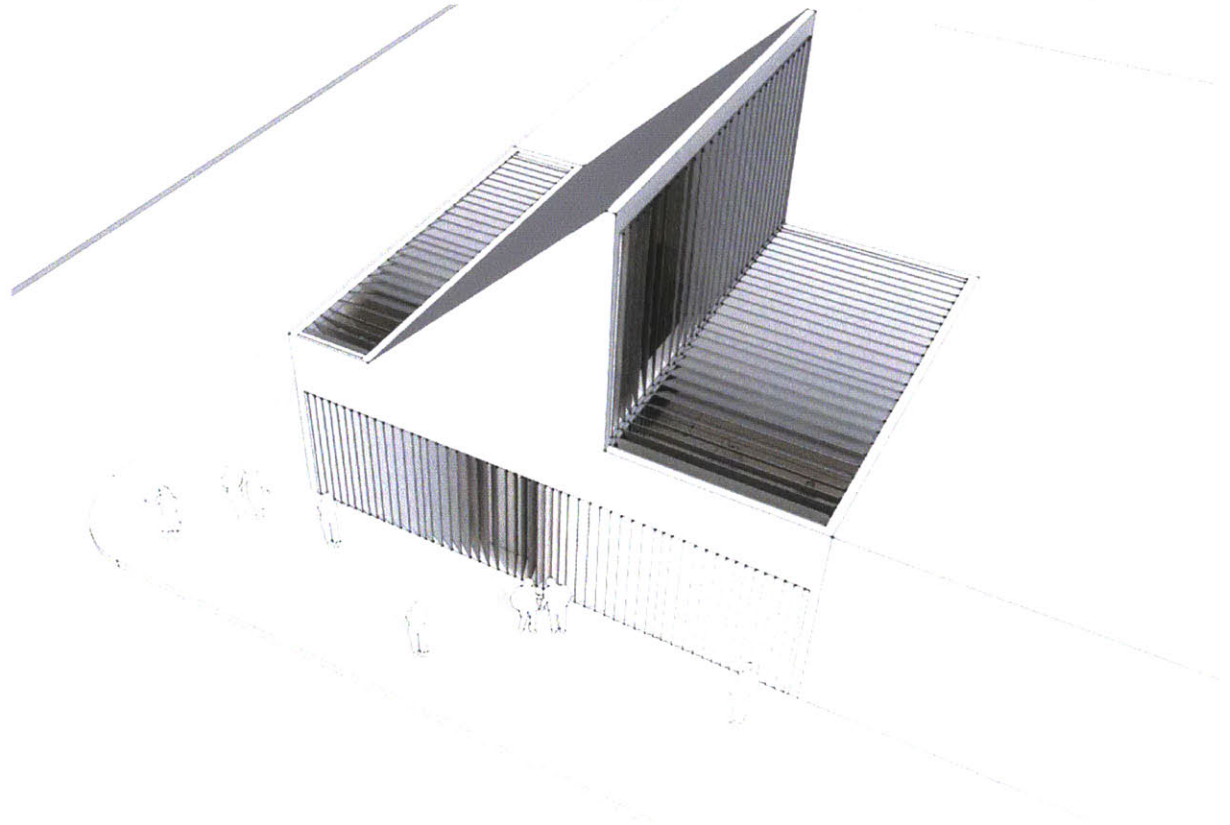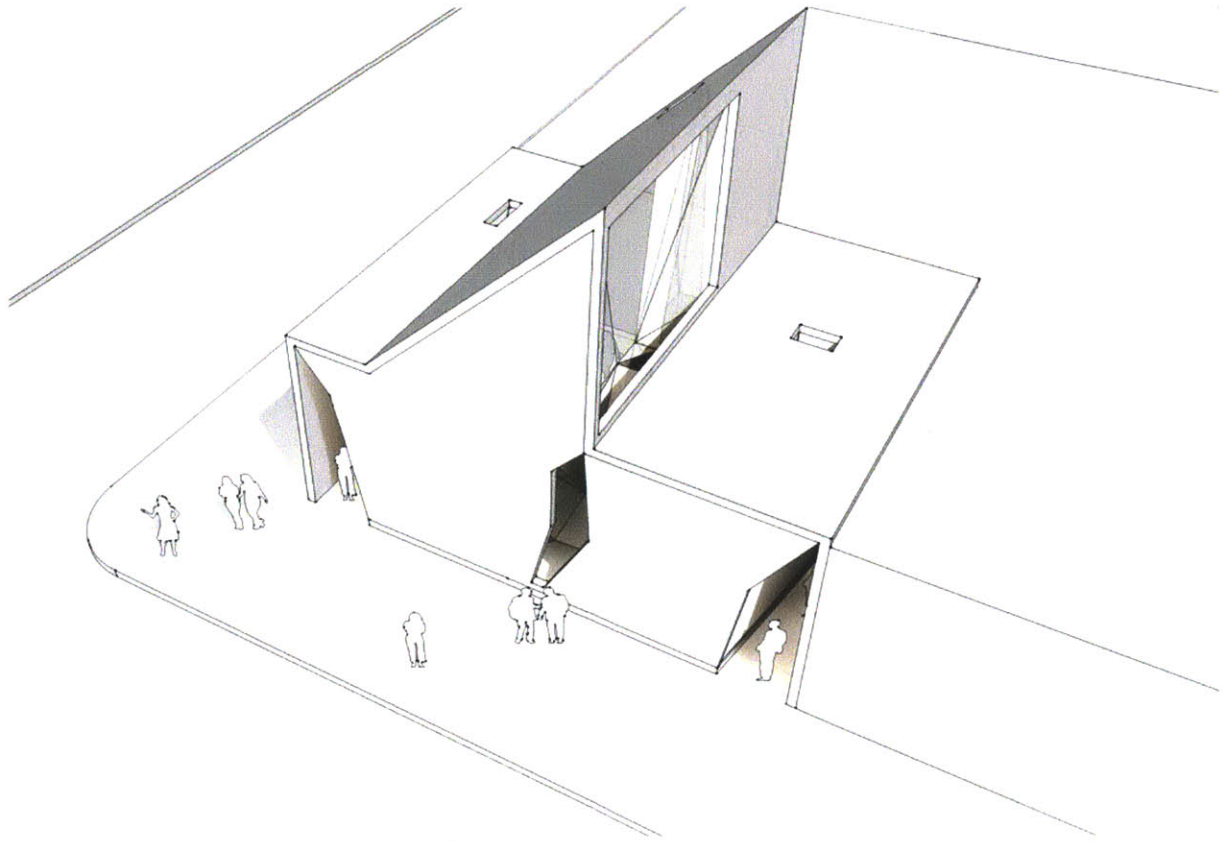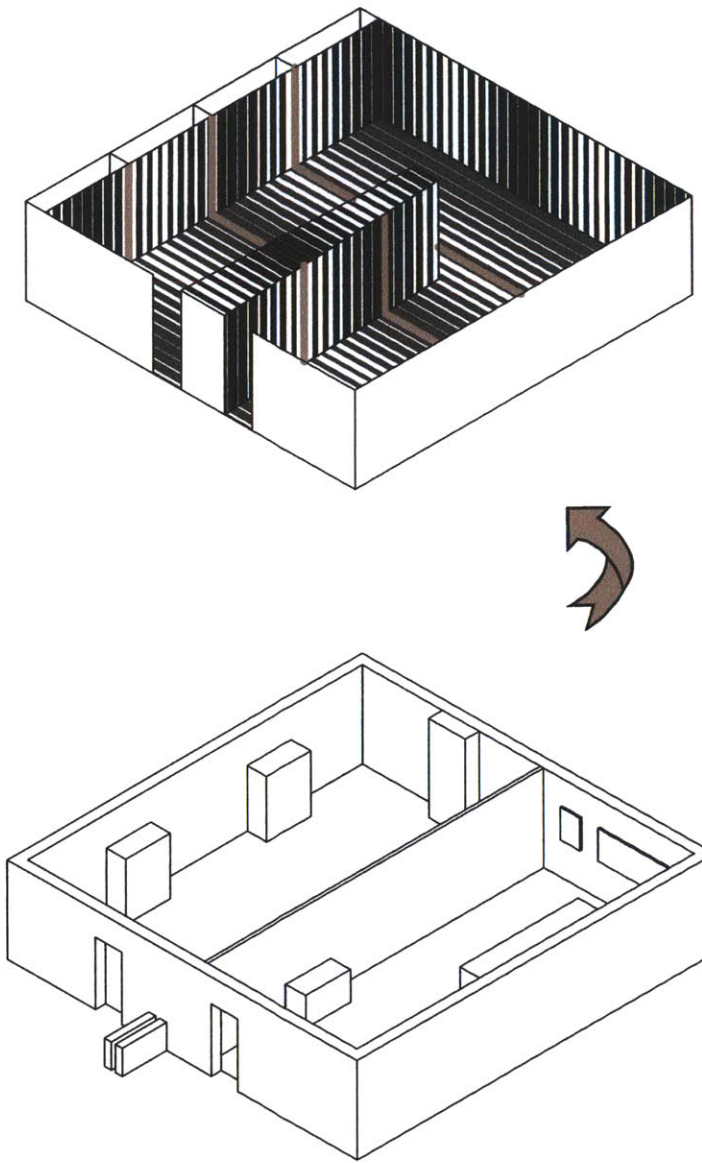
Creating cohesive micro environments

conducive to deep contemplation and mediations.
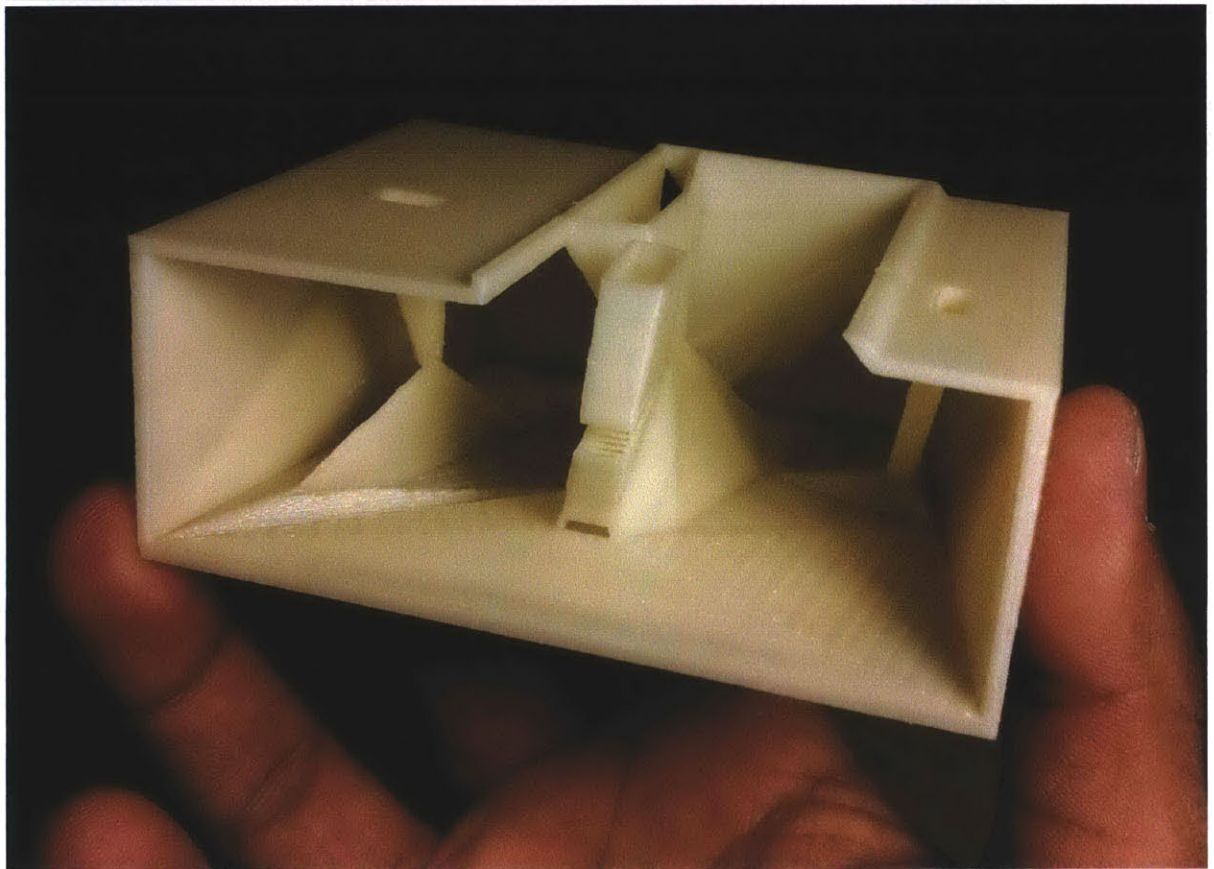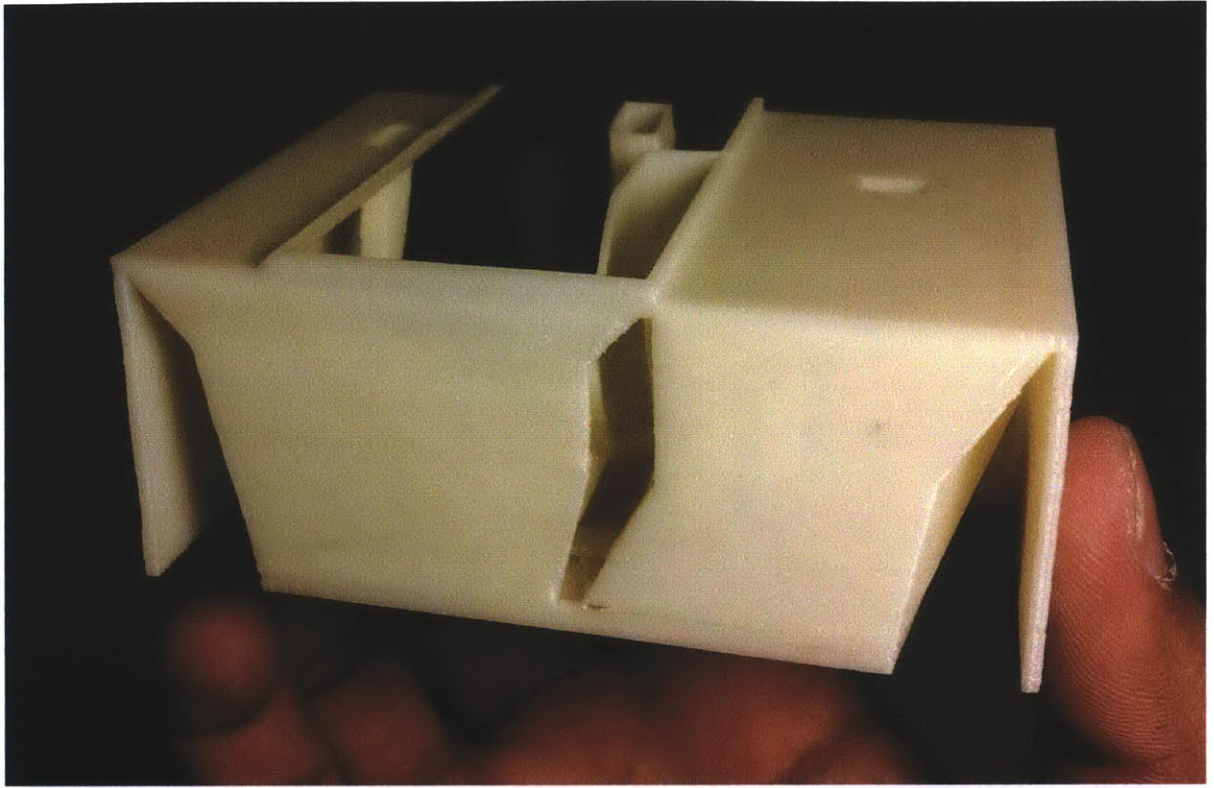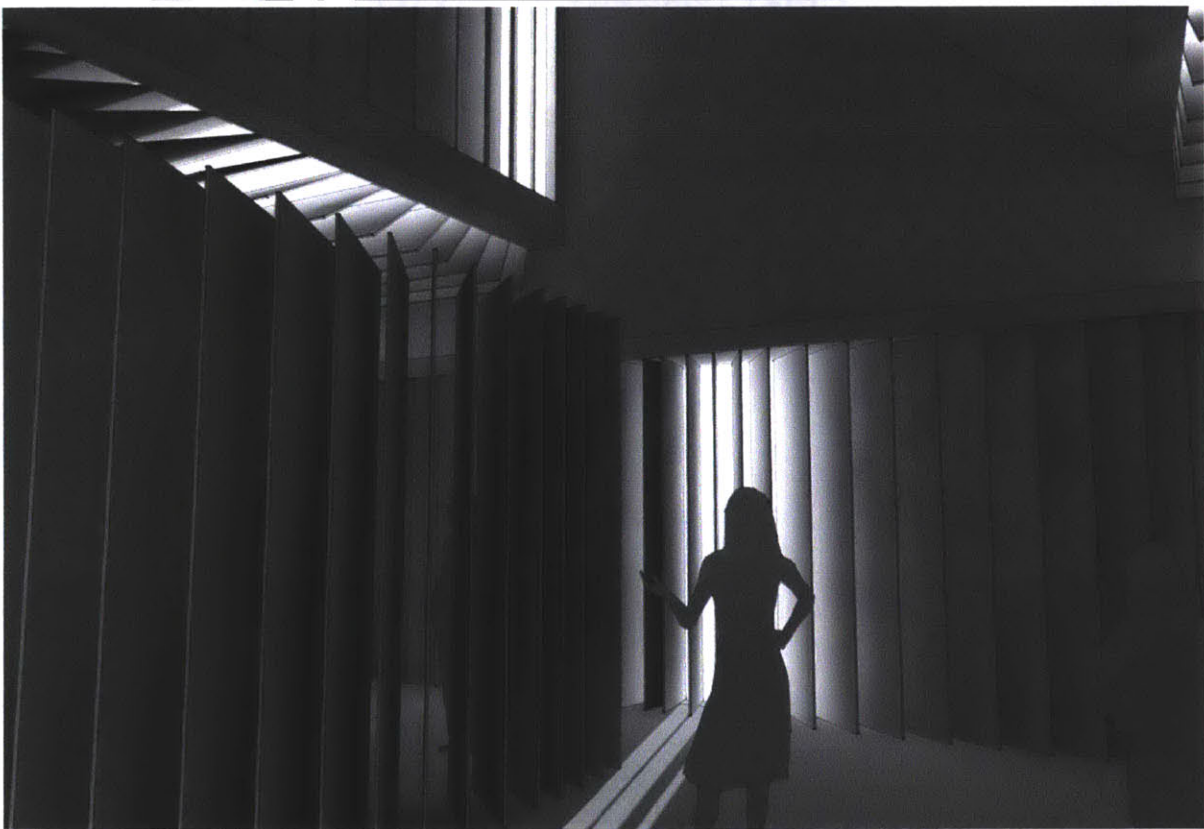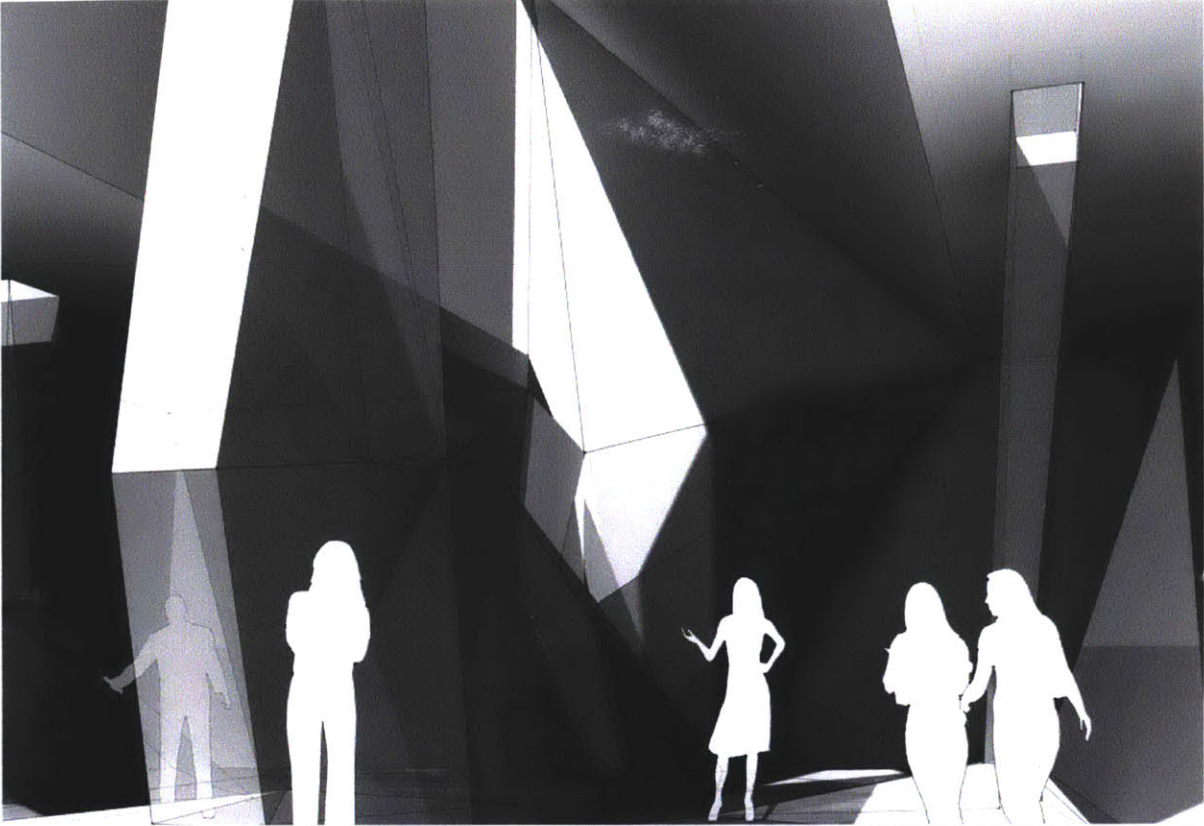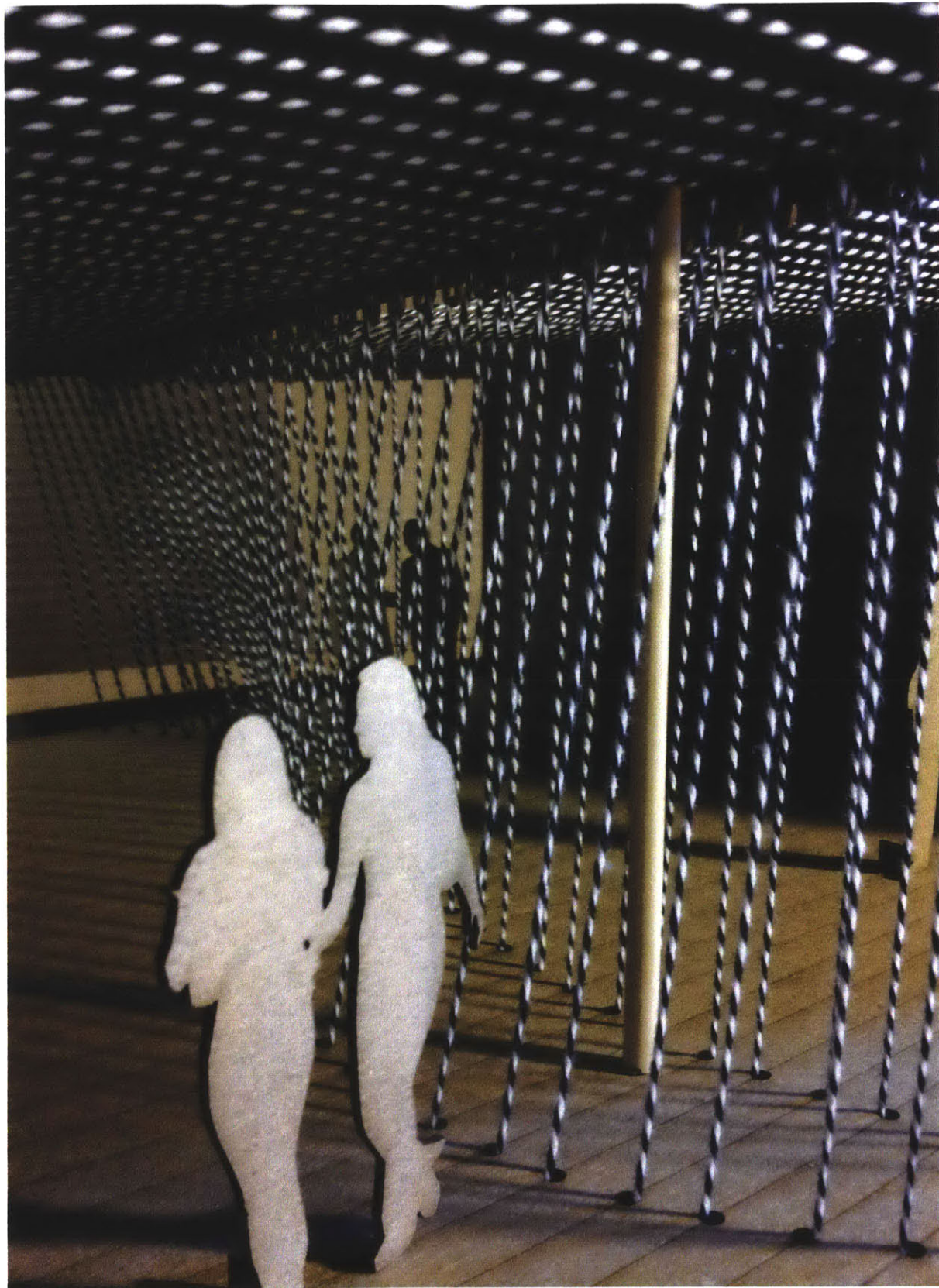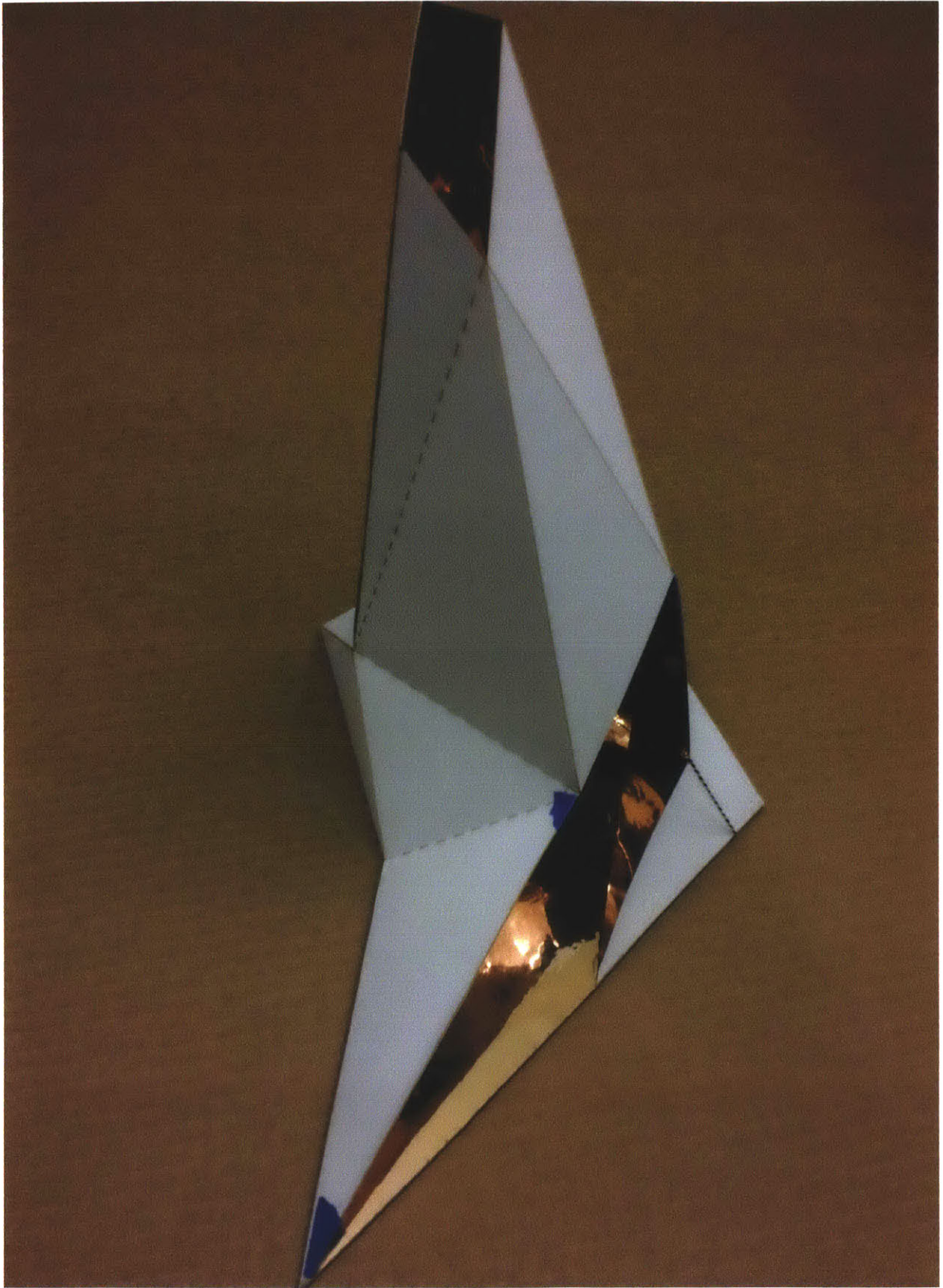
PART III: ANALYSIS OF SPIRITUALITY

ISLAM

testimony | prayer | charity | fasting | pilgrimage
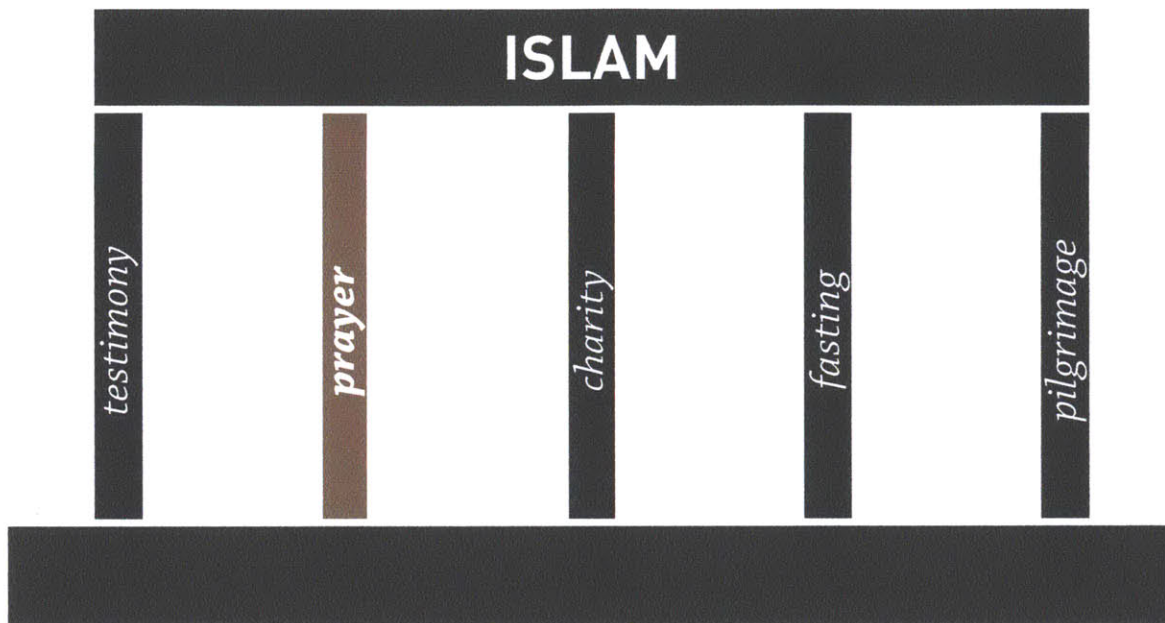
PILLARS OF FAITH

SALAT

Salat is the practice of formal worship in Islam. Its importance for Muslims is indicated by its status as one of the Five Pillars of Faith. Salah is a ritual worship, having prescribed conditions, a prescribed procedure, and prescribed times. Some of them are obligatory, with a few dispensations for those for whom it would be difficult. For those whom it is physically difficult they can perform Salah in a way suitable for them. To perform valid Salah, Muslims must be in a state of ritual purity, which is mainly achieved by ritual ablution according to prescribed procedures.

The chief purpose of Salat in Islam is to act as a individual's communication with and remembrance of God. By reciting "The Opening", the first chapter of the Qur'an, as required in all daily worship, the worshipper can stand before God, thank and praise Him, and to ask for guidance along the Straight Path. In addition, daily worship remind Muslims to give thanks for God's blessings and that submission to God takes precedence over all other concerns, thereby revolving their life around God and submitting to His will. Worship also serves as a formal method of remembering God.

PARAMETERS:

Islam requires that Salat be performed in a ritually clean environment [Quran 5:6]. When worshipping, the clothes that are worn and the place of prayer must be clean. Both men and women are required to cover their bodies in reasonably loose-fitting garments. The well-known adage or hadith by al-Nawawi that "purity is half the faith"[16] illustrates how Islam has incorporated and modified existing rules of purity in its religious system.

tahajjud (voluntary prayer) — fajr prayer — zuhar prayer — asr prayer — mughrib — isha

MIDNIGHT — SUNRISE — NOON — SUNSET — MIDNIGHT

DAILY CONGRETIONAL PRAYER TIMES

SUNDAY   MONDAY   TUESDAY   WEDNESDAY   THURSDAY   FRIDAY   SATURDAY

CONGRETIONAL PRAYER TIMES THROUGHOUT THE WEEK

qiyam   rukuh   sajdah   tashahhud   dua

PRAYER POSTIONS

individual   **congregational (jamaat)**
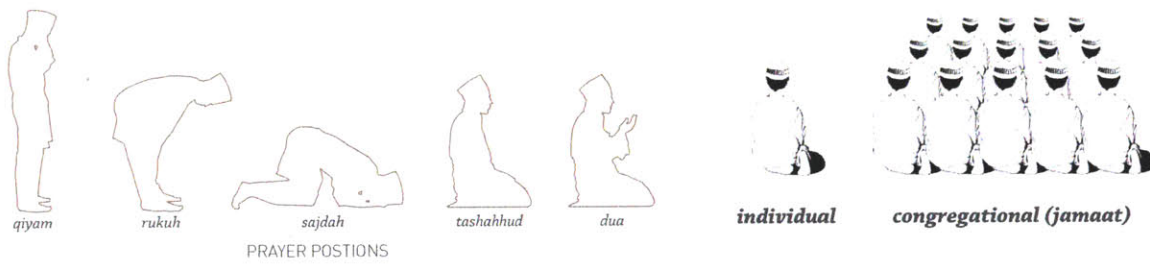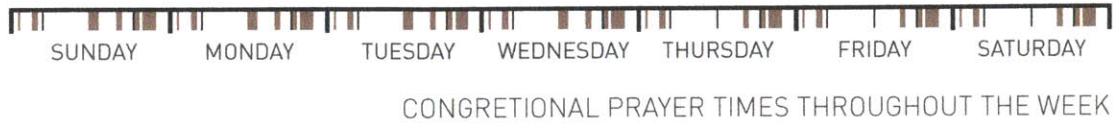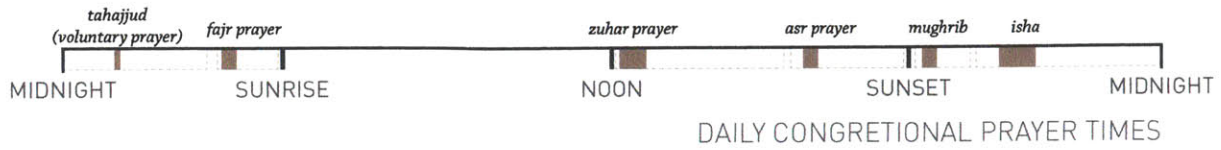
"The purpose of prayer is to be ever conscious of God, the Creator, Lord and Sustainer of all things."

individual (direct)   **collective (intermediary)**   **collective (direct)**

[79]

FIRST MOSQUE
- collective / individual space
- removed from 'physical' context (boundary wall)
- intimate, scale of the body (palm columns)
- directionality (qiblah)

prophet's living quarters

direction towards kaba (qibla)

date palms
mudbrick walls

main entry

side gate

FIRST MOSQUE OF ISLAM

direction towards kaba (qibla)

dome
(visual beacon)

minaret
(visual beacon /
place to sound the call to prayer)

mehrab
(indicates direction of the kaba)
minbar
(raised platform for delivering of sermon)
covered entry
(storage of shoes before entering the prayer space)

ablution fountain
(purification before entering the prayer space)

TYPICAL MOSQUE COMPONENTS

cave
(metaphysical realm)

city
(physical realm)

CAVE
- individual space
- removed from 'physical' context
- intimate, scale of the body
-visual connectivity back to context

seperation   *seperation*   *seclusion*

INDIVIDUAL SPIRTUALITY

Spiritual precedent for a space of prayer at the scale of the individual is scene in the Islamic tradition of the Prohpet. Before receiving Divine revelation, the Prophet would retreat from his home in the urban context to a cave on the outskirts of the city. This moment of seclusion, while still maintaining visual connectivity back to the urban context, becomes a powerful architectural moment of an individual space for prayer/worship/meditation. It provided an opportunity for self discovery. Its removal from context provided a vantage which allowed the Prophet to reflect and evaluate the urban context and understand social shortcomings which would otherwise be unpercieved from within the urban context itself.
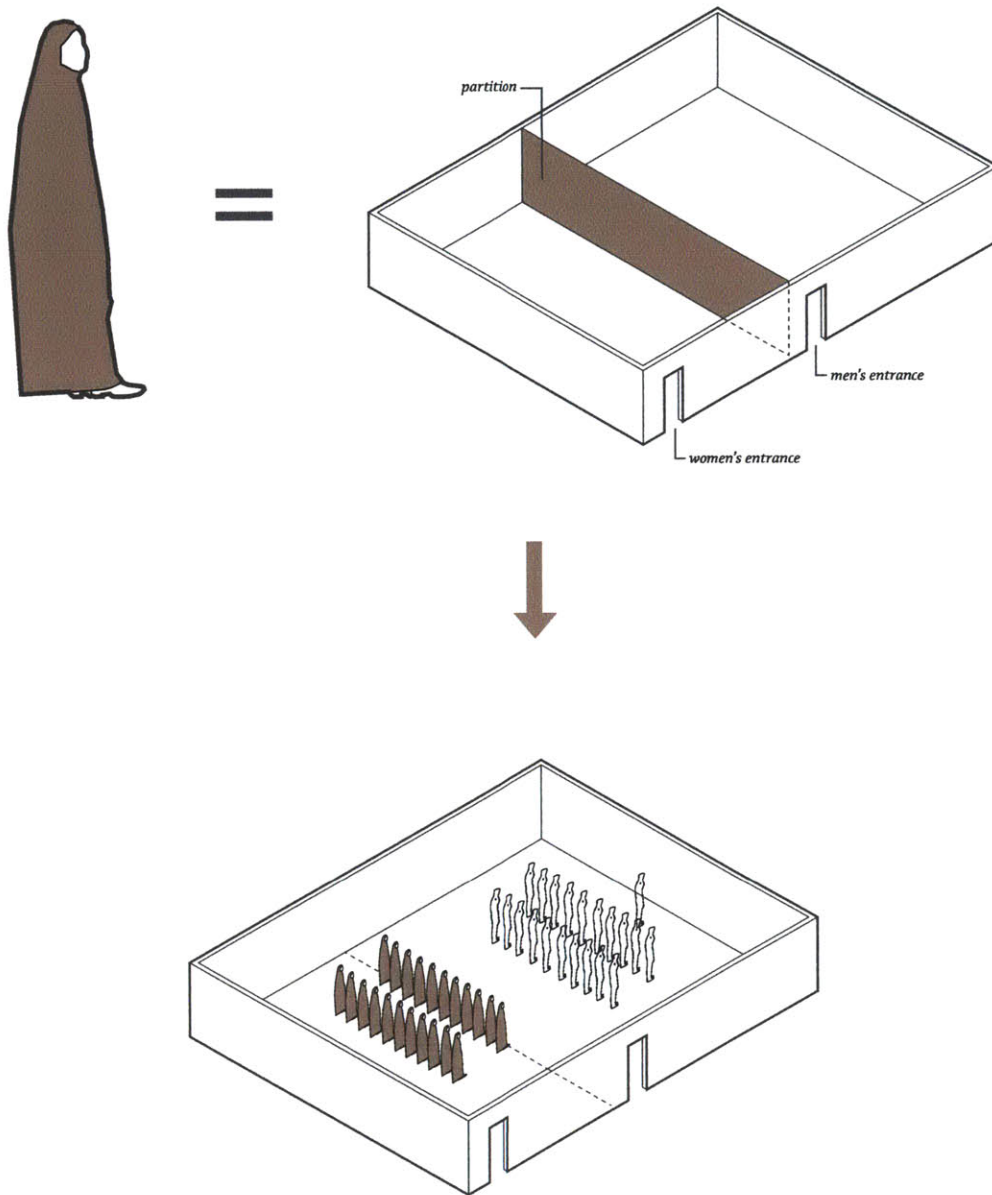
DRESS CODE AND SPATIAL IMPLICATION

Islamic dress code in itself is meant to have a significant architectural impact. Architectural seperation can potentially be bypassed if the proper islamic dress code already creates the required social speriation between genders.

GENDER ROLES IN THE MOSQUE

Both men and women are allowed to pray in the Mosque in the same Jama`ah (congregational prayer). When men and women are together in the Masjid then we should have first men's lines behind the Imam, then children and then women. This is the way Muslims used to pray behind the Prophet (peace and blessings be upon him). He did not make or ask his Companions to have a curtain or wall between the lines of men and women. (See Al-Sindi's Commentary on Sunan An-Nasa'i, p. 798)

According to the Shari`ah, it is not required to have a partition, neither of temporary nor of permanent nature, between men and women in the Masjid.

It is perfectly Islamic to hold meetings of men and women inside the Masjid, whether for prayers or for any other Islamic purpose, without separating them with a curtain, partition or wall.

It is, however, very important that Muslim women come to public gatherings wearing proper Islamic dress, for it is Haram (forbidden) for a Muslim woman to attend a public gathering without a full Islamic dress. She must cover her hair and neck with a scarf, which should also go over her bosom. Her dress should be modest and loose enough in order not to reveal the shape of her body.

It stands to reason that partitions were introduced inside the Masajid later in Islamic history. This was done, perhaps, because some women began coming to Mosques without observing proper Islamic dress, or perhaps, some men wanted to discourage them from coming to Mosques. In the time of the Prophet (peace and blessings be upon him) there was no curtain or partition in his Masjid, although women used to come to the Masjid almost for every prayer and for many other gatherings. It is, however, reported that they used to come to the Masjid dressed up in long clothes. `A'ishah, the Mother of the Believers (may Allah be pleased with her) said that the believing women used to attend the Dawn prayer with the Prophet (peace and blessings be upon him). They used to come wrapped up in their long garments and then they used to return to their homes after the prayer, no one could recognize them because of the darkness. (Reported by Al-Bukhari)

Jama`ah means a congregation of people who are praying behind one Imam in continuous lines without any barrier or interruption. As for people who pray behind the Imam, they should either see the Imam or see those who are in front of them. There is no Jama`ah when a person is in one room and his/her Imam in another room, the lines are not continuous and the people behind the Imam are also not visible, otherwise people would not have to come to the Masjid for Jama`ah prayer. They would stay home and pray listening to the loudspeakers from their Masjid or through intercoms. They could nowadays even pray Jama`ah prayer in this way in their own homes listening to the prayer broadcasts coming from Makkah and Madinah on their radios, television sets or through the Internet. But no jurists have ever allowed a Jama`ah prayer in this way.

The definition of Jama`ah that I gave above is a general one and it is applicable to both men and women. Only in the case of necessity this rule can be relaxed. For example, if the Masjid was too small and people had to pray on different levels or in different rooms to accommodate every person then this would be permissible because of necessity. Muslims should not deliberately and for no reason bifurcate their congregation in their Masajid.

If there is a concern that the lines of men and women will mix inside the Masajid, then there is no harm in putting a lower barrier, only to demarcate the separate area for women. But women should not be put in a totally separate room in the Masjid unless there is a shortage of space and no other proper arrangement can be done for them.

[SOURCE: RESPONSE BY DR. MUZAMMIL H. SIDDIQI, PRESIDENT OF THE FIQH COUNCIL OFNORTH AMERICA]

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                        ┌─────────────┐
                        │  Role of    │
                        │ the Mosque  │
                        └─────────────┘
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EDUCATION

NEIGHBORLY RELATIONS,
FAMILY RELATIONS,
SOCIETAL ORDER,
PROHIBITION OF
NON-PERMISSABLE
BEHAVIOR AND MORALS

LAW

CRIMAL JUSTICE SYSTEM,
MARRIAGE,
INHERITANCE,
FINANCING/INTEREST

POLITICS

INTERNATIONAL RELATIONS,
TRAVELER ACCOMODATION,
COMMUNITY RELATIONS,
CHARITABLE FOUNDATION

RELIGION

PRAYER,
PURIFICATION,
MEDITATION/REFLECTION,

"*Focal point of Islamic life*"

(NO SPATIAL DISTINCTIONS BETWEEN LAW, POLITICS, RELIGION)

QURAN

(1) In houses (mosques) which Allah has ordered to be raised (to be cleaned, and to be honoured), in them His Name is remembered (Adhan, Iqamah, Salat, invocations, recitation of the Qur'an etc.). Therein glorify Him (Allah) in the mornings and in the afternoons or the evenings. [An-Noor, 24:36]

(2) And the mosques are for Allah (Alone): so invoke not anyone along with Allah. [Al-Jinn, 72:18]

HADITH

(1) Narrated Abu Hazim: Sahl bin Sa'd was asked about the (Prophet's) pulpit as to what thing it was made of? Sahl replied: "None remains alive amongst the people, who knows about it better than I. It was made of tamarisk (wood) of the forest. So and so, the slave of so and so prepared it for Allah's Apostle . When it was constructed and placed (in the mosque), Allah's Apostle stood on it facing the Qibla and said 'Allahu Akbar', and the people stood behind him (and led the people in prayer). He recited and bowed and the people bowed behind him. Then he raised his head and stepped back, got down and prostrated on the ground and then he again ascended the pulpit, recited, bowed, raised his head and stepped back, got down and prostrate on the ground. So, this is what I know about the pulpit." Ahmad bin Hanbal said, "As the Prophet was at a higher level than the people, there is no harm according to the above-mentioned Hadith if the Imam is at a higher level than his followers during the prayers." (Book #8, Hadith #374)

(2) Narrated Anas: When the Prophet arrived Medina he dismounted at 'Awali-i-Medina amongst a tribe called Banu 'Amr bin 'Auf. He stayed there For fourteen nights. Then he sent for Bani An-Najjar and they came armed with their swords. As if I am looking (just now) as the Prophet was sitting over his Rahila (Mount) with Abu Bakr riding behind him and all Banu An-Najjar around him till he dismounted at the courtyard of Abu Aiyub's house. The Prophet loved to pray wherever the time for the prayer was due even at sheep-folds. Later on he ordered that a mosque should be built and sent for some people of Banu-An-Najjar and said, "O Banu An-Najjar! Suggest to me the price of this (walled) piece of land of yours." They replied, "No! By Allah! We do not demand its price except from Allah." Anas added: There were graves of pagans in it and some of it was unleveled and there were some date-palm trees in it. The Prophet ordered that the graves of the pagans be dug out and the unleveled land be level led and the date-palm trees be cut down . (So all that was done). They aligned these cut date-palm trees towards the Qibla of the mosque (as a wall) and they also built two stone side-walls (of the mosque). His companions brought the stones while reciting some poetic verses. The Prophet was with them and he kept on saying, "There is no goodness except that of the Hereafter, O Allah! So please forgive the Ansars and the emigrants. " (Book #8, Hadith #420)

(3) Narrated 'Abdullah bin 'Umar: In the life-time of Allah's Apostle the mosque was built of adobes, its roof of the leaves of date-palms and its pillars of the stems of date-palms. Abu Bakr did not alter it. 'Umar expanded it on the same pattern as it was in the lifetime of Allah's Apostle by using adobes, leaves of date-palms and changing the pillars into wooden ones. 'Uthman changed it by expanding it to a great extent and built its walls with engraved stones and lime and made its pillars of engraved stones and its roof of teak wood. (Book #8, Hadith #437)

Although there are no specific references to a prescribed aesthetic and form to the mosque, it can be infered that the mosque should be a place of tranquility that seperates itself to some degree from the urban fabric.
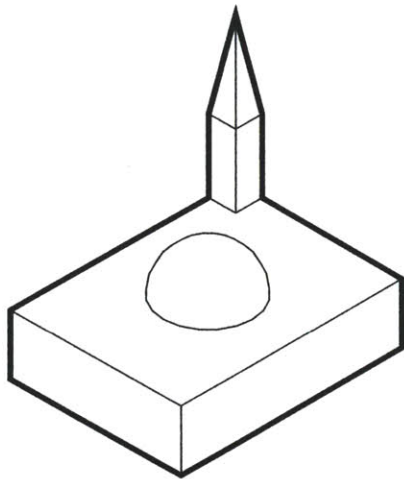
mosque

+

public relations
information/outreach node
community center
secular/religious school
recreational facility
retail shops

AQUIRED ROLES OF THE AMERICAN MOSQUE

In a post 9-11 landscape, the American mosque must delicitely find a way to be transparent and outreach to the communities it is inserted into, while at the same time shielding its patrons from hostile/growing anti-muslim sentiment. This added public relations component is unique to the mosques in America as they operate in primarily non-muslim environments.

In addition to this, the American mosque must also absorb many societal functions, a responsibility its counterpart in the muslim world would not have to accomodate. As the mosque consolidates the roles of community center, school, recreation facilities, and shops, the sanctity and spiritual experience of the mosque is often comprimsed.

MAKKAH PRAYER CHART

CHART USE

Angle from parallel to
direction line is the
direction from east to
pray to Makkah
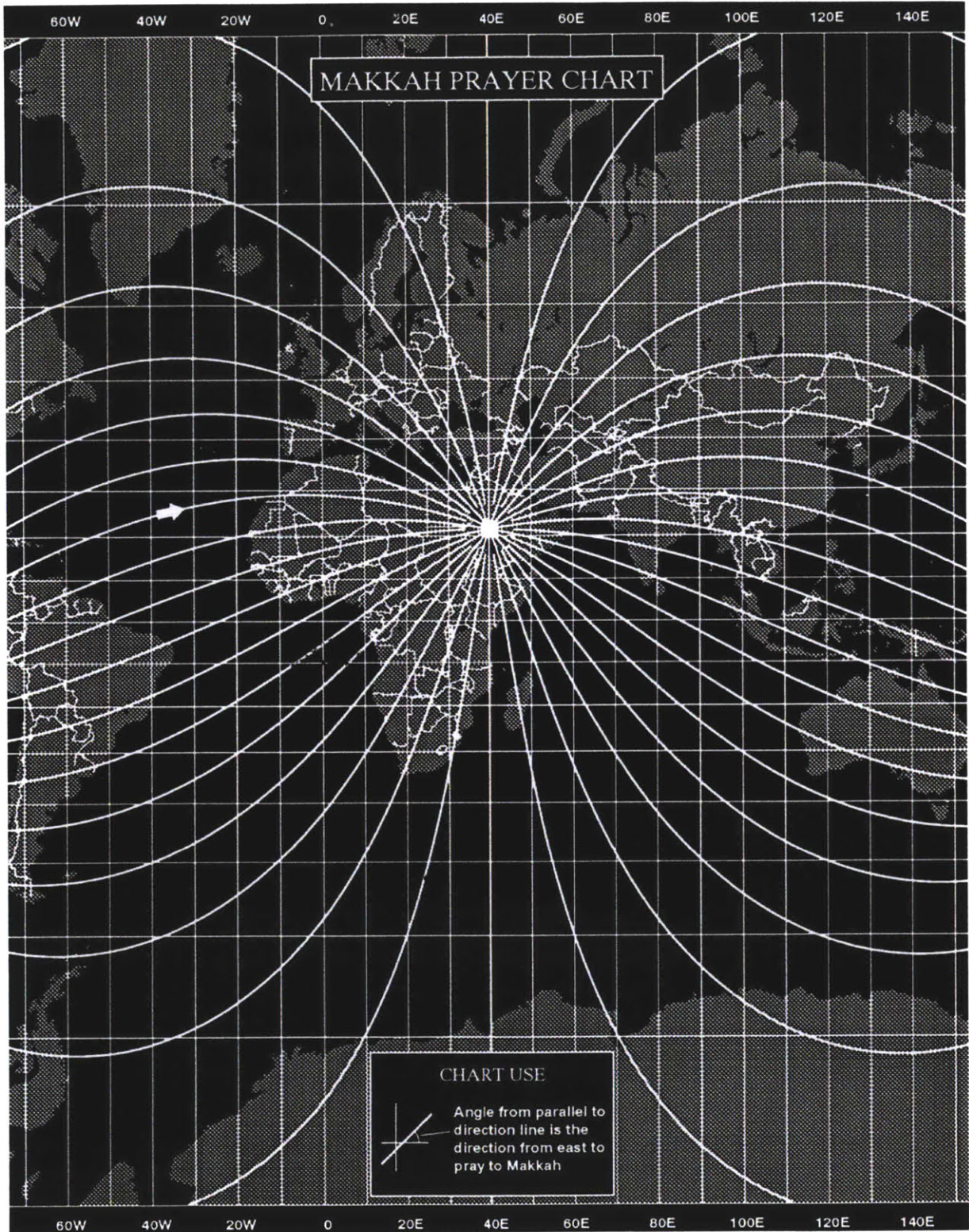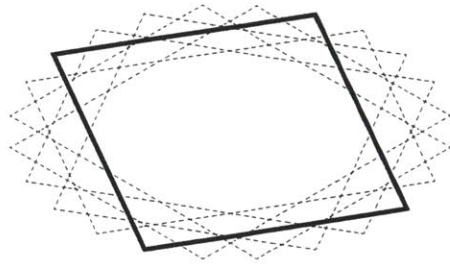
potential qiblah directions
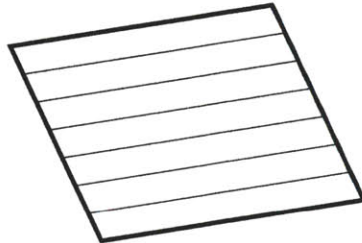
dimension between prayer rows
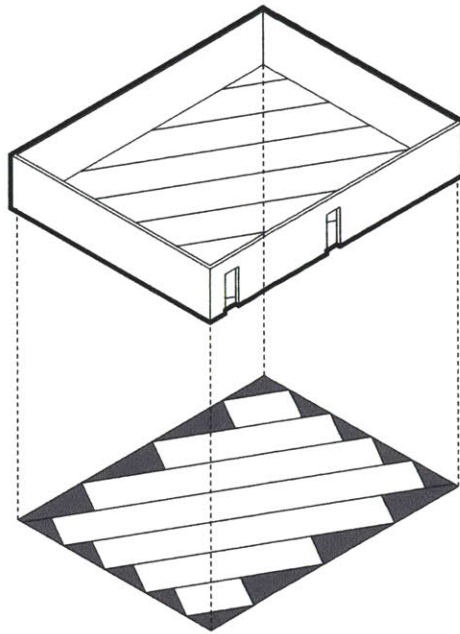
qiblah orientation inserted into
orientation of retrofit space

unusable poche space created by
conflicting spatial orientations

*Negotiating Islamic orientation towards Kaba
and spatial orientation of the retrofit space.*
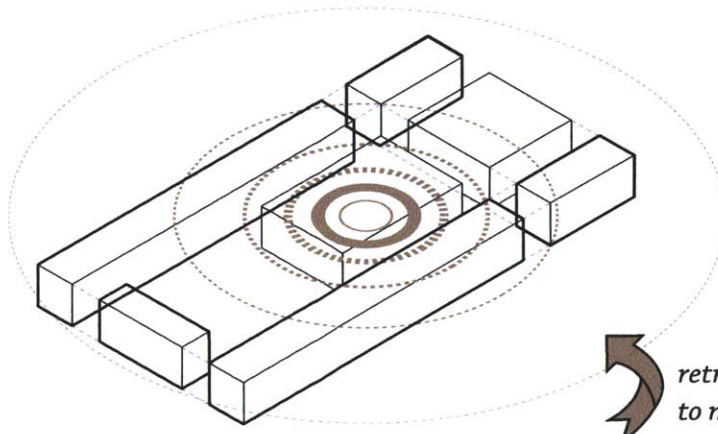
retrofit from Muslim
to non-muslim context

prayer space

protected space

hermetic object
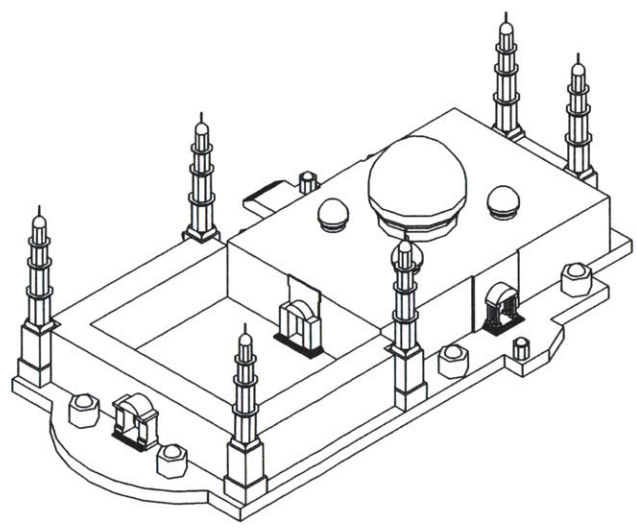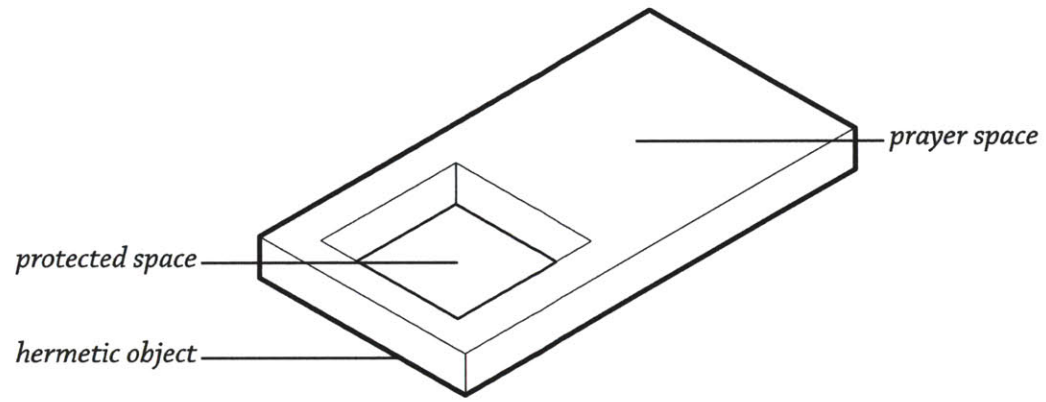
Breaking the hermetic mosque typology;
Mosque becoming the community heart.

←WORSHIP→

approach · prayer · meditation
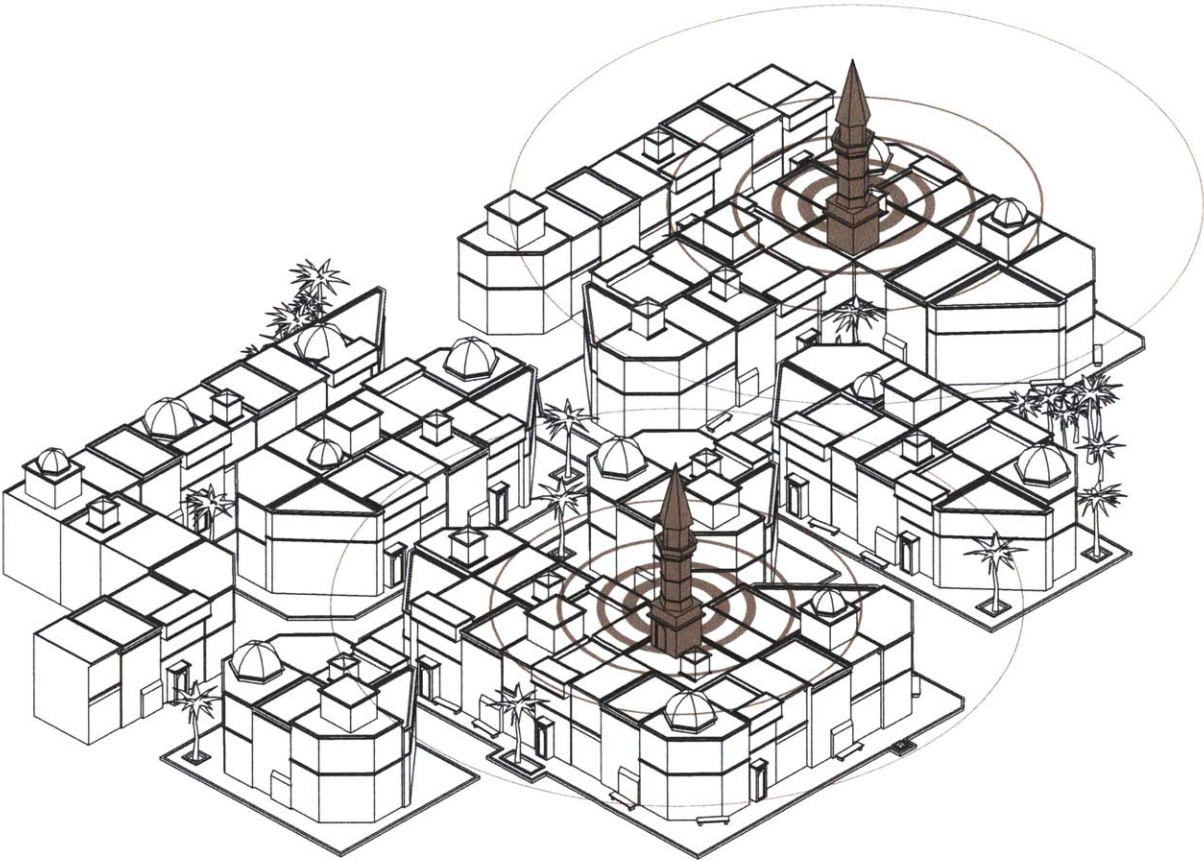
URBAN SCALE

In predominantly Muslim countries, the mosque manifests itself at the urban scale in multiple ways. The frequency of mosques is ingrained in the city fabric, with a mosque typically situated within 5-10 minutes walking distance from any given location. The call-to-prayer (adhan) is amplified and echoed through the streets, extending the act of worship to be initiated wherever worshippers may hear it. The approach to the mosque during the time to prayer as the adhan continues to echo in itself becomes a unique spatial experience and an extension of the mosque into the urban realm. During this time, urban activity momentary comes to a standstill as shops and offices close, and all sectors of the population begin to make their way towards the nearest mosque. After the prayer ends, activity resumes until the next call-to-prayer.

This degree of an urban pulse generated by the mosque does not exist in the American context. A prototype for the freestanding mosque typology will explore ways in which it can extend and amplify the experience of the mosque beyond the actual ritual prayer. By maximizing the exposure and heightening the presence of the mosque in its urban context, its worshippers gain opportunities to repel and reverse stigma accumulating .

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PART IV: DESIGN DEVELOPMENT

ABOVE 85%
40-84%
15-39%
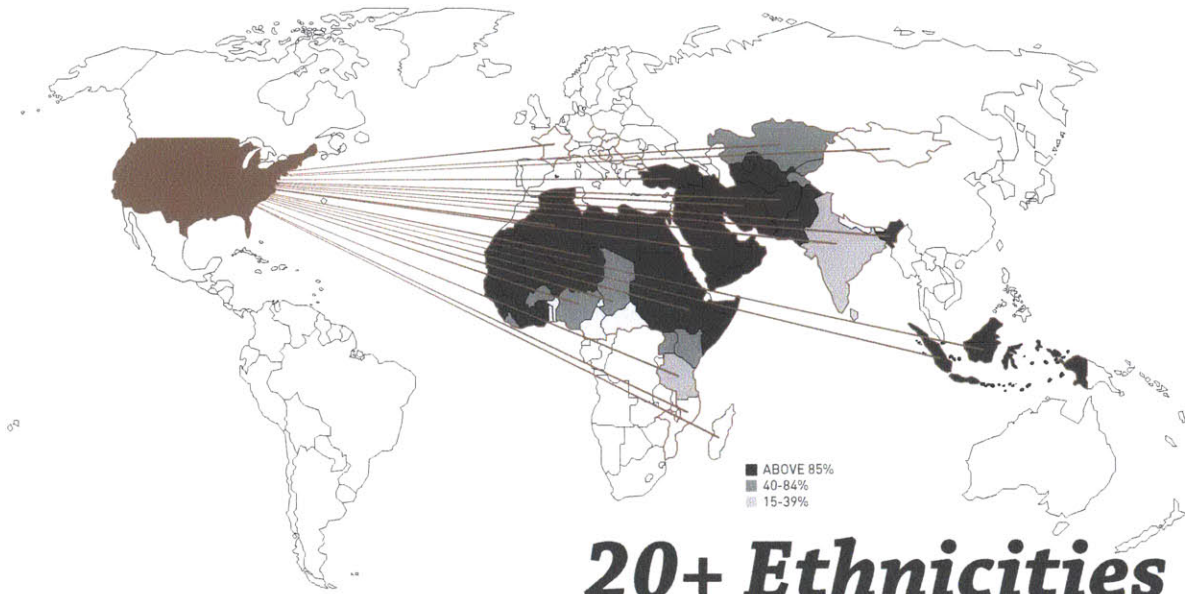
20+ Ethnicities
The American Muslim demographic is extremely diverse

ABOVE 150
50-149
10-49
1-10
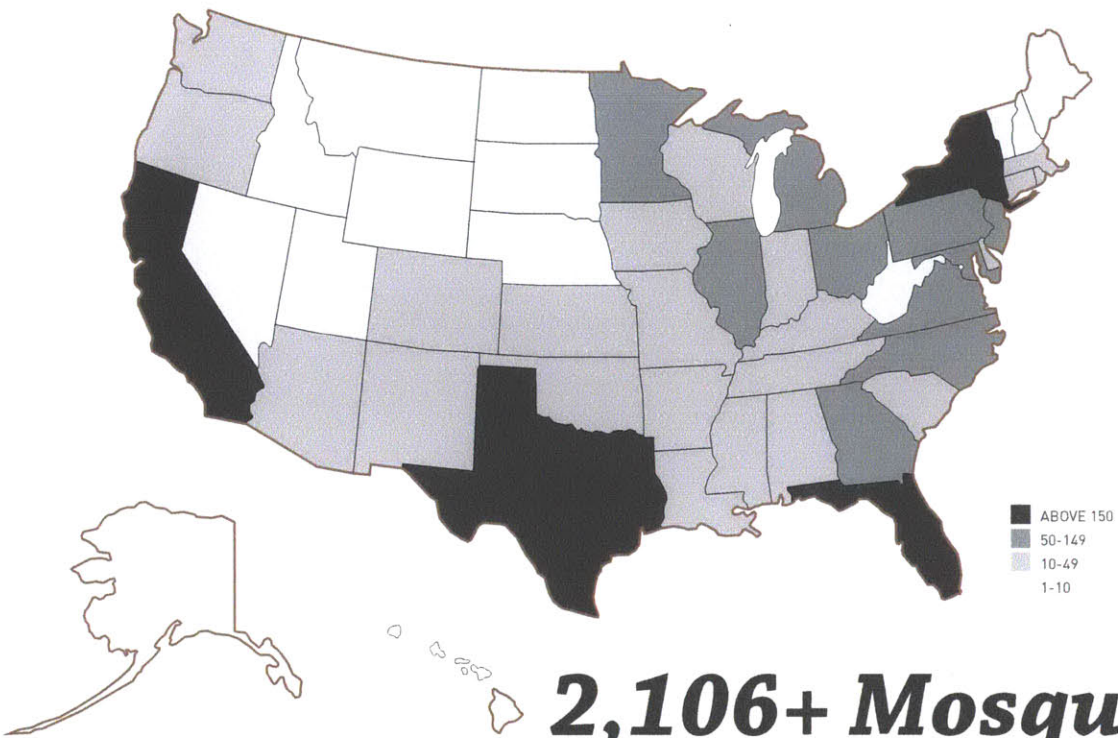
2,106+ Mosques
(up from 1,209 since 9/11/01)

RETRO-FIT

Mosque occupying a space which was not initially a mosque.
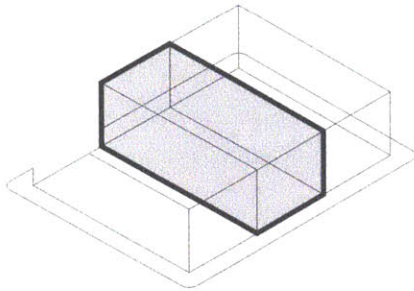
70%

FREESTANDING

Mosque built as a mosque.
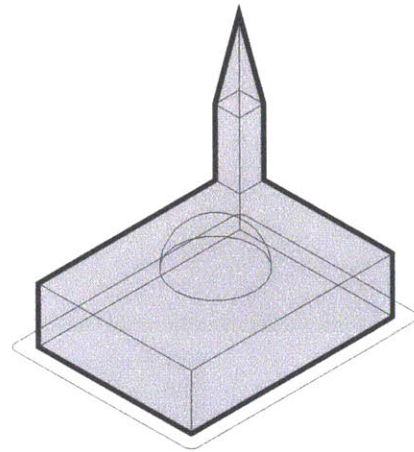
30%

MICROCOSM OF THE ISLAMIC WORLD

What is the condition of Islam in America? Is there an identity which is uniquely American-Islamic? What challenges/opportunities are specific to mosques within the American context?

The American mosque is a remarkably young institution: 76% of all existing mosques were established after 1980. The doubling of mosques within the last 10 years represents tremendous growth, highlighting the need for new prototypes.

RESIDANCE
- *collective space*
- *abrupt transition*
- *lacks visual connectivity back to context*

INSTITUTIONAL
- *individual space*
- *removed from 'physical' context*

FREESTANDING
- *individual space*
- *isolated from context*

MIXED USE
- *individual space*
- *removed from 'physical' context*
- *no visual connectivity*

STAGE 1   STAGE 2   STAGE 3   STAGE 4

1990   92'   94'   96'   98'   00'   02'   04'   06'   08'   10'   2010

CAMPUS MOSQUE:
Group of students organize to establish an on campus prayer room for friday prayers.

COMMUNITY: *50-100*

PLAZA MOSQUE:
Students and other worshippers outgrow the prayer room, acquire rental storefront property. First notion of 'community' is established.

COMMUNITY: *100-250*

SCHOOL MOSQUE:
Community has new aspirations. Land is purchased and former primary school is converted to a mosque + school.

COMMUNITY: *250-500*

BUIILT MOSQUE:
Community continues to grow and develop financial strength, a desire for an islamic identity and need for a proper prayer space leds to a designed freestanding mosque.

COMMUNITY: *500+*

Retrofit Condition
Typical Muslim communities occupy retrofit structures for a duration of 15-20 years

THRESHOLD   SENSORY   DIRECTIONAL   EXPERIENCE
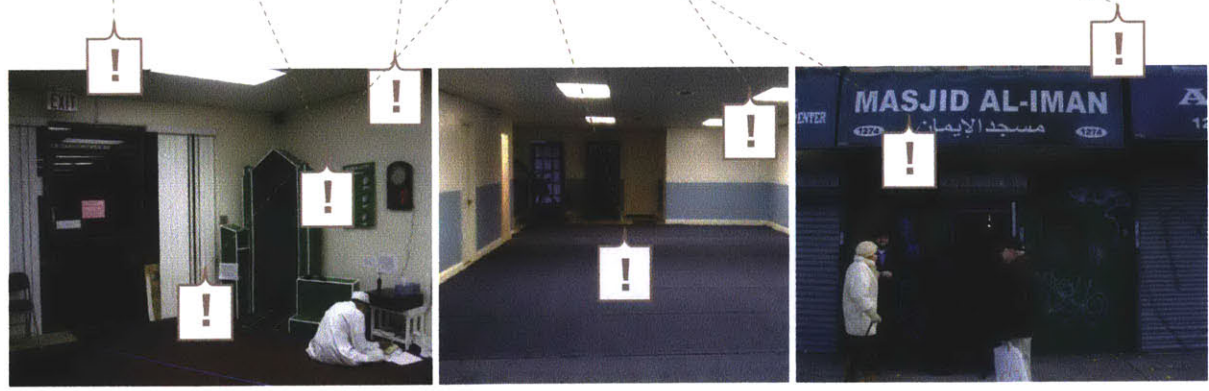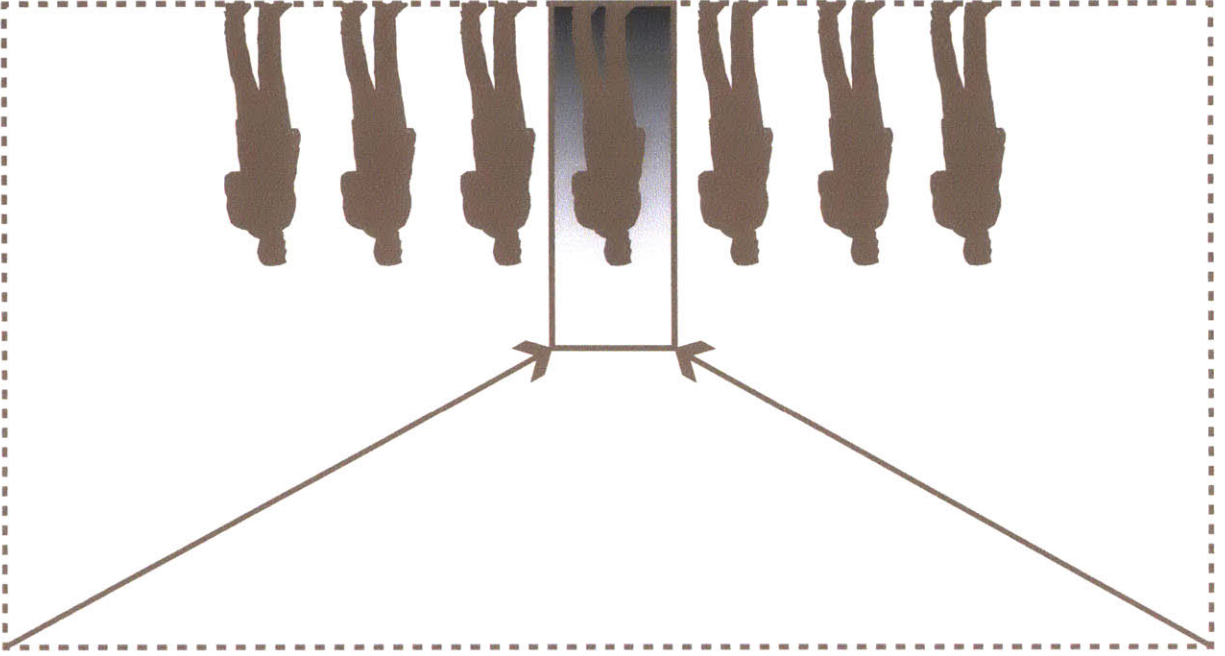
INDIVIDUAL

COLLECTIVE
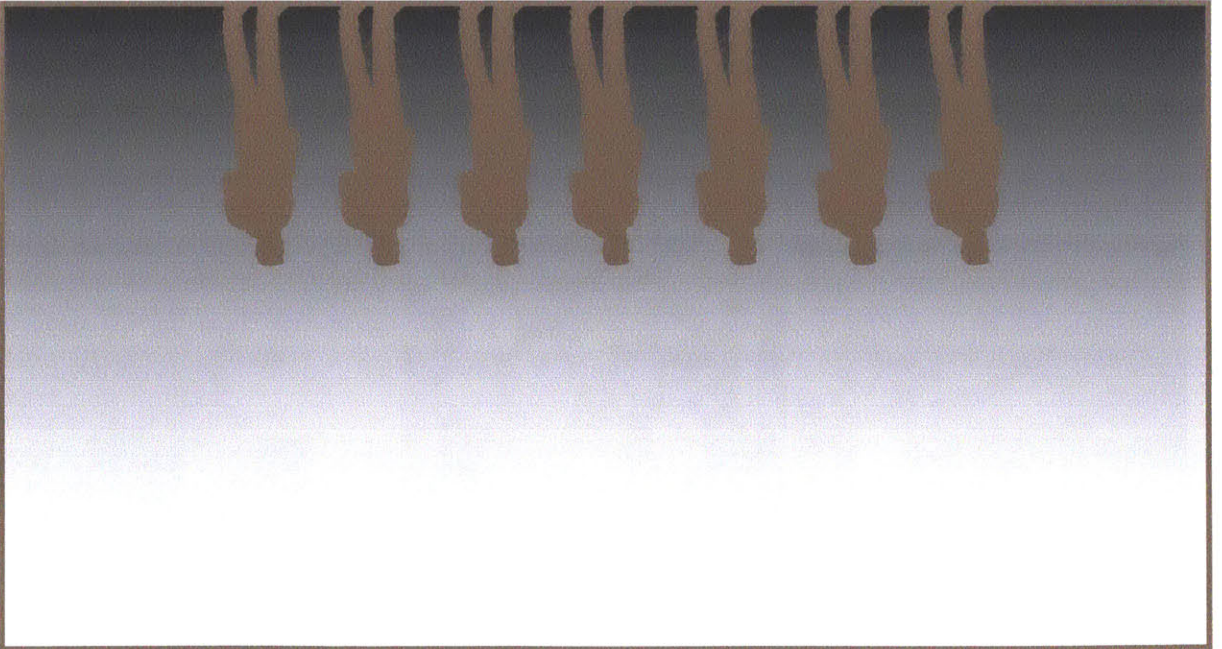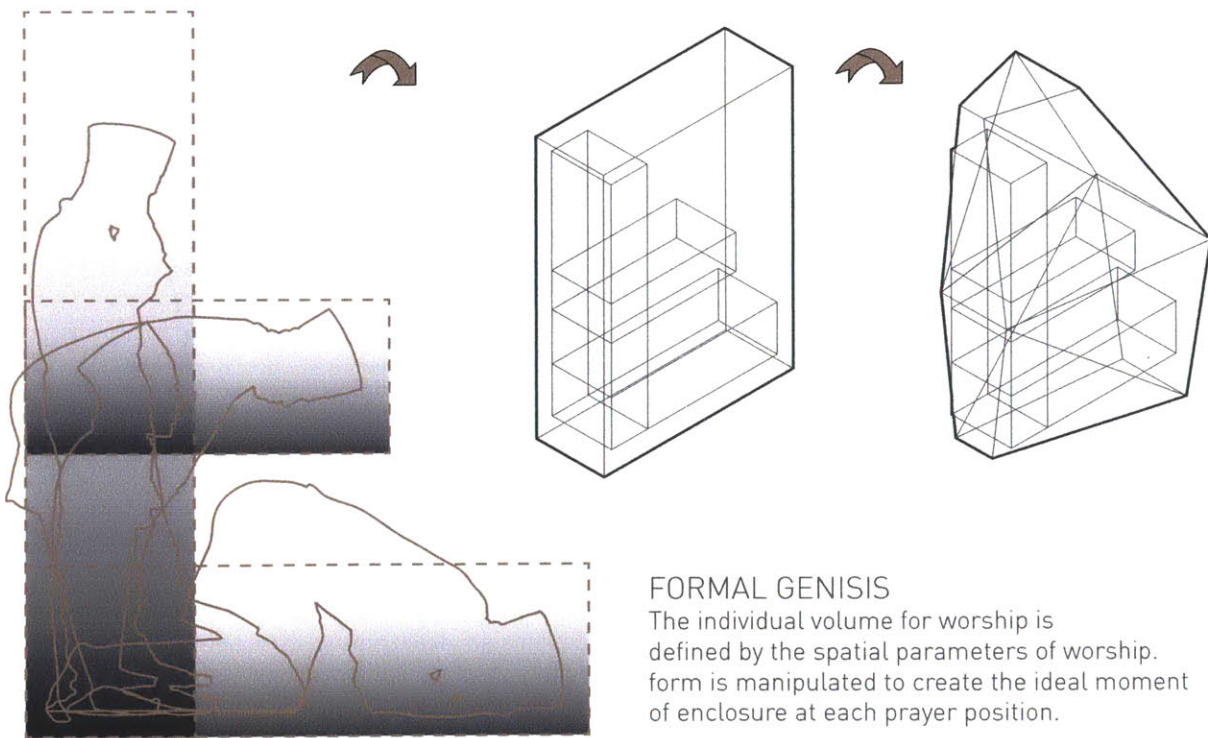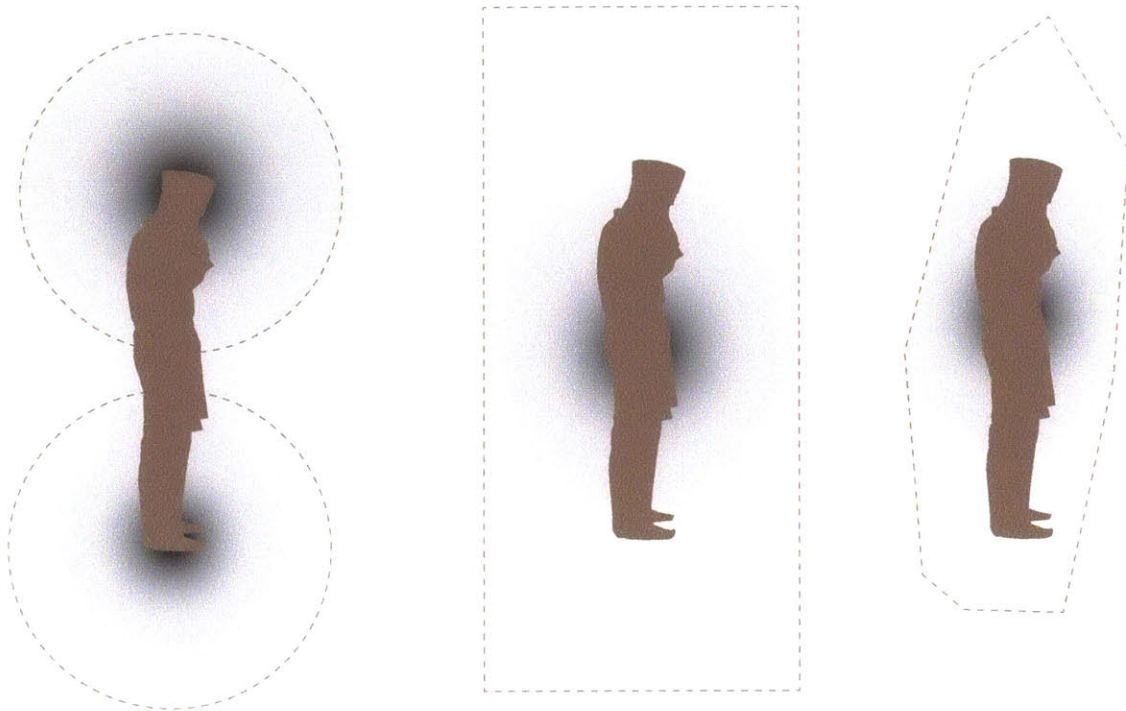
FORMAL GENISIS
The individual volume for worship is defined by the spatial parameters of worship. form is manipulated to create the ideal moment of enclosure at each prayer position.

1x

2x

3x
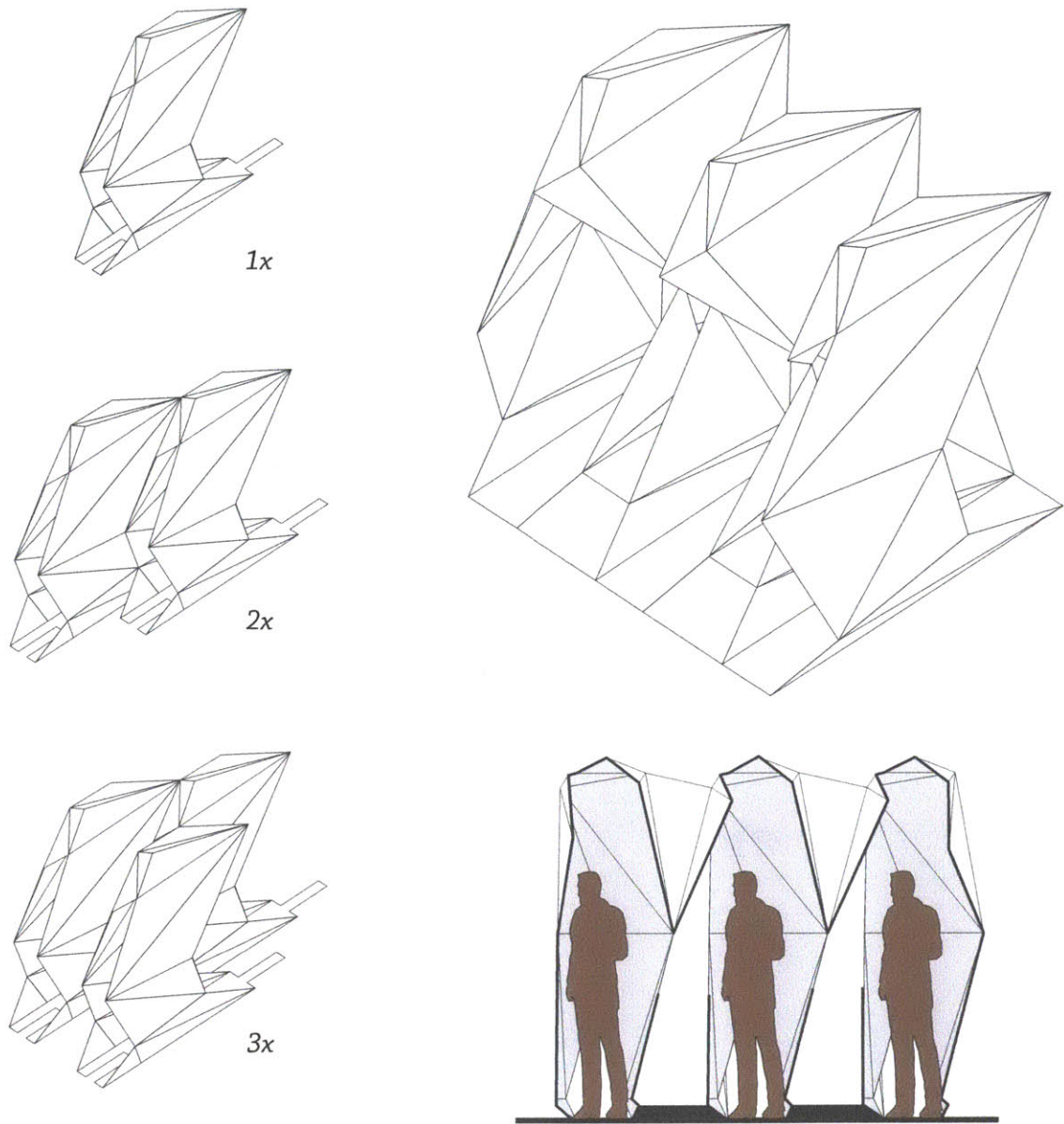
GROWTH / AGGREGATION

The potential for growth is explored as individual spirtual atmospheres can begin to link to form larger prayer constellations. The exploration begins by first condensing an ideal spiritual atmosphere. Once this is achieved and prototypical, conversations around the scalability of spiritual atmosphere can be engaged.
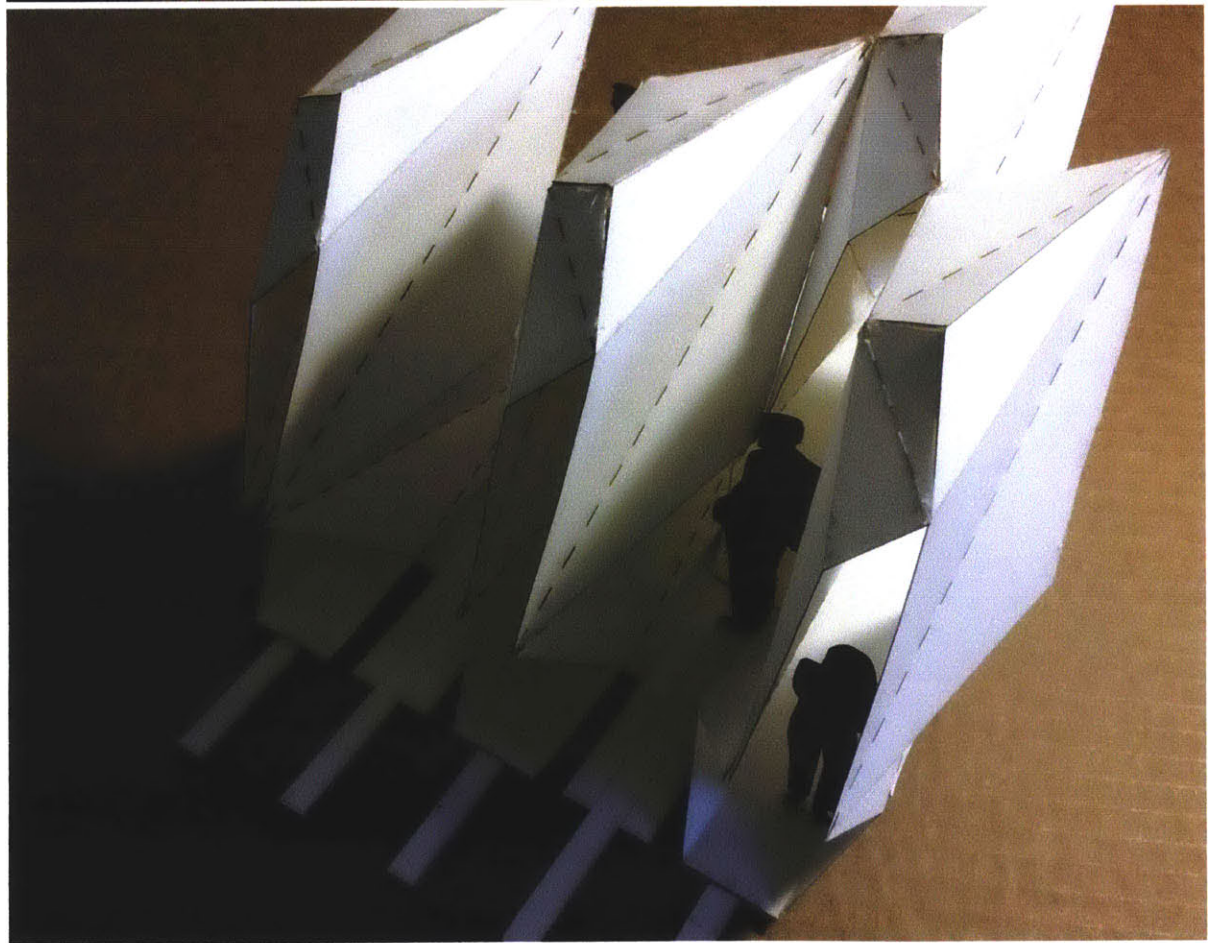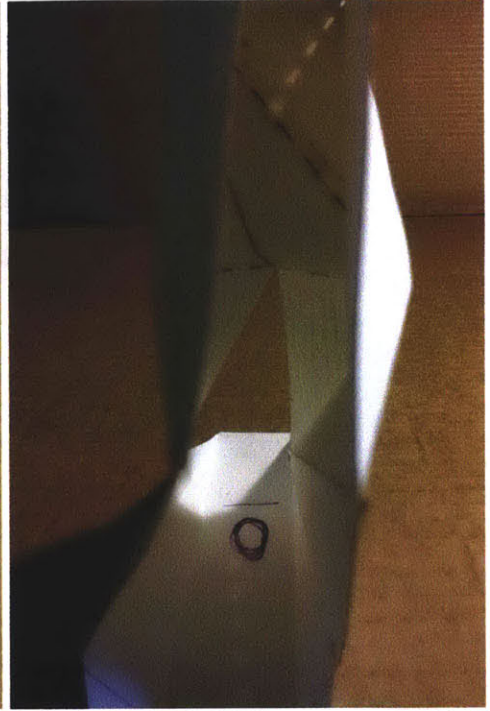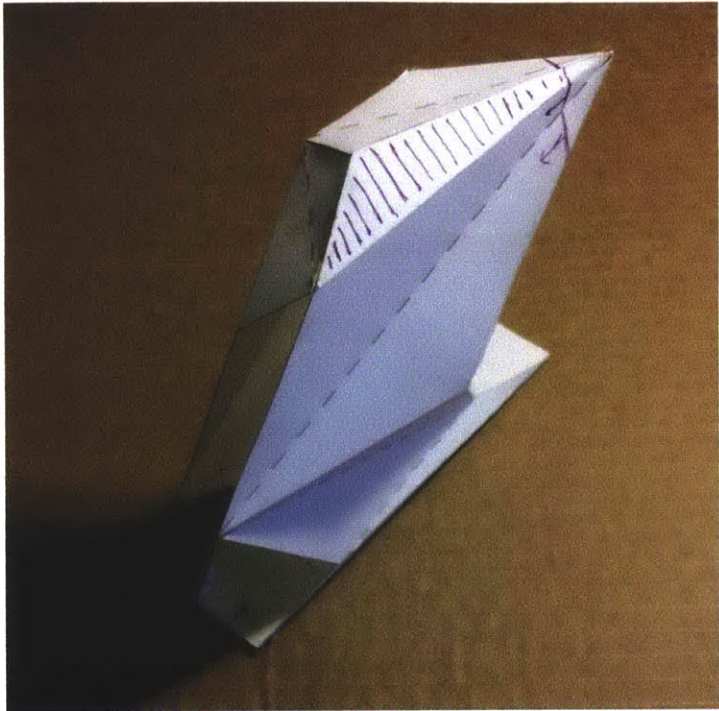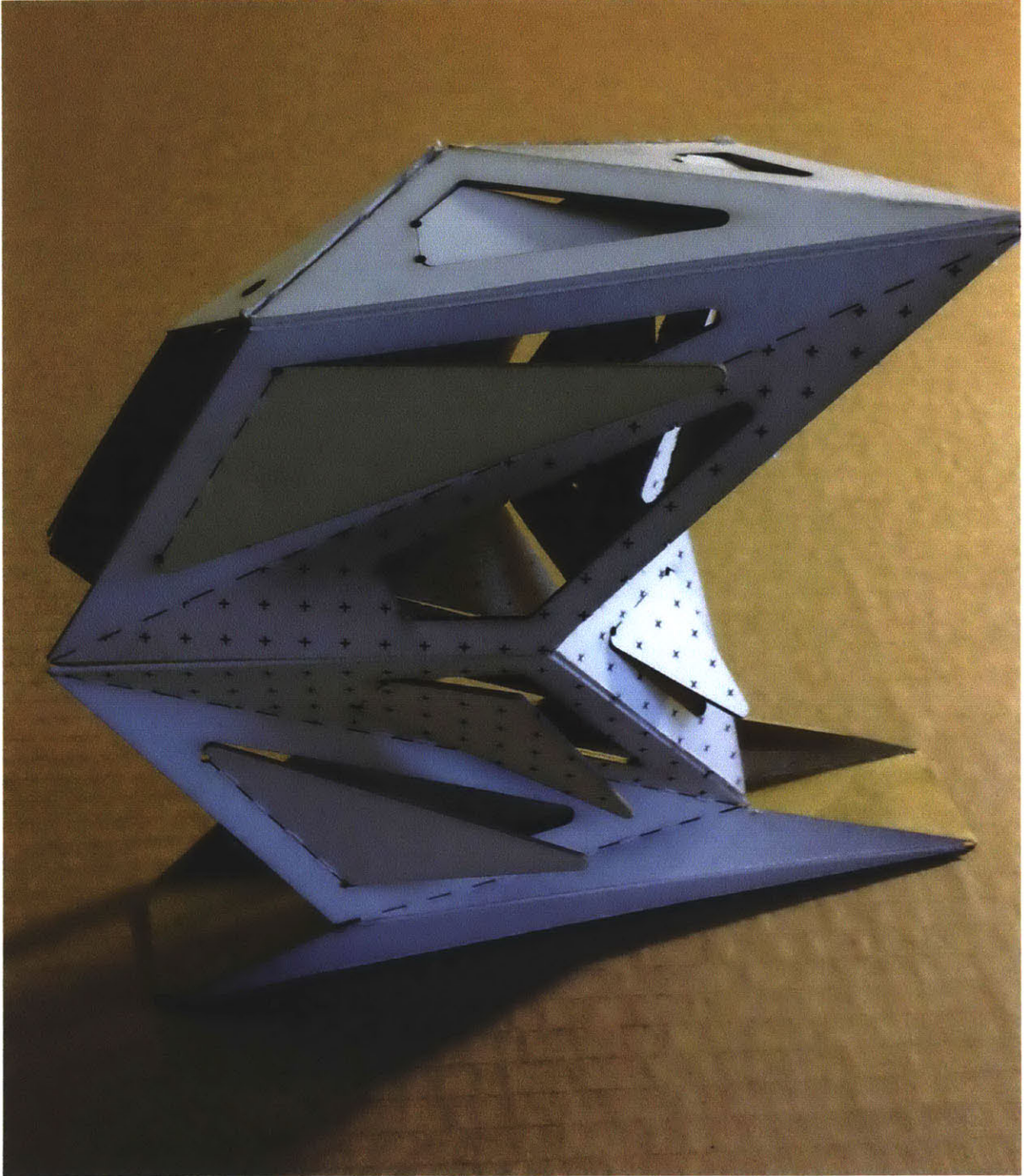
SURFACE / APERTURE / FORM

Explorations on the surface of an individual place of worship began to test varying levels of porosity, surface material, and surface operabilty. The formal logic intentionally inherits a faced geometry in order for rapid prototyping. The resulting stealth like aesthetic is desired as it creates a dialouge positioning 'Islamic' architecture as a conceptual, rather than a stylistic, framework.
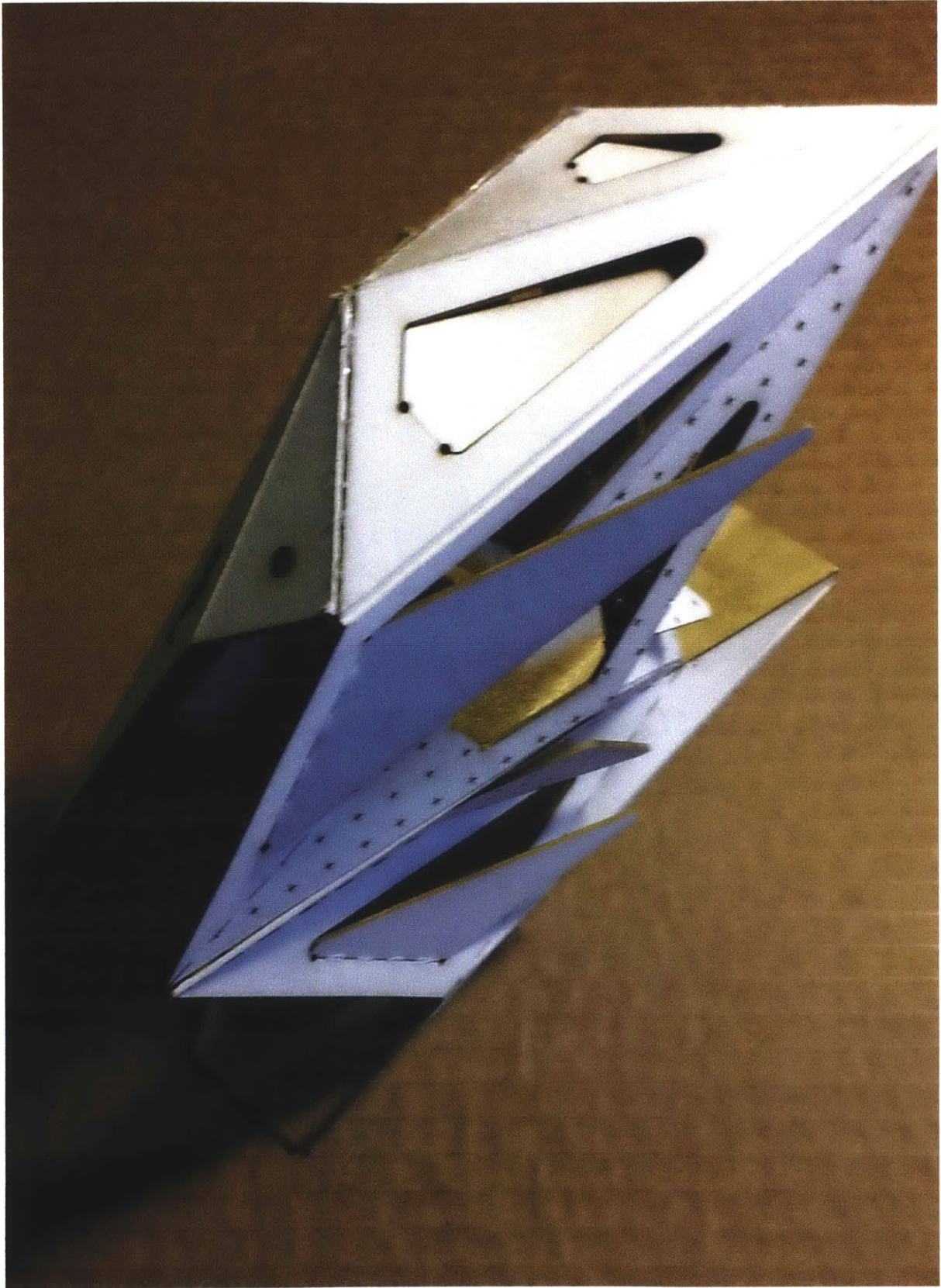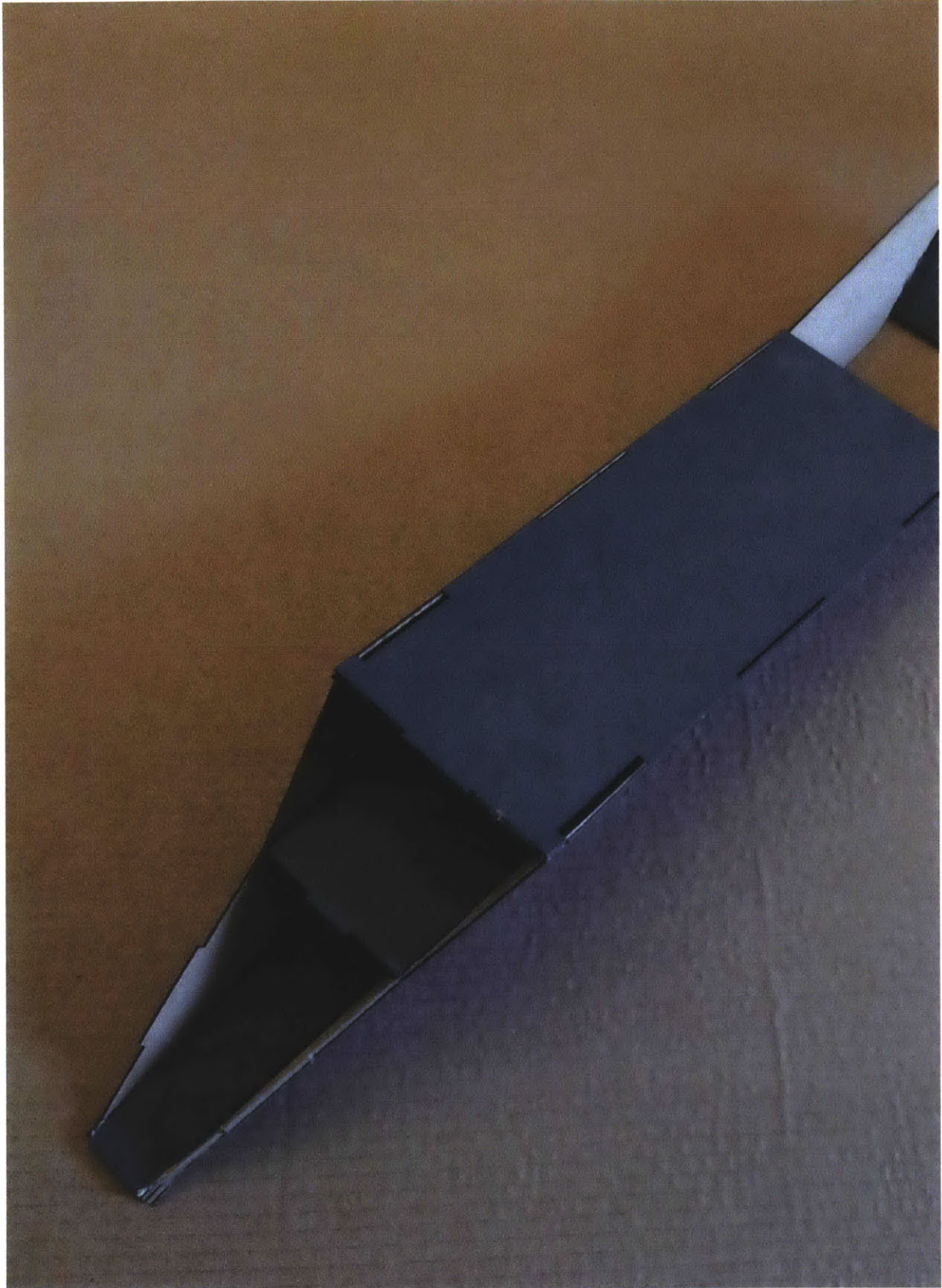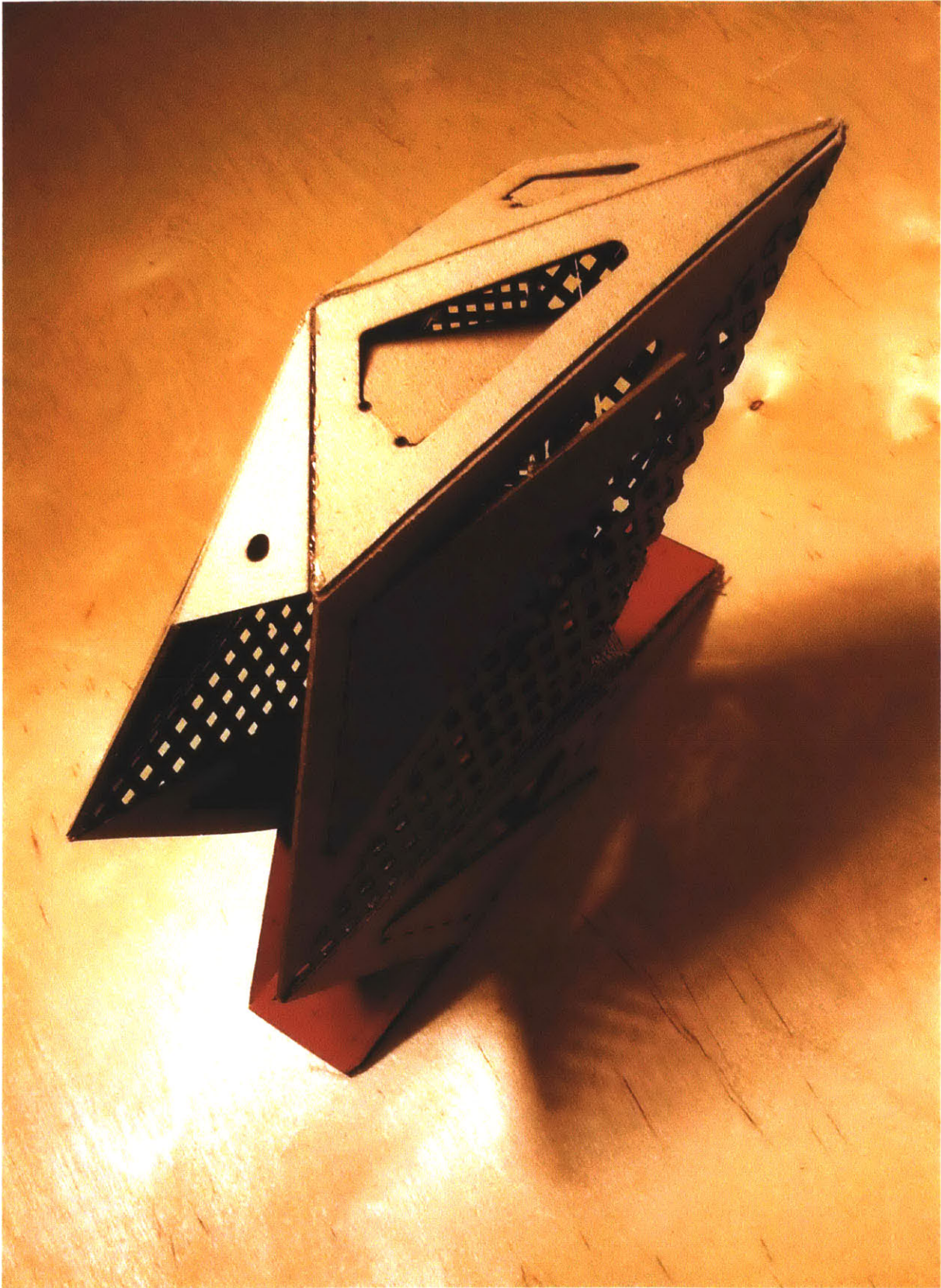
PART V: PROTOTYPE DEPLOYMENT
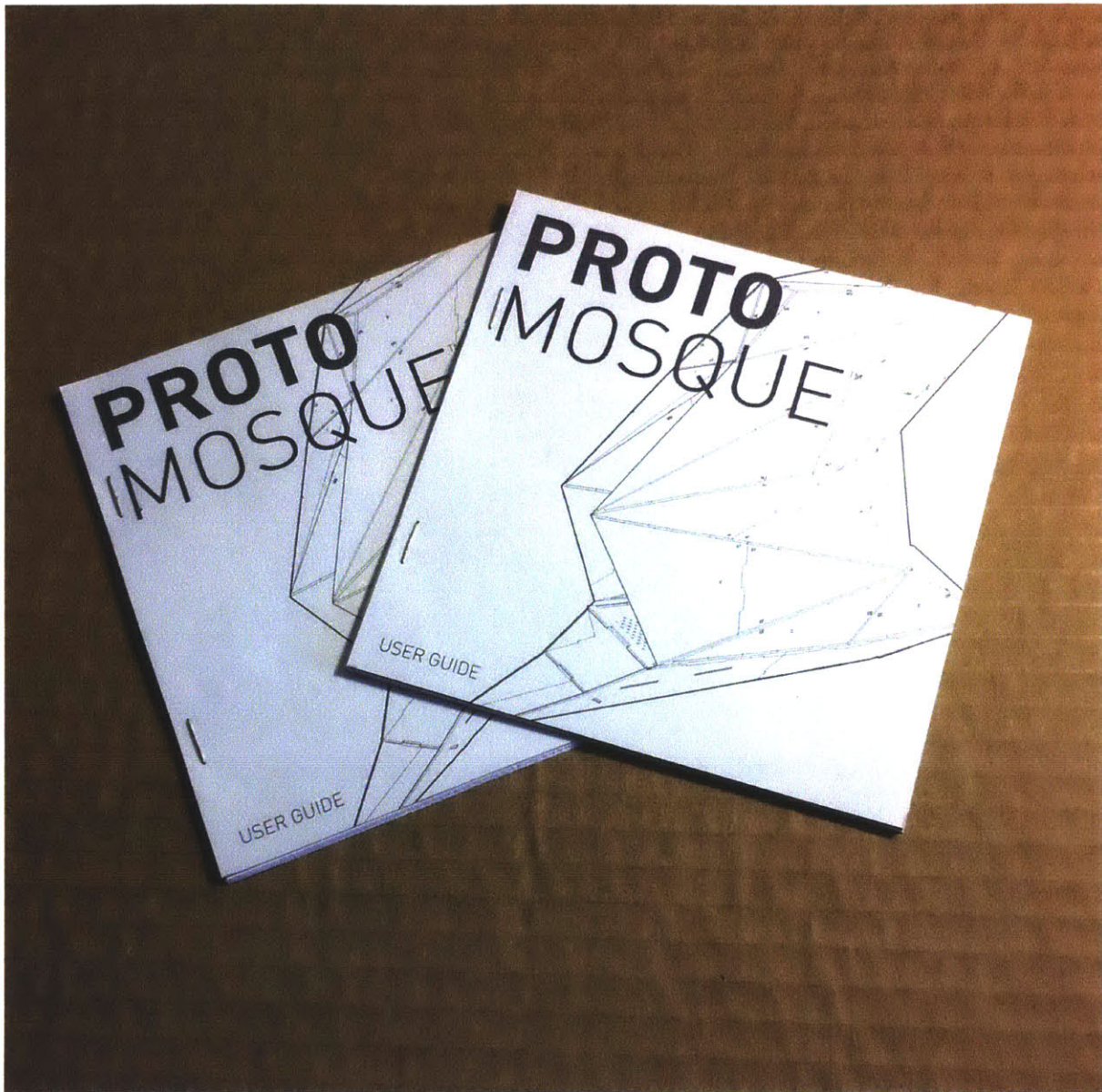
THE PROTOMOSQUE

The thesis is deployed as a pedogical tool on spirituality which can be installed locally by communtiies who want to address their own spiritual atmosphere. Its function is to educate worshippers that 'design matters' when it comes to the establishing of meaningful worship. Furthermore, it allows communities that incongruencies in their current retrofit mosque may actually be hindering their prayer experience. A user guide is developed in order to position the prototype as an easily accessible physical construct which can begin to enter culture via temporary workshops and seminars.

1. Conduct a workshop so that the local community can experience the ProtoMosque. Generate a discussion about the importance of meditation and prayer, and how sensitive design is a critical to having a meaningful prayer experience.
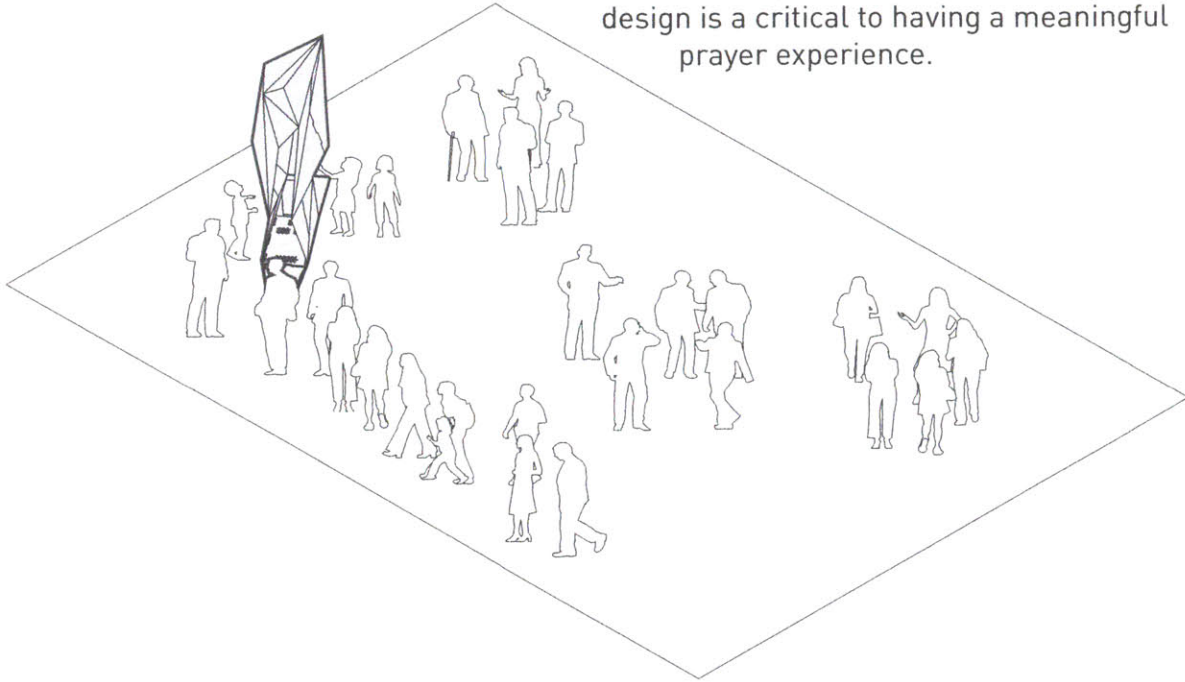
2. Conduct a survey to assess the atmospheric quality of your existing worship space, using the ProtoMosque experience as a litmus. (survey included at the end of this booklet)
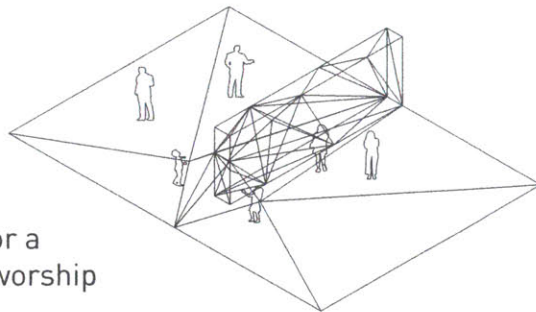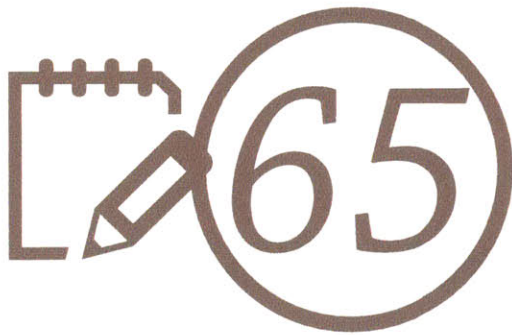
3. Contact a ProtoMosque respresentative for a consultation on how to retrofit your space of worship to be an optimized spiritual atmosphere.

SPIRITUAL ATMOSPHERE SURVEY

Please complete the following survey in order to establish the spirtrual atmopshere score of your space of worship. (Each 'Yes' response is 5 points towards your total score)

	Y	N
THRESHOLD		
1. My spiritual space is surrounded by a pristine environment.	☐	☐
2. There is a peaceful transition from outside into my spiritual space.	☐	☐
3. There is a meaningful moment before I enter my spiritual space.	☐	☐
4. When inside my spirtual space, I feel shielded from the outside world.	☐	☐
5. From my spiritual space, I am able to visually access the outside world.	☐	☐
SENSORY		
1. My spiritual space is visually/aestheticlly cohesive and orderly.	☐	☐
2. My spirtual space has surfaces that are comfortable for long intervals of time.	☐	☐
3. The smell inside my spiritual space is pleasant and not overpowering.	☐	☐
4. My spirtual space is a calm and quiet place where I can focus my thoughts.	☐	☐
5. The temperature inside my spiritual space is comfortable.	☐	☐
DIRECTIONAL		
1. When inside my spiritual space, I am easily able to orient myself.	☐	☐
2. The orientation of my prayer is harmonious with the orientation of the space.	☐	☐
3. The direction I face in my spiritual space is not overly distracting.	☐	☐
4. When in my spiritual space, I am aware that I am in the presence of the Divine.	☐	☐
5. I am able to navigate in my spiritual space without disturbing others.	☐	☐
EXPERIENCE		
1. My space is well suited for individual mediation / worship.	☐	☐
2. My spiritual space easily accomodates collective mediation / worship.	☐	☐
3. I leave my spiritual space feeling spirtually satsfied and at peace.	☐	☐
4. I look forward to visiting my spirtual space.	☐	☐
5. I am comfortable inviting others to participate in my spiritual space.	☐	☐

TOTAL:

SURVEY RESULTS

90-100:
Your spiritual space is ideal and optimized for enhanced prayer/meditation.

75-90:
Your spiritual space is acceptable, and does not detract from your ability to perform prayer/meditation. (Protomosque evaluation recommended)

60-75:
Your spiritual space is a hinderance to your prayer/meditation. (Protomosque evaluation strongly recommended)
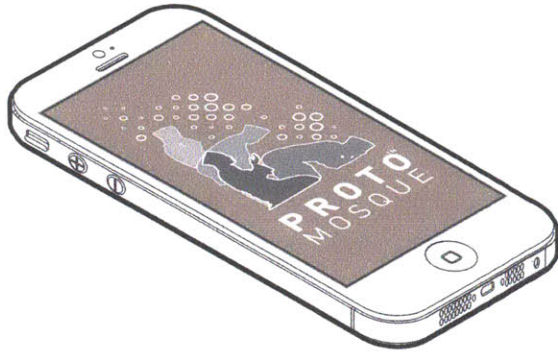
VIRTUAL COLLECTIVE

The ProtoMosque is a pedogocial tool for mosque atmospheres and can begin to form its own community of users. Users can monitor their own spiritual growth. Information such as prayer frequency and duration are logged and visualized in a way which makes spiritual status legible and accessible.

NEAREST PROTOMOSQUE **6 MINS**

1:27 PM

DAILY MEDITATION GOAL

61%

MONTLY PROGRESS TRACKER

SPIRITUAL CONSCIOUSNESS

SELF CONSCIOUSNESS
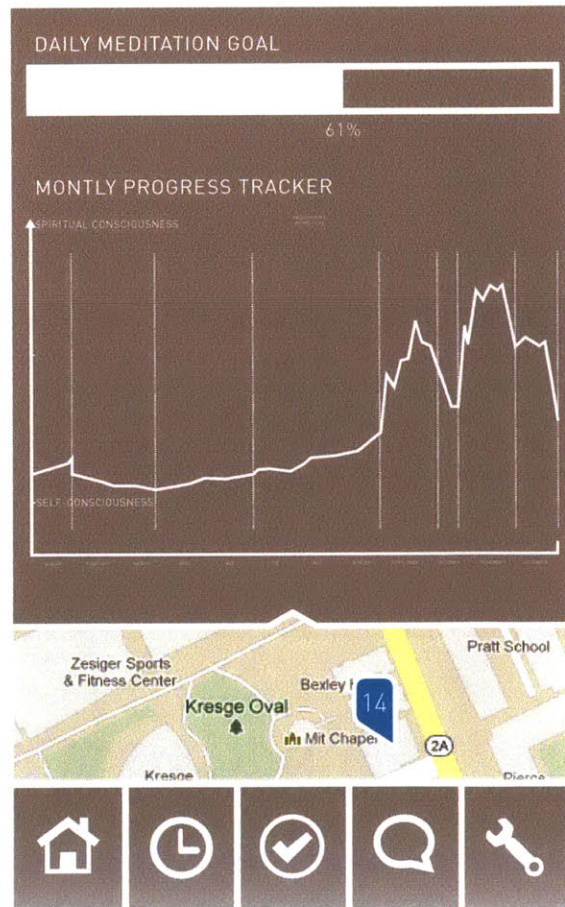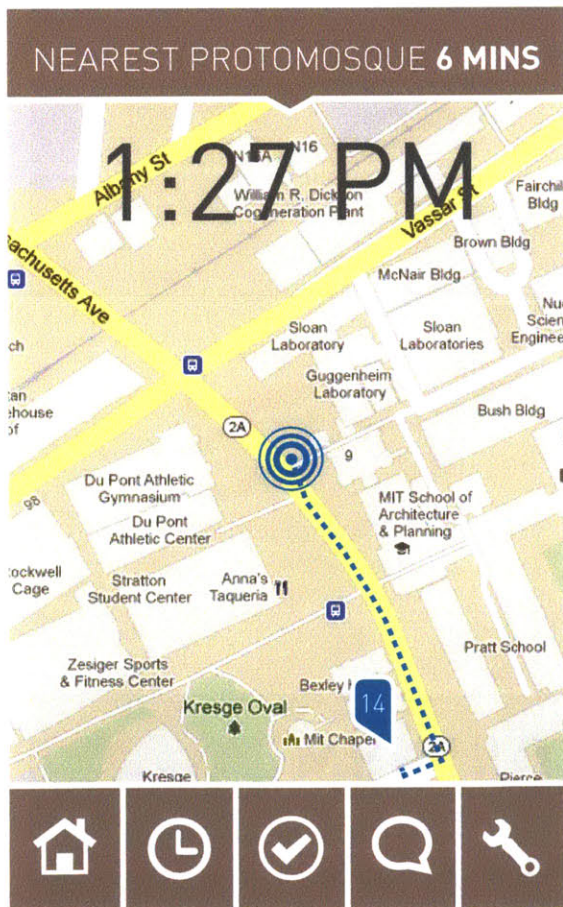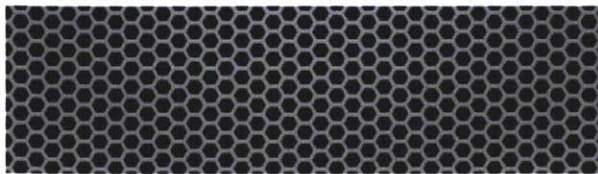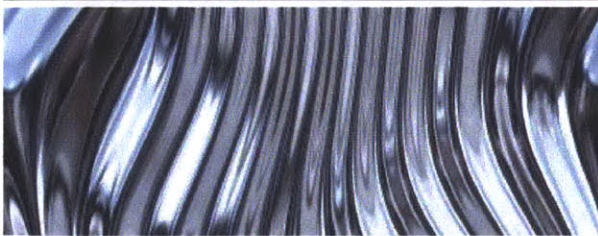
ESSAY: CRITIQUE OF THE AMERICAN 'RETROFIT' MOSQUE

This essay will attempt to bring into comparison the current contemporary critiques of the American mosque in order to highlight overlaps, ruptures and uncertainty in opinions. The primary text being analyzed through the scope of this essay is 'Deconstruction of the American Mosque; Space, Gender, and Aesthetics'' by Akel Ismail Kahera. References will also be made to other works, such as 'The Mosque' edited by Martin Frishman and Hasan-uddin Khan, 'Tradition Becomes Innovation' by Bartlett Hayes, an article titled 'Mosque Design in the United States' by Omar Khalidi, and 'Atlas of the Islamic World Since 1500' by Francis Robinson.

Additionally, a synthesis of found critiques will be supplemented by my personal critique of the American mosque. These supplemental critiques stem from two unique perspectives which differ from the authors of the previously mentioned worked, the perspective of being an American-born muslim trained through the conduit of an American architecture design curriculum. Also discussed will be a series of small interventions which attempt to address these critiques in a controlled environment, the MIT mosque.

When talking about the 'American' mosque, it is important to note here some of the attributes which make the American mosque a unique mosque type, separate and distinct from other mosques in Islamic lands. The first reason is financial in nature. It is important to understand that American mosques are almost always funded by local communities, unlike their counterparts in the Islamic world which tend to be financed by the state. This difference is substantial, as it directly impacts the size, form, expression, and function of mosques due to the finite nature of community resources which fund them. A second distinction can be observed in programmatic nature. The mosques in America almost always are a conglomerate of several programmatic functions which can include; the prayer space, school, community center, counseling and marriage services, shops, and multi-purpose function halls. In mosques in the traditional Islamic contexts, this programmatic need is typically not needed, and the mosque can function with a more singular programmatic role. Finally, mosques in America cater to a unique pan-global demographic of Muslims. The American mosques are much more diverse, and have to negotiate communities which are comprised from almost every ethnic make-up.

Islam is America's fasting growing religion, and as a result the number of mosques in America is rapidly increasing. A recent survey conducted in 2011 by Ihsan Bagby counted all mosques in America, and it was recorded that there are currently 2,106. The number of mosques more than doubled since the year 2000, a 74% growth rate in a little over a decade (Bagby, 4). This also highlights the mosque as a relatively young American institution, with more than 75% of all mosques being built after the 1980's (Bagby, 4).

Although mosques are undergoing rapid growth, they have several key shortcomings in how they address the unique contextual challenges and opportunities of the American context. The mosques of America have largely neglected the communities in which they have been inserted into, but instead have trended to alienate themselves and its patrons. The predominant American (non-Muslim) perception of mosques are dark, distant,

unapproachable and impermeable structures.

In Kahera's work 'Deconstructing the American Mosque', there is a clear defining of a conceptual premise and justification for American muslims need to find new ways of expression for a new spatial form, the American Mosque (Kahera 1). Additionally, there are three major polemics of deconstruction, or ways of analyzing and critiquing mosques, are identified.

The first polemic is understanding how to address or decode the meaning and function of vernacular aesthetic expression in Muslim religious buildings away from their center of origin (Kahera 13, 14). An emphasis is made on the shortcoming of historical and textual analysis in their ability to decipher the anomalies of specific regional and cultural expression (Kahera 14). Kahera here speaks about adapting spatial ordering, which in turn begins to provide a spatial vocabulary. What is striking about the American mosque is that it does not seem to have any architectural justifications asides from function. The mihrab and the qiblah wall still remain the primary spatial referents in the American mosque (Kahera, 14). Another aspect which is brought to attention is the issue of space and gender (Kahera 15). The tendency of the functionalist approach in American mosques is a pattern I have personally encountered and questioned.
The second polemic deals with the relationship with the mosque as an object and the context it is situated within (Kahera, 15). This relationship in the American context is often complicated, and the responses to context varies significantly in American mosque designs.

The third polemic Kahera defines is the lack of any sort of rigorous study of the history of mosques in America. This historical understanding is complex and requires an establishment of several case studies which attempt to understand the language of form and aesthetics which have emerged through the evolution of the American mosque (Kahera, 19). Key questions are posed at the end of Kahera's introduction of three polemics; How can today's architects arrive at a novel understanding or definition of the American mosque, apart from the idiosyncratic ways in which he or she has been trained to see and to understand? How will today's architect derive meaning from what he or she observes in the spatial paradigms of the past? (Kahera, 19) Here it is re-emphasized that the main problem in understanding the American mosque falls back on understanding the extent to which the context affects the final product (Kahera, 19).

Another important conclusion is derived by Kahera, the impossibility to understand the architecture of the American mosque without first understanding the history and lineage of origin mosques of the world. Understanding that there exists a dichotomy between the culture of the East and the West is crucial in interpreting the specific adaptations of the American mosque (Kahera, 19).
In Khalidi's article 'Designing Mosques in the United States', He strategically categorizes mosques into 3 main categories; mosques that embody 'traditional' islamic design from Islamic lands of the east, mosques which attempt a sort of reinterpretation of tradition in

combination with elements of contextual American architecture, and finally mosques which are entirely innovative (Khalidi). He also makes mention of a peculiar phenomenon, that most mosques in America were originally constructed for other purposes (Khalidi). Appropriately, a 4th category will be added to Khalidi's list, mosques which have been adapted from and occupy former structures or spaces.

In the construction of my own analysis, I have chosen to focus into the 4th category, an area which seems to be missing from the majority of critiques I have encountered thus far. In the opening paragraph of Khalidi's 'Approaches to Mosque Design in North America', an acknowledgement is made that this adapted category of mosques comprises a large majority of mosque structures in America, yet it is willfully avoided in order to analyze structures erected as mosques. Many authors have chosen to discuss the architectural forms and expressions of recently built mosques in America and made attempts to interpret their cultural significance. However, not enough attention has been made to the vast majority of mosques in the united states which comprise of spaces which have been converted from former churches, homes, commercial spaces, on-campus rooms and storefronts.

In regards to these adapted structures, there are two main polemics which organize my own critique of the American mosque. The first, an absence, or severe lack thereof a spiritual spatial mosque experience as a result of the adaptation of previously non-mosque spaces. The second, an absence of a visible presence in the urban realm which engages with its patron community as well as the community it is inserted within.

The essay will critique the external as well as internal workings of existing these American mosque models. There exists major internal shortcomings mosques in the way they have addressed the needs of its patrons, with a failure to establish a mosque model that is well suited for growth. An exploration will be made that focuses on developing new prototypes that deal specifically with mosque design in varying scenarios within the American context by amplifying its presence, rather than attempting to obscure/conceal/camouflage it. A new public visibility is crucial as Islam continues to grow, dispelling social stigma and bridging strong interfaith communities.

When speaking of spiritual experience, there are several common shortcomings of the uniquely american typology of adapted mosque (alternately known as 'storefront' or 'retrofit mosques') such as disorganization, clutter and the resulting diminishment of the mosque experience. The essay makes a claim that these shortcomings, though they are seemingly trivial, have a tremendous impact on the essence and spiritual quality of the prayer.

Clarification should be made here regarding the term 'retro-fit' as a type of mosque. In the context of this essay, the term 'retro fit' mosque will be used to refer to any mosque which occupies a building which was previously programmed as something other than a mosque, such as a retail, residential, commercial, or office space. My critique of the

american mosque will stay focused on the 'retrofit' mosque condition, as this represents a majority of the mosques, over 70%, within the United States (Bagby, 11).

In order to qualify these two main polemics, I will insist that the first (the absence of a spiritual spatial quality) is the primary polemic, and the latter is a polemic which stems from the former. Being such, first an extensive assessment of the lack of spiritual quality is necessary.

So what is implied by spiritual quality, or the lack thereof? This is certainly a subjective and difficult question, and the topic of debate among several philosophers and designers throughout the ages. I would propose my own humble definition of 'spiritual quality' in the context of the mosque as an atmosphere conducive to focusing solely on one's consciousness of God. This atmosphere can further be explained as the harmonious interplay between three elements; Material/Sensory attributes, Social/Political context, and Architectural devices (ground, envelope and space). These attributes will be further explained in a later part of this essay.

In order to understand the spiritual component which I claim is a shortcoming in these retrofit mosque conditions, it is important to distill and understand what is the essence of 'the mosque'. Quite literally, a mosque is a place to gather and worship God. And I think its relevant at this moment to mention the particularities of Muslim worship at this point. In Islam, worship is not only an internal act, but also an external physical action. There always exists this duality of the inner self and outer self, the body and the soul.

In reflecting on my personal experiences with worship, I began to ask myself; if worship is about internally and externally establishing a connection with the Divine, what are the moments when I have harmoniously felt this connection. And through this reflection I think a direction for research first began emerging. The first thing I realized, is that this internal/external harmony is somewhat of a rare occurrence that we take for granted. Being a muslim and visiting American mosques quite often, I found myself externally performing the prayer, going through the motions, but unable to establish an inner connection.

This is not to say that I have never felt this internal and external harmony. Reflecting on these few experiences, I began to recall some distinct places in my memory. The first being in Mecca in the presence of the Kaba, I found that the external action of the sheer number of millions of worshippers almost automatically stirred this internal connection. A second time was during an excursion into the desert. As we made camp, I walked out into the desert to be alone in the vastness, and offered a prayer. In that moment of utter solitude I also felt an ability to achieve an internal and external quality of prayer.

The fact that there were so few experiences of this phenomenon, and that the places where they did occur were so particular, I really began to draw the connection that Architecture and spirituality have a direct correlation. And when I say 'architecture' even in

reference to my experience in the desert, I'm really referencing the physicality of the space, the tangible and sensorial qualities of the environment produced in me the atmosphere for worship. Understanding the connection between architecture and spirituality, the issue of the retrofit mosque gained new importance. If the majority of American mosques can be categorized under the retrofit typology, this potentially means that the majority of the American Muslim demographic can be undergoing a sort of spiritual diminishment as a result of the under designed architectural expression of these adapted spaces. The issue of atmosphere is relevant in the analysis of the spiritual quality of mosque, and its ability to facilitate the process or worship.

A sub-component of many of the retrofit mosque atmospheres is the issue of gender separation within the mosque. In much of the traditional islamic lands, there exists a common problem in which women are discouraged from prayer in the public realm of the mosque. This is a phenomenon which has become commonplace in the Islamic world, but usually as a consequence of misinterpretation or lack of knowledge of the religious perspectives on this issue. In the Quran and islamic tradition, the issue of gender differences have been the subject of much controversy. But if we refer to the texts, men and women are defined equally as spiritual and intellectual beings.

"Verily for all men and women who have surrendered themselves unto God ... for all of them has God readied forgiveness of sins and a mighty reward." (Quran 33:35)

In Kahera's work, he mentions several case studies and fatwas which have been put forth in the islamic world which speak out against any attempts to disallow women from the public realm of the mosque (Kahera, 120).

Therefore, it stands that architecturally, men and women should have an equivalent atmospheric quality in their respective prayer space within retrofit mosques. However, this spatial discrimination of gender within the mosque seems to have culturally transferred over to the American retrofit mosque. In the overwhelming majority of retrofit precedents, the prayer space allotted to women is almost always atmospherically inferior. The women's prayer space has come to be defined by the leftover space in the mosque, rather than a space conceived of simultaneously with the men's prayer space. This has resulted in an unequal thoughtfulness in the quality of spaces between genders, the women's prayer space often lacking visual and auditory access to the prayer leader. In any attempt at improving the atmospheric quality of the retrofit mosque, the issue of gender separation is critical and at the forefront of the problem.

This 'atmosphere' is a complex issue and can be approached from multiple lenses. I will attempt to outline the major ways in which this spiritual atmosphere can be created in the context of these retrofit mosques. Some of these lenses through which atmosphere can potentially be generated are; atmosphere through nostalgia, atmosphere through immersive environments, atmosphere through variability and user defined spatial conditions, and finally atmosphere through spatial and architectural devices.

Atmospheric nostalgia refers to achieving a sense of spirituality through the use of cultural cues and symbolism. When referring to the American demographic of Muslims, mention should be made to a large majority of Muslims being comprised of immigrants from traditional islamic lands (the middle east, africa, and south asia). For many, these areas represent places in which Islam has been established for many centuries and has developed specific architectural expression which people have grown accustomed to.

Therefore, it is plausible to suspect that the these expressions can be deployed such that the embodiment of these design elements conjure up a sense of spirituality which is rooted in past experience. However this method of production of atmosphere seems conceptually flawed as their effectiveness seems to be rooted on a first hand experience of 'traditional' islamic architectural expression, an experience which will become less prevalent in the American muslim demographic as it transitions from immigrant populations to second and third-generation muslims in america, along with convert populations. This suggests that reliance on traditional or cultural cues to create spiritual atmosphere does not suffice in constructing a spiritual realm within the American mosque, and alternate atmosphere creating strategies must be explored.

This leads to the idea of atmosphere created by the immersive environment. Immersive environment refers to the prayer space within the mosque being conceived of as a singular design component, in which all functions of the mosque are seamlessly integrated and harmonious. This is response to the overwhelming number of retrofit mosques which have an extremely erroneous interior, often mixing together several aesthetic schemes within a small space. This sense of disarray in aesthetic treatment, in my opinion, promotes to a disruption of the spiritual atmosphere.

The immersive atmosphere tries to address this issue by limiting the aesthetic choices within the interior space in order to create a unified interior expression. The aim of the immersive environment is to heighten a spiritual atmosphere, but more specifically, it attempts at creating a temporary de-contextualized space. This quality of transition when entering the mosque from a worldly mindset into a contemplative and spiritual mindset is important when establishing a spiritual atmosphere. Additionally, immersive environments are known to elevate experiential quality.

Examples of spatial scenarios of the immersive environment can be seen in the areas of theater and cinema design, in which architectural devices such as sound, mood, lighting, and approach attempt to remove the spectators or participants from their own context, and place them within the context of the performance. This phenomena is often referred to as the suspension of disbelief, in which the spectator temporarily suspends the constraints of their own physical reality and accepts the artificial reality of the performance.

What relevance does this have to the experience of the mosque? To be specific, this transitioning of mindset has been largely neglected, and the threshold between the urban context and the prayer space is often abrupt. When we compare this to the threshold of the cinema experience, we see a series of spatial devices which transition the cinema viewer into a mindset which is conducive to receiving the content of the film. The long and winding dark corridor which separates the cinema auditorium seating from the general circulatory space of the cinema acts as an transitional atmospheric device. Similar atmospheric devices are in play in mosques in other parts of the islamic world, such as the transition from the urban realm into the spiritual realm through the passage of grand iwan's or portals in the mosques of iran. This intermediate zone in which the worshipper is spatially in between a urban and spiritual realm seems necessary for the transitioning into a mindset conducive to the prayer. However, when looking back to the retrofit condition, we see the absence of this transitional space, and perhaps this can begin to explain the lack of an spiritual atmospheric presence.

Another potential lens through which we can begin to look at the issue of atmosphere stems from an acceptance that perhaps the notion of spirituality is a highly subjective quality. Being such, it is possible to conceive of an architectural space which is configurable, and defined by individual worshippers, rather than assuming a fixed notion of spirituality defined by the architect. This idea of configurability potentially manifests itself in the issue of gender separation. Depending on the type of adjacency of the men's and women's prayer space, the need for an architectural barrier can be coupled with other architectural needs, such as the need for storage, lighting, sound, and display. This brings forth the possibility that the division between men and women in the prayer space can potentially be an opportunity for a new type of architectural device, an element which contributes to the atmosphere of the mosque rather than detract from it. An interesting notion of transforming the problematic 'barrier' between men and women into an organizing datum of the mosque is a strategy which has yet to be explored, and the retrofit mosques of the american context offer this possibility.

This potential is well demonstrated within the case study of the MIT mosque prayer space, in which the men and women's prayer space share a lateral adjacency. The lateral positioning of the men and women's prayer space is quite unique, as most mosques have a condition in which the women's prayer space is positioned behind the men's prayer space. In the lateral configuration, both men and women have equal access to the qibla wall, and the interface between men and women allows for interesting potentials of a shared architectural device which addresses privacy and storage needs.

Spatial and architectural devices serve to troubleshoot the common shortcomings of the atmospheric quality of the retrofit mosque. Some of these shortcomings have already been mentioned, such as the discrepancies in the prayer space provided between men and women, and the abrupt transition from the urban to the spiritual realm. There are, however, several other spatial shortcomings of the retrofit mosque. One of them builds off of the lack of a transitional zone, which has resulted in several problems in regards to the

atmosphere of the mosque. The simple acts of shoe removal before entering the prayer space, and the performing of the ritual ablution, has created huge logistical problems in the retrofit mosque. The absence of a transitional space typically creates conditions in which worshippers who have performed ablution circulate directly onto the prayer surface without having an adequate time for their contact with water to dry. The introduction of moisture onto the prayer surface is damaging to the notion of spiritual atmosphere, if we conceive of atmosphere to encompass all the sensorial components of experience (vision, smell, touch, sound).

If we take a closer look to the components which physically define the mosque in terms of atmosphere, we will realize that mosque traditionally have very few components at play. The prayer space within the mosque is primarily defined by the surface of prayer, or the carpeted surface. In addition to this are the few spatial components which define orientation, such as the mehrab, minbar, and qibla wall. In the retrofit model, there have been two approaches dealing with defining the prayer surface. One has been the embodiment of traditional patterns and carpet types, symbolically representing arches and columns as the spatial organizer between worshippers, so that they may establish orderly prayer rows. Alternately, a more functionalist approach to the prayer surface has become popular in the retrofit mosque, conventional industrial flooring materials. Typically a single tone of carpet in which the lines of the prayer rows are painted on taped on comprise the prayer surface. With the traditional or functional approach to the prayer surface, little has been done to explore an innovative or hybrid strategy for defining the prayer surface. This is critical as the prayer surface represents the single most important architectural element in defining the atmosphere of the mosque.

A potential spatial device which can address the issue of the prayer surface is the introduction of the gradient into the ground surface. This simple idea helps to metaphorically emphasize a spatial hierarchy, promoting a spatial positioning within the mosque, and symbolically representing the mosque as a transitional space between the affairs of daily life and god consciousness. Alternately, the gradient within the mosque serves as a spatial orienting device which reinforces the directionality the qibla wall attempts to create. What is important within this strategy is the creation of a new atmospheric condition which does not rely on traditional cultural cues, but rather an abstracted conceptual notion of space.
Another spatial strategy which currently does not exists in the realm of the retrofit mosque is the idea of spatial subdivision, or allowing for different spatial types to exist within larger prayer spaces. When we consider the function of other meditative or quiet zones, such as libraries, there exists multiple hierarchies of spaces. Within an accepted space of accepted quiet and concentration, there still exists more intense private study rooms, which amplify the conditions conducive to studying. This concept can be applied to the mosque, introducing new zones of intense meditation and prayer. This is a spatial strategy which is specifically relevant to the islamic notion of prayer, which embodies a collective as well as an individual component in the way worship occurs. The retrofit mosque needs to make an exploration in creating spaces which are conducive to this individual component of prayer.

These are spaces in which worshippers are encouraged to linger before and after collective prayers.

Finally, to bring specificity to the examples cited in this essay, a survey of 'retrofit' mosques in the greater boston area will be conducted which evaluates the condition of the previously defined atmospheric elements, as well as the resulting spiritual quality produced in the space. The following mosques were visited in the scope of this study: Islamic Society of Boston, The MIT mosque, and the Roxbury Masjid.

As seen repeatedly throughout the examples within this survey of Boston mosque, we begin to understand the premise of the initial critique. The typical 'retro-fit' mosque does suffer from both a lack of spiritual quality as well as a lack of visibility in the urban space.

In Hayes' work, 'Tradition becomes Innovation', the dilemma of architecture being responsible for creating the spiritual realm is highlighted. (Hayes, Forward). He poses two very interesting questions; 'Do church structures built in the last two decades evoke a spiritual response in the worshipper? Do they serve the functional needs of the congregations?' (Hayes, Forward). He mentions how architecture in the post-modern era is still in an uncertain period in questions regarding metaphysics, and how our age does not seem to reflect anything beyond a polite agnosticism (Hayes, Forward).

'Good design knows no poverty. Too often a church committee holds the view that good design is expensive, that an architect cannot be encouraged to think creatively because it will be beyond the budget. But whether the church is to be one small room or a vast cathedral, good design enhances the spiritual atmosphere in which the liturgy can have an inspired meaning' (Hayes, Forward).

Here Hayes mentions two important roles that spiritual architecture must serve. 'The church structure should not only reward the emotions of the congregation but also excite the wonder of the stranger' (Hayes, Introduction). This is an excellent observation, and one that particularly plays into the notion that the territory of the mosque should serve not only its patrons, but also the communities they are situated within. Having the members of the mosque hold lectures outside would incite curiosity in bystanders, educating them of the subject matter, erasing any misconceptions and differences they might believe the Islamic community has in the American society. The introduction of a public forum, or a space accepted as an area for debate and dialogue, is a spatial device which can be incorporated into retrofit mosques.

The idea of interface, or the mosque engaging its context in a new and profound way is still an issue which has yet to be developed. The retrofit mosque conceptually is an interesting metaphor in how Islamic values can be adapted to embrace and operate within varying political contexts. But in what ways can the mosque space truly interface with its non-muslim surroundings in the American context? Can the open plan of the mosque be programmatically shared with non-muslim functions? Similarly, can the functions of the

mosque begin to spill outwards beyond the boundaries of the mosque and occupy spaces in the urban realm?

By looking to the example of the NYC mosque, commonly referred to as the 'Ground Zero' mosque, we can begin to see the way in which an inclusive mosque structure can create a more embedded sense of belonging with its community. The mosque takes on the strategy of making the majority of the complex open to the general public, within only small portions of the building, the prayer space, restricted to non-muslim use. The types of program which are offered, such as an auditorium, theater, a performing arts center, a fitness center, a swimming pool, a basketball court, a childcare area, a bookstore, a culinary school, an art studio, a food court, and a memorial, provide interesting opportunities in which the context engages with the mosque.

The contemplative or spiritual atmosphere that the mosque has the potential to produce is an architectural space which is unique and non-existent in American architectural vocabulary. As mentioned previously, I view the lack of a spiritual atmosphere as the primary problem in retrofit mosques. If there are strategies in place to resolve the issue of atmosphere, than perhaps the problems of visibility in the American urban context will begin to resolve themselves. Ideally, the great mosques in traditional islamic lands serve as sanctuaries of stillness and tranquility in the urban fabric. This should be a quality and motivation that the atmosphere of the retrofit mosque should attempt to emulate.

Beyond the physical prayer space, mosque centers should make an attempt to create public amenities which can be shared by members in the communities mosques are inserted within. This is an important issue which has not yet been properly addressed. The majority of mosques in America are inserted into primarily non-muslim communities, and the lack of participation non-muslims have in the activities of the mosque tend to alienate the patrons of the mosque from the inhabitants of the communities surrounding the mosque. The hostility created by this alienation can be quite easily avoided by the allowance of certain mosque functions to be shared, such as recreational facilities. If the American context begins to see mosques as an asset, which uplift the communities they are inserted into rather than serve as a nuisance, then the idea of retrofit mosques is solidified and strengthened as a contextual American building type.

Another important idea Hayes brings into discussion is the need for spiritual architectural expression to be reinterpreted by each generation. 'Each is shaped by the architectural "costume" of its own period. In keeping with tradition, therefore, the 20th century church architects need to advance the characteristics of the present time so that faith may endure as a vital, guiding force in modern society. This is extremely relevant to the challenges faced by the American mosque communities of today. What is the 'costume' of American mosques today? It seems as though the American mosque is still searching for its own uniquely American identity. As observed in Omar Khalidi's categorization of mosques in America, mosques either embody a nostalgic notion of traditional islamic architecture, or a fusion and reinterpretation of tradition and american architectural expression. Very few

mosques have explored the potential of truly innovative mosque forms and expressions which can be understood as the costume of our time in respect to the American retrofit mosques of the 21st century.

BIBLIOGRAPHY
1. Kahera, Akel Ismail. 2002. Deconstructing the American Mosque; Space, Gender, and Aesthetics. Austin, Texas: University of Texas Press.
2. Hayes, Bartlett. 1983. Tradition becomes Innovation. New York: The Pilgrim Press.
3. Frishman, Martin and Hasan-Uddin Khan. 1994. The Mosque. London: Thames and Hudson Ltd.
4. Moussavi, Farshi and Michael Kubo. 2006. The Function of Ornament. Cambridge: Actar, Harvard University Graduate School of Design.
5. Khalidi, Omar. 2001. Mosque Design in the United States. 24-33 Saudi Aramco World. December Issue.
6. Bagby, Ihsan. 2011. The American Mosque 2011.
http://faithcommunitiestoday.org/sites/faithcommunitiestoday.org/files/The%20American%20Mosque%202011%20web.pdf

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وَمَا خَلَقْتُ الْجِنَّ وَالْإِنسَ إِلَّا لِيَعْبُدُونِ ۝

"And I created the jinn and humankind only that they might worship Me."