

Design Criteria for Mosques and Islamic Centers

Art, Architecture and Worship



Akel Kahera, Latif Abdulmalik and Craig Anz



In memory of Ayesha Muhammad

(d. 2006 CE/1426 AH)

and

Hajjah Mufeedah Abdul Karim

(d. 2006 CE/1426 AH)

inna lilahi wa inna ilayhi raji'un



To the extended (Anz) family

and

To Hajjah Hakimah Abdulmalik

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Preface

In urban America [and Europe] religious institutions are woven deeply into the physical and social fabric of the city. In nearly every neighborhood we find temples, churches, synagogues and mosques. These places of worship are perhaps the oldest and most ubiquitous forms of the urban community – the religious congregation.

Omar Roberts,
Streets of Glory (2003)

The core of this book deals with several different levels of architectural analysis related to the formation of the urban mosque in Europe and America over the last three or more decades. In this connection, two primary sets of documents are critiqued and discussed. First, in Chapter 1 our goal is to understand the changing multitude and modes of esthetics, in relation to religious observance or practice, which can become an important educational tool for designers and architects. The acquisition of places of worship has always played a crucial role in the principle of religious freedom in Europe and America. Likewise many religious groups, once settled in a new environment, have always established a place of worship; over the last few decades these places have become symbolically laden arenas with respect to design. We must keep in mind that in an unfamiliar environment nothing is more meaningful than a familiar image, because it gives expressive meaning to one's belief and gives identity to a group that for a large part represents a Diaspora community.

By invoking al-Jurjani's theory, we can understand expressive meaning in architectural language and syntax by following two methods: the first conceives of language as mere words isolated from a context while the second conceives of it as context only. These two approaches have their parallels in the esthetics of the urban mosque. One approach views fragments of esthetic meaning as precedent handed down through history, independent of meaning or time. Another quotes the formal elements devoid of any meaning. But the picture is more complex; besides communal worship there exists a ghostly residue of emotional and cultural feeling attached to the image of the edifice that causes a most intractable design problem. Towards this end we provide an evaluation of iconic and non-iconic buildings that suggest hybridity, differentiation, integration, and transcendence. Second, in Chapters 2–4 a wide range of drawings, plans, sections, and elevations are studied; the analysis of these documents sheds light on the ideas conceived by the architect for the edifice as well as the external working of the site and the building plan.

This type of evaluation helps us to also understand to what extent the physical space of the urban mosque exercises control over land use and public space; at the least the evaluation serves as a planning apparatus within the realm of design. The same apparatus can simultaneously help the designer to carefully experiment at multiple levels of engagement with a building plan since no established design standards exist for a mosque. Our approach is legitimized by the fact that the word *masjid* (mosque; pl. *masajid*) literally and quite simply means 'a place of prostration', with no a priori style or form dictating it beyond its basic use; as such the spatial characteristics of the mosque, unlike the church or the synagogue, are intrinsically defined by the act of prostration. This is especially so because the act of worship (*ibadah*) is not rigidly tied to a particular place, space or form (covered or uncovered) but rather to a prescribed time. Associated with the place of prostration is the *qiblah* (the ontological axis) with which a worshipper or an edifice is oriented towards Makkah (Mecca). Mosques everywhere in the world adhere to this ontological rule; it is an exoteric expression of belief, which must be adhered to. The *qiblah* is universally recognized by its *mihrab*, which signifies the point where the *imam* stands facing Makkah, to lead the faithful in prayer. It may be a simple demarcated space on the ground or a structural element in an edifice, as a rule that governs worship and the construction of an edifice; the community (*ummah*) decidedly understands the *qiblah*.

Owing to the importance of the above esthetic principles and the role they play in the design of a contemporary edifice, in our view the *masjid* is a system of temporal spatial coordinates; it carries no preconceived order with the exception of the required physical *qiblah* orientation of the congregational prayer space (*musalla*) towards Makkah, and except for the cultural overlays that quite often may seem to overrule the potential for design. As an example, when it comes to direct endorsement of women's right to full participation in the space of the mosque, Claude Lévi-Strauss's notion, 'reversible space and linear time',

Preface

can be understood in numerous ways. Above all the notion draws upon popular naive prejudices, which are extended to the characterization of gender. The problem here is to understand not only how competing visions of congregational space and spiritual life coexist, but also how they are invested with parallel virtues. Broadly speaking the concept of women's space is driven by dual impulses: a strong sense of culture and custom. Such impulses are to be questioned for at least two reasons: first, there are enormous architectural implications and, second, a whole host of Qur'anic injunctions negate any form of gender bias, especially in the communal act of worship. We discuss this point at length in Chapter 5.

In Europe and America there are four or more stages in the development of the urban mosque: an early period dating to the turn of the century such as the Mosquée de Paris built in 1926; secondly, the Islamic Cultural Center of Washington DC built in 1957; in the third period the proliferation of mosques in the West such as the London Central Mosque completed in 1977; and the fourth period from the 1980s to the present day, for example the Islamic Cultural Center of New York built in 1990.

Much of the extant regional examples from the Muslim world, that are taken as precedent, informs the formative concept of a *masjid*. As we have stated above it is important that the architect understands that the Qur'an does not prescribe a fixed plan or style for the building; in contrast, we are allowed an open-ended set of relationships for design and the communal act of worship to occur. This point was discussed at length in *Deconstructing the American Mosque: Space, Gender and Aesthetics* (Kahera, 2002), which proposed a hypothesis that describes specific understanding of doctrinal ideas, gender, and esthetic relationships. In this connection many communities lack decisive power largely because of the inability to reach general consensus or communal agreeability in their new and often multicultural urban contexts; extending this argument, it is clear that a community will always try to resurrect and impose familiar, and often dominant, *extra muros* cultural configurations and representations.

In general the resultant spatial arrangements that respond to the urban environment and the city are also part of a transnational form of Islam whereby culture, identity, and religious practice become inseparable. So there is little doubt that the appearance of the urban mosque holds symbolic value for the stakeholder, which is not likely to be solved via design mechanisms, proxy cultural representations, or stylistic criteria alone. Today, the ability to work within virtual space and 3D modeling processes provide an opportunity to predict how the structure and design functions and to identify potential planning problems beforehand. That is to say, an effective design analysis requires careful consideration, while also allowing for deeper connotative, conceptual, semantic, and/or symbolic processes to simultaneously emerge.

It is no accident that over the last three or more decades the urban mosque has witnessed remarkable development. It might be argued that this is the result of Diaspora and the influx of Muslims who now reside in greater London, Rome, Paris, New York, Atlanta, Houston, Washington DC, etc. It might also be argued that the urban model that imposed itself in the city is in

direct contextual relation to the urban environment and an outcome of particular planning considerations. In this regard we can observe that the plan of the urban mosque is not fixed; quite naturally the design language is rather complex. While urban spaces affect people and human behavior, this level of analysis is driven by a complex array of esthetic tropes such as cultural, traditional, and modern design principles; each concept is apropos to the perception of the client, community, and/or users. The problem is further complex because the city is not a single language; it is composed of multiple creolized spaces and it may impose a grammar of urban rules, which reflect a collective use of habitat and shared place. That is to say, communal participants in the practice of everyday worship may shape the boundaries of public space. These are issues that do not always reciprocate or coalesce; furthermore the Diaspora community is often engaged in the contesting urban space. The seeming lack of clarity that identifies the meaning of the term 'Diaspora esthetics' has thus far remained superficial. The term is not only related to art, architecture, and worship but the effects of custom, law, and the social values that sustain the lifestyle of the community. In addition, each community has its own specific geographic and regional circumstances and history; as a result we cannot exclude these factors.

As we shall see in Chapter 1, a number of polemics give legitimacy to 'Diaspora esthetics' – or the widespread idea that beauty is *extra muros*, i.e. coming from a foreign place. The idea gains legitimacy from what Soliman Nyang (similarly also Mircea Eliade) refers to as the 'myth of return', which is simply the common perception of compatriots who share a strong sense of nostalgia and are thus driven to keep the 'myth of return' alive. Faced with this sense of nostalgia they cling to a plethora of familiar and often symbolic representative forms, shapes, and images from a foreign place of origin, while at the same time plotting always to return to that place; if only the myth is kept in mind an embodiment of their inhabited actions is expressed in their newly adopted context.

Nowhere is this observation more true than in urban settings, where the image of the city is being transformed with layers of cultural and religious diversity added to the fabric of the city. Each layer is the result of Diaspora, which comes with each wave of Muslim immigrants and, as such, because the urban mosque is a communal construction, it also depicts unique forms of relationships and urban boundaries.

Embedded in the idea of 'the myth of return' are two critical questions related to Diaspora esthetics, and art, architecture and communal worship: (1) What does it mean to be a Muslim in a particular urban setting in the West? (2) How does the visual expression of the urban mosque on the physical landscape explain identity? The construction of religious identity can be viewed as a set of allegorical relationships; one of the most visual materializations of Muslim religious identity is the appearance of the urban mosque. Until there is consensus about the definition architects will need to be clear about the more important functions of the building.

With regards to art and worship, epigraphy has both essence and appearance, it is self-evident, it has meaning when it is

read, or even when it is rendered in a highly stylized manner it evokes delight. Calligraphy is a composition that transmits a message. For example, when seen as art it exhibits beauty and meaning; the communicative power exists because of its syntactical structure. In terms of syntax the development of epigraphy was more systematized and controlled than the structure of a building simply because it is essential that the meaning of a text must be understood.

But what happens when we add epigraphy to a structure, what happens to parts of the structure or the form? What happens when epigraphy is absent from a structure? The same phenomena exist in Europe and America, where we find the absence and the presence of epigraphy in the mosque. The European and American mosques display an enigmatic use of ornament, inscription, architectural form, and imagery. Three conditions are identifiable:

1. The primacy of the act of devotion as a necessary criterion in determining the characteristics of a liturgical space.
2. The embellishment of a space for devotion is a contingent matter that, although integral to worship, is entirely independent of any liturgical requirements.
3. In terms of architectural history we are confronted with the issue of historical precedent and antecedent, or the various ways an earlier building has explicitly influenced a later one.

These enigmatic features are directly related to the problem of esthetic consciousness and the question of regional identity. The subject of the book is therefore threefold. First, it is intended to

codify a set of conventions that organize the space of the urban mosque in Europe and America. The second subject is to provide an analysis of an operative code by examining various case studies; this analysis will help us to understand how the tenets of space affect form and function beyond the simple influence and residue of culture – we always carry our baggage, but don't always have to make it the first move. Finally, the book will address the conceptual framework, the common distinction between the sacred and the profane that is enforced even in the secular city and that has a profound impact on the rituals which establish it. Our research was conducted because we understand the problem and we recognize the need to explain the conceptual framework of the urban mosque; therefore what follows is a critical study of the common principles that influence the design of the mosque. The study remains important yet it is impossible within the scope of this book to discuss all the extant examples, so we have selected a few different examples. In short this is meant to give the reader in-depth information and to explain issues of spiritual sanctity in the manner of John Ruskin's *Seven Lamps of Architecture* and Staale Sinding-Larsen's *The Burden of the Ceremony Master: Image and Action in San Marco Venice, and in an Islamic Mosque*. Above all, we must remember that 'place making' is not created *ex nihilo*, and that ritual and religious space matter.

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The synthesis of form

L'exemple des musulmans peut nous éclairer au sujet de la particularité des formes de lieux de culte en contexte migratoire: en effet, en terre d'immigration, la mosquée adopte souvent la forme et les fonctions d'un centre communautaire ... La mosquée au sens où nous l'entendons possède souvent un statut et des ressources plus importantes, et certaines d'entre elles, en tant qu'institutions islamiques, fonctionnent comme marqueurs symboliques dans l'espace urbain ...

*Julie Elizabeth Gagnon and Annick Germain,
Espace urbain et religion (2002)*

Diaspora and the urban mosque

Today, one of the most visual expressions of global Muslim religious identity in Europe and America is the existence of the urban mosque (*masjid*). With an estimated 4.1 million Muslims in the USA, 4.1 million in France, 3.2 million in Germany, 1.8 million in the UK, and 1 million in Italy, the most prevailing aspect of this identity exists within the four most populous urban metropolitan areas of New York City, London, Paris, and Rome among others (PBS.org., 2007). The term 'urban mosque' refers to the representative religious edifice constructed by Muslims who reside primarily within urban locales in the western world; often described as an Islamic center (*markaz*), it is where the faithful gather to engage in communal worship, spiritual retreat, matrimony, education, and other significant socio-cultural activities. The key challenge for an architect who is commissioned to design an urban mosque is how to interpret the broad range of esthetic, liturgical requirements and site planning considerations that also coexist or are co-substantiated within a given urban setting; particularly those composed within multicultural influences, while also being true to the inherent properties that define the faith, its identity, and its sacred place. In other words, how does an architect deal with this particular building type to arrive at a synthesis of recurrent and shared common, characteristic, and distinguishing elements of a mosque such as the *minaret*, *mihrab*, or dome, while also seeking innovative, esthetic, contextual, or place-specific ideals without loss of validity, truth, or value. Because urban Islam is often imbedded in a transnational identity, the collective activity of worship treats the mosque as a reflection of the particulars of a displaced *Diaspora* community, yet within the intrinsic belief system, that which is essential remains in memory; the urban mosque spans a range of cultural nuances, traditional styles, modern schemes, traditional styles or even hybrid appearance, which can have

power over the essential or substantial image of the edifice. To situate the problem it is important to realize that both architect and client basically face three related design choices. Firstly, an approach that attempts to interpret and to bring critical analysis to bear on the fundamental understanding of space, form, symbol and order, which makes it possible to avoid what can be considered esthetic anomalies or disparities within multiconditional contexts. In other words too often the urban mosque is described in terms of a particular subjective cultural idea and its associated esthetic icons and appliquéés, 'removed from their original contexts'. It is with that understanding that the work becomes a purely performance objective for the architect to build the underlying functional format upon; to merely *graft* displaced cultural representations also override or give a false impression of the overall ideals of the religion. Secondly, because the mosque is a building type endowed with an over 1500-year history as well as a deep-seated array of traditional influences, it may be very difficult for any client or architect to suspend the temptation to randomly borrow a priori ideas, arbitrary precedents, or eidetic representational forms from the corpus of examples that exist throughout the Muslim world. The confusion that can form with such a vast array of ideas and images along with the general opposition toward traditional influences within modernist thinking can also lead to purely reductive views and processes that create building forms completely detached from the fundamentals that form the quintessential Muslim edifice and its embodied, global identity. Finally, many communities lack decisive power and collective, communicative action over cultural style and imagery largely because of the inability to reach consensus. Local precedents, codes, social structures, and practices here can also override the necessary components, which define the overall identity of the mosque and its participants as a collective community. Therefore, there is need for informed architectural leadership

and engaged advocacy in mediating or even synthesizing shared experiences from multiple views into new contexts as manifested, built forms that represent and maintain the overall religious identity, while also meeting local standards, practices, and social views. The literature on this topic is now more frequently available as a resource but a key question remains for the architect: how to interpret the specific symbolic and esthetic associations for the urban mosque in Europe and their implications within greater, multifaceted contexts? Is it at all possible to conceive of an urban mosque as an authentic European or American representation, but also an ongoing composite form, while also retaining authentic value and identity to its practicing faith?

Authenticity means that the architecture of the mosque has a twofold space conception: spiritual and physical, epistemological and esthetic. These are fundamental areas of concern, which an architect will have to decipher and from which to compose form and structure. It is within these areas that the architect will also have to learn to become a mediator or negotiator of experiences, beliefs, and ways of knowing, while also bringing to bear on the design, the basics of building codes, local zoning ordinances, and socio-cultural dogmas. Most importantly

is the sanctuary, the primary assembly space (or *musalla*) where men and women gather to pray on a daily basis, read the *Qur'an* and engage in a host of pious activities. Aside from cultural rivalries over women's unfettered access to the mosque – not withstanding conflicted feelings common to a furor of legal opinion, which carry authority, and in extreme cases censorship – such cases are hard to assess by an architect within differing or even conflicting contexts, views, and standards of performance.

Above all the design conceptualization of faith, spirituality, and esthetics can support two primary tropes. First, to preserve the identity of the various forms that constitute the elements of a religious edifice for men and women, elements that thematize the relationship between spiritual repose, spatial equity, and esthetics. In this sense it is important for an architect to remember that the Promethean myth does not exist in Islam. As you recall Prometheus, who according to Greek legend frustrated the plans of Zeus, embodied individual idealism – the capacity to overcome or to remedy shortcomings by reason and the power of free will. All of this has no particular artistic value to the esthetics of a mosque.

Houston Area Mosques

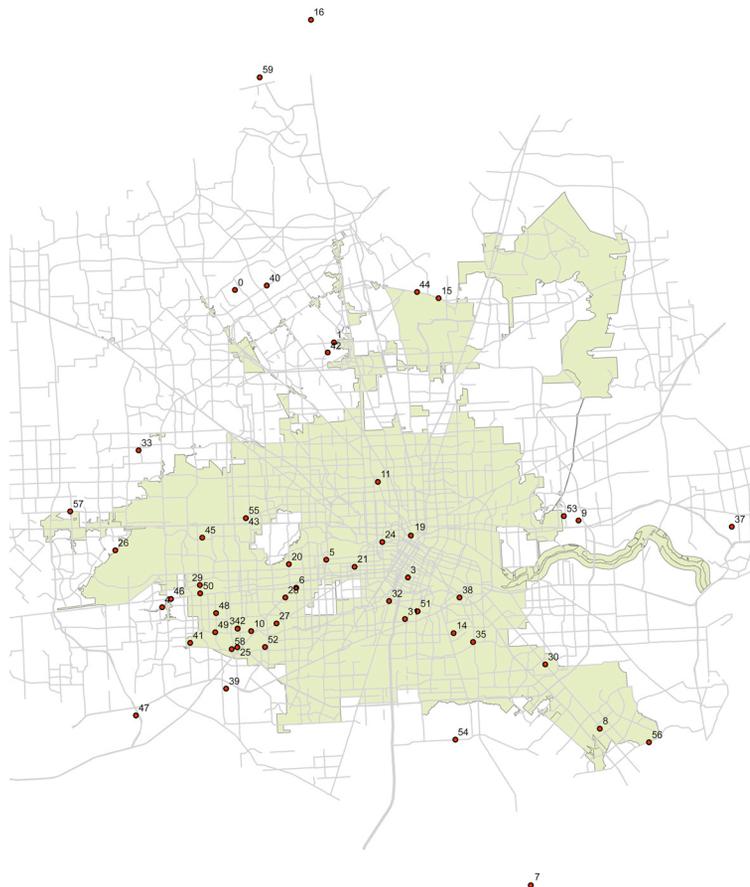


Figure 1.0 GIS map (2008) showing the location of Houston area urban mosques. (Drawing courtesy of Robert Thurmond)

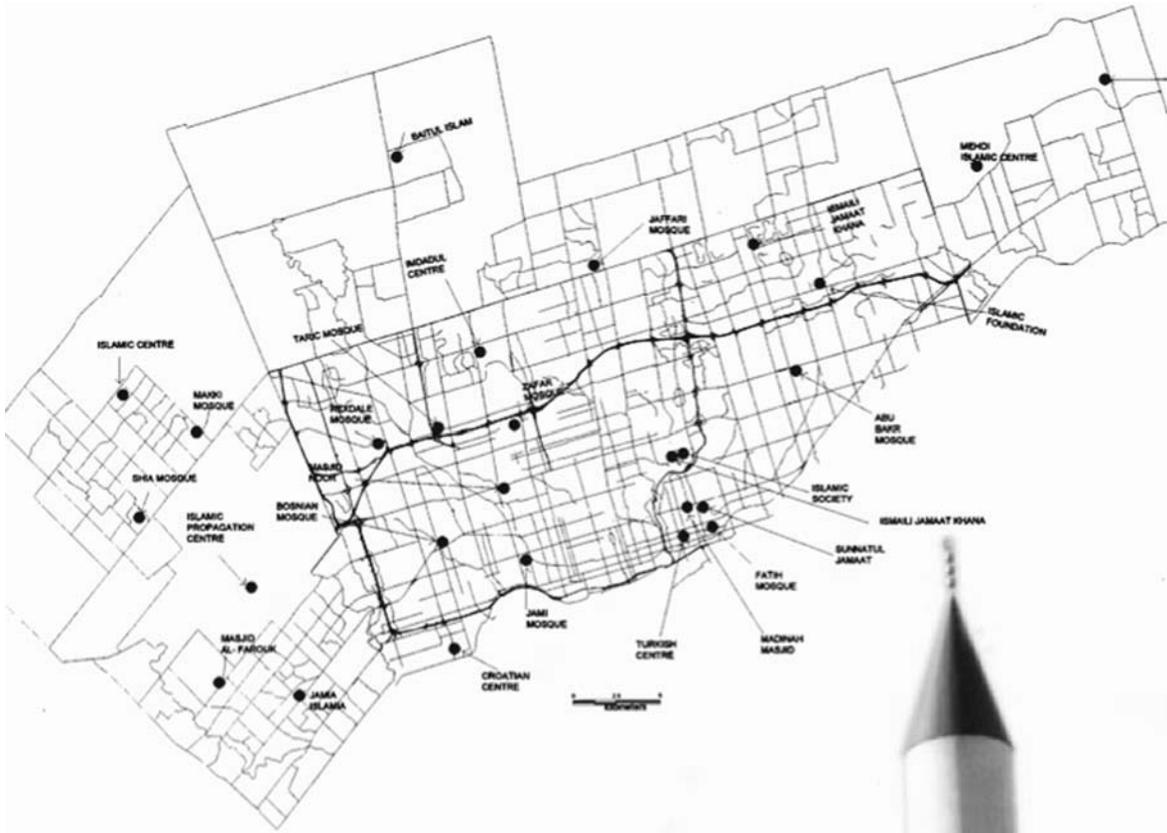


Figure 1.1 Map of Toronto area urban mosques. (Drawing courtesy of Mohammed Qadeer and Maghfoor Chaudry)



Figure 1.2 Masjid Malcolm Shabazz, Harlem, New York City. (Photo © 2007 by Zain Abdullah)

However, it is easy to forget that religion and the sacred have traditionally been the major factors organizing the human space of the mosque. In Muslim aesthetics the hegemony of the discipline called *Shari'ah* (sacred law) has dominated the written and

the spoken word, often altering the relationship of faith to esthetics. Muslim religious esthetics is therefore a Theo-centered epistemology. Knowledge on the one hand, and history, science and art on the other represent a holistic and Theo-centered expression. This point can be observed in several variations on a theme from the seventh century CE when the first mosque was built until the present day. The result is a rich myriad of corresponding metaphors and examples with an underlying ontological spatial order and spirit. Although sometimes transformed, the examples cited illustrate many patterns of use and many types of spatial arrangements within an overall consistent theme. The examples featured here of mosques in Europe and America illustrate the way they have responded to this very epistemic configuration and unique design problem, beyond the Muslim world. Second, linking the sacred texts to the foundations of belief, it is important to pin down precisely the semantic components of the mosque. We may begin simply by asking the question: what is a mosque? How does one come to know and identify the mosque and one's being with it as a special or sacred place, but also within which one becomes to be identified within a community of affairs and beliefs?



Figure 1.3 The *mihrab*, *minbar*, and *musalla* (sanctuary) of London Central Mosque (Regents Park). (Photo © 2007 by Craig Anz)



Figure 1.4 Minaret and principal dome of the Islamic Center of Boston (Roxbury). (Photo © 2007 by Muhammad Abdus Salaam)



Figure 1.5 Courtyard (*sahn*) and interior façade of the Grand Mosque of Paris. (Photo © 2006 by Catherine Galley)

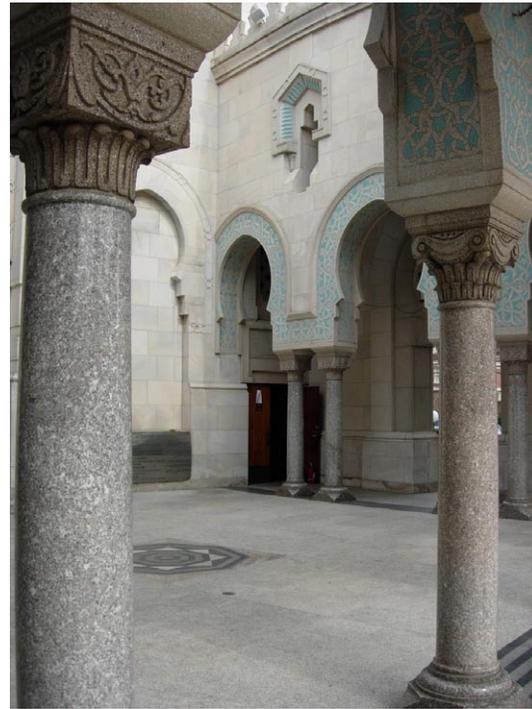


Figure 1.6 Courtyard (*sahn*) and interior façade of the Islamic Cultural Center, Washington DC. (Photo © 2007 by Mark Susman)

The answers to these two questions are best summed up by Thijl Sunier (2006) as follows:

In such an approach, identities, both of religious newcomers and of the host society, often seem to be fixed



Figure 1.7 Minaret of the Freimann Mosque, Munich. (Photo © 2007 by Craig Anz)

categories. As a consequence, many studies on the construction of mosques do not look beyond formal arrangements. One of the most ambitious plans in the Netherlands was the realization of a huge complex consisting of a central mosque, sporting facilities, conference halls, etc. initiated by the Turkish Milli Görüs movement in the Amsterdam district De Baarsjes. Officially named The Western Mosque, the construction of which started in 2005, is being built in the style of the Amsterdam architectural school. At the launching of the plans the chairman of northern branch of Milli Görüs Netherlands announced: ‘We do not want an ugly big white pastry in our neighborhood, as you sometimes see when they build a new mosque. Our mosque will be completely in the style of the “Amsterdam School”, such that it fits perfectly in the neighbourhood and becomes a real Dutch mosque.’

Above all a mosque is primarily a place of spiritual repose, a spiritual sanctuary. There have been more than one hundred mosques in Europe and America established over the last five decades. These mosques display a wide variety of styles based on this broad interpretation of esthetic vocabulary and the need to meet the liturgical requirements. However, the plan of a mosque’s fellowship hall for men and women is a fundamental criterion; it is primarily governed by the liturgical axis towards Makkah (Mecca). The indication of this axis is a niche (*mihrab*) in the wall facing Makkah.

It is very important to the faithful, but mosques are not built according to divine patterns; the two main religious texts for Muslims, the *Qur’an* and the *hadith*, provide no clear rules as to what a mosque should look like; however, the *Qur’an* does stress the value of the edifice as a place for the remembrance of God and the *hadith* prescribes a list of profane actions that are not allowed to take place in a mosque to keep the sacred in the minds of its knowing and acting participants. For example, the absence of human or animal imagery (iconography) that we



Figure 1.8 Freimann Mosque, Munich, circa 1973. (Photo © 2007 by Craig Anz)



Figure 1.9 Islamic Cultural Center, Washington DC.
(Photo courtesy of the Library of Congress)



Figure 1.11 Detail of the Minaret of Al-Farooq Mosque,
Atlanta, Georgia. (Photo © 2008 by Akel Kahera)



Figure 1.10 The minaret and dome over the *musalla*
(sanctuary) of London Central Mosque (Regents Park).
(Photo © 2007 by Craig Anz)



Figure 1.12 Minaret and dome of
Al-Farooq Mosque, Atlanta, Georgia.
(Photo © 2008 by Akel Kahera)

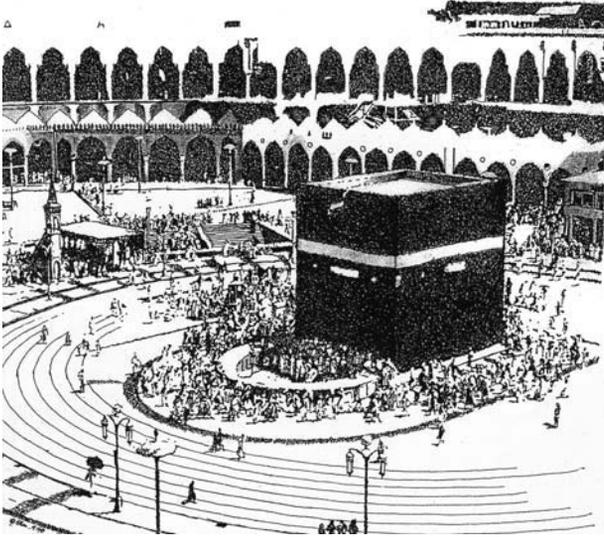


Figure 1.13 The Kabah and the sacred mosque at Makkah. (Drawing by Latif Abdulmalik)

find in a mosque could be understood as follows. The essence of sacred art remains always reflective, contemplative and Theo-centric; the acceptance of revealed truths requires a keen intellect (*al-aql*), the purity of heart (*qalb*), and the piety of one's soul (*ruh*) without added features or embellishment immanent to themselves by their own virtues.

Historically three kinds of visual patterns have evolved in sacred Muslim art: (1) designs derived from plant life often associated with the *Arabesque* in North Africa (or the *Maghrib*); (2) Arabic calligraphy, which is the most revered art form in Islam because it conveys the word of God; (3) tessellation or the repetitive 'ordering' of a geometric pattern. In general these three are not as common to mosques in the west as they are in their original geographic and historic contexts, although isolated examples of their occurrence do exist in varying form and composites.

Of particular importance to the esthetics of the urban mosque is the realm of interpreted meaning, in other words the characteristics of sign and symbol. One can describe the process, properties, and elements employed in the characteristics of spatial treatments, but at the level of construction we find an exhaustive category of types and subtypes. In other words we want to insist that the urban mosque is a fundamentally spatial form with many types of corresponding modes of creative expression. However, when we consider the concept of worship in Islam no symbolic form comes to mind, only the idea of submission as an essential element of belief. The reluctance of directly investing a building, a man-made structure, with divine reality is rooted in the rejection of idolatry. Therefore the absence of the Icon as a liturgical element in mosque architecture is significant because it would constitute a fundamental agent of polytheism. The relationship between the elements that create architectural

expression and composition can therefore be perceived as a synthesis, a relationship that considers the user and the building both subjectively and objectively.

The urban mosque as a space for contemplation and worship is responsive to this relationship while adhering to these underlying conventions. The validity of this analogy and its applicability to the topic will be discussed in further detail. We must therefore recognize that the appropriation of space involves those clients with distinct ethnic aspirations. But the difficulty lies in choosing what to recall from the past and what to select from a particular vocabulary of an émigré's place or history, and this kind of profile in short makes up the vast majority of design variations that exist today. For example, over 64 per cent of mosques in America serve one ethnic group, African-American or Asian, whereas 34 per cent serve two dominant ethnic groups, Arab or Asian (Bagby et al., 2001). It is for this reason that the issue of 'women's space' has sparked a debate; it is mostly provoked by the claim that the women's space in a mosque is in accordance with 'this' so believed custom or 'that' practice. The illicit confluences of such disputes have led to a vigorous feminist response; we will take up this debate in subsequent discussions.

There have been many interpretations of these types of space indicated by Metcalf (1996) in *Making Muslim Space in North America and Europe*. Another interpretation treats Islamic practice itself as prescriptive in terms of behavior; undoubtedly the desire for communal worship is rooted in a long tradition of public gathering, especially on Friday and other important religious occasions. While this is an important point, we must also acknowledge the reality of urban life and the unique socio-cultural dynamics in cities such as London, Boston, Atlanta, Washington DC, Paris, or New York City. Studies of urbanism and the planning of mosques are important yet it is impossible within the scope of this research to discuss all the extant examples and approaches. Here, we can also speak of the difficulty of finding an appropriate design language within particular contexts for the urban mosque, as overcoming this challenge is one of the key design issues facing an architect. Finally from the elements employed in the spatial treatment of the mosque, we find an exhaustive category of styles; yet as we have stated earlier, in its simplest function the mosque is simply a space for contemplation, repose and communal worship. This formula holds true with the added proviso that the principles of belief, identity, order, space, and form can be perceived as a synthesis, of composition and the production of space.

While no prescriptive form for the mosque (*masjid*) occurs in the *Qur'an*, the need for communal worship among immigrants and indigenous Muslims has led to the development of a particular plan stimulating a multiplicity of readings. Similarly the typology and identity of this class of building in relation to interpretations we might initially think of as an anomaly, but as a space for spiritual repose they tell a different narrative. Differing in more than just the outward appearance the occidental model gives priority to a balanced mix of functions and innovative esthetic features. Because religious traditions persist, space matters, and for this reason American and European

Muslims have been constructing mosques (*masajid*) and Islamic Centers (*marakiḥ*) for several decades now in towns, cities, and neighborhoods where they reside. Mosques in Europe and North America have a two-tiered identity, which changes according to the cultural interaction of the émigré. First, the term urban mosque, in its architectural framework, sees it as associated with memory and familiarity and as such a style adapted from far away foreign places and cultures. Stylistically the design of an edifice falls within three common genres: first, a strict adherence to an esthetic tradition influenced by sign, symbol, and building convention; second, an attempt at design interpretation employing experimental and popular ideas, and resulting in a hybrid image; and finally, a faithful attempt to understand its place in modernity, tradition, and urbanism.

Occupying the center of cities such as London, Paris, Rome, Manhattan, Washington DC, Boston or Atlanta, the urban mosque forces the architect to come to terms with the concept of identity and the cultural disposition of giving control to a marginal community. In Europe and North America 'Diaspora esthetics' are cultural sentiments informed by nostalgia, a host of customs, traditions, and present-day beliefs. Which of these criteria should an architect or designer adopt when asked to design a mosque? The answer is not simple, so as not to diminish the importance of this type of building, the criteria and analysis in which they can operate is therefore central to this book. In brief, the urban mosque operates under unique existing site constraints and is therefore forced to make its own architectural identity and in so doing create a seemingly natural status that can challenge many fundamental ideas associated with urbanism. Despite such constraints the architect must preserve some distinct cultural meaning, by using the occasion of religious practice, and social interaction in new ways.

The primacy of worship

Islamic practice itself is prescriptive in terms of behavior; undoubtedly the desire for communal worship is rooted in a long tradition of public gathering, especially on Friday and important religious occasions. Similarly the pious maxim (*hadith*) 'the whole world is a mosque' remains valid, and therefore it sanctions the injunction of public worship anywhere in the world. While this is an important point, we must also acknowledge the reality of urban life. The city itself can also offer diverse mannerisms that empower the project to confront its own intervention and in particular its own explicit design strategy. The city itself can provide the opportunity to make a project appropriate, contextual, and timely, avoiding hybrid mediocrities.

Appropriation of space must also consider religious values to adequately explain the design strategy. Conversely it could be argued that while architecture differs from exegesis *per se*, architecture is nonetheless a by-product of religious belief and practice and therefore carries the same rigor. Following this line of reasoning the multifaceted problems of design can be reasoned and derived into a fundamental conceptual framework, and within that framework, a set of design criterion can be established. We offer here some thoughts about religious values, expanding on

the earlier discussion about iconography. There are many intellectual critiques written about aniconism, or the absence of iconography in any place of Muslim worship; in a nutshell the most fundamental principle of Muslim belief is *tauhid* or monotheism. It has no associated symbolic form, only the primary act of individual submission, and as such the reluctance of directly investing an edifice with any symbolic connotation. The ultimate principle of monotheism is the rejection of idolatry. The individual act of submissions is paired with the physical experience, thus the cognitive rule of facing toward the *kabah* in Makkah can be explained as the ontological axis of prayer (*qiblah*); Makkah is the universal omphalos for Muslims anywhere on the planet.

Congregational prayer is governed by this rule, which also affects the orientation of the prayer space toward the *kabah* in Makkah. This idea, the orientation of the prayer space toward the *kabah*, reveals an architectural condition, which imparts a control over the space and building in terms of the physical and the conceptual.

Heidegger's notion of boundary supports the claim 'a boundary is not that which something stops but ... the boundary is that from which something begins its presencing' (Heidegger, 1971:154). The axis of prayer recognizes that only the character of the ground varies and likewise the city does not exist as a physical location except in people's mentality. As Norberg-Schulz (1985:20) has pointed out 'orientation aims at defining the meaning of center, path and domain'.

Finally our conceptual framework must also consider an esthetic language *sui generis*, which explains the elements employed in spatial treatment. From a historical point of view we find an exhaustive category of types and subtypes; yet in its simplest function the mosque is a space for contemplation, repose, and communal worship. In the West, this formula holds true with the added proviso that the mosque now exists in an urban context that bears little or no parallel to its precursory or originative context of the Muslim World.

Today, the principles of belief, order, space, and form can therefore be perceived as a synthesis, which have to be considered carefully because they are the determinants of composition and the production of space. In this view function alone is static and devoid of a heuristic understanding; this study is instructive in this regard because it explains the development of the aforementioned thematic elements. To enhance this discussion and to offer insightful analysis of the mosque our inquiry will extract the underlying formative and generative esthetic principles that inform the production of space. Like the West African Muslim Parades in New York City, there are also religious public ceremonies in seemingly unlikely places like Houston, Texas and elsewhere in Europe and America, where similar cultural exchanges are occurring. The difference between these types of urban parades is not the subject of this book, but they do call attention to the necessity of culture and the nature of how to display a self-conscious synthesis between varying cultures and environment. The difference between these types of urban religious processions calls attention to the necessity of an immigrant community to translate their memories and to display a self-conscious synthesis between culture and environment.



Figure 1.14 Muslim Day Parade, New York City (Muslims performing the prayer). (Photo © 1991 by Susan Slyomovics)



Figure 1.15 A replica of the shrine of Hadhrat Fadl al-Abbas (a.s.) in the mourning procession, Houston, Texas. (Photo © 2008 by Afroz Okhowat)

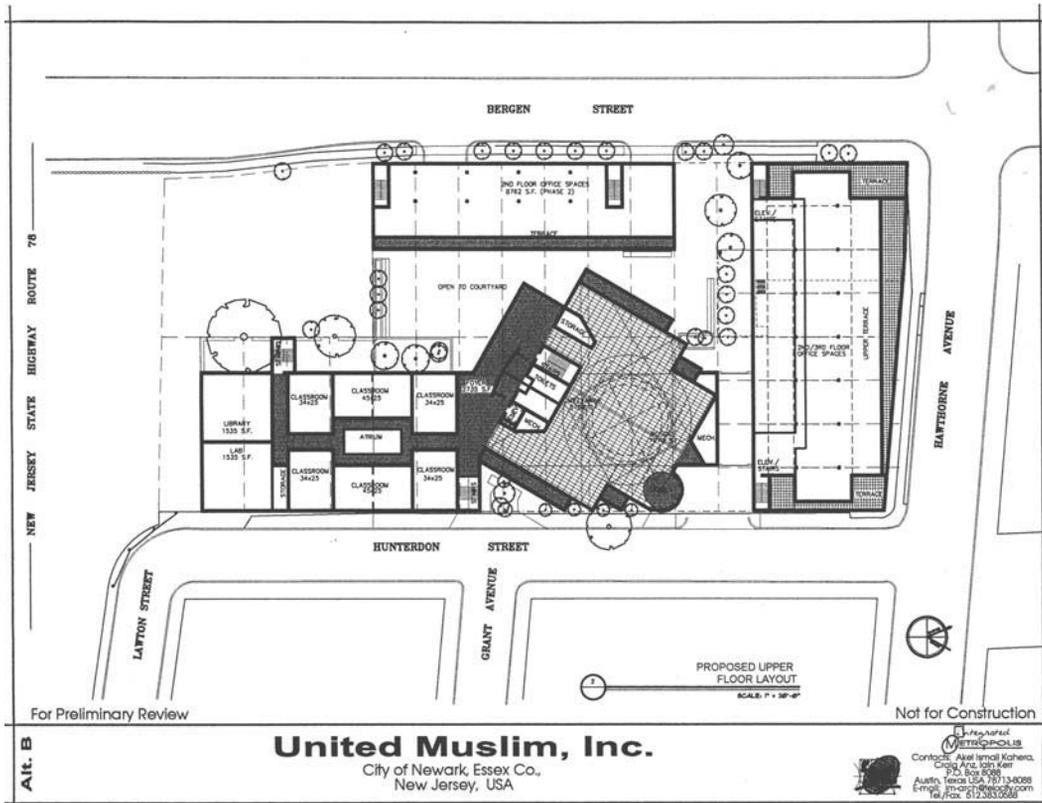


Figure 1.16 Site plan (upper level) for an urban mosque, school, commercial, and office space. (Drawing by Integrated Metropolis, Austin, Texas (Craig Anz, Akel Kahera, and Iain Kerr))

The formulation of a distinct set of architectural language, components, and operational criteria or guidelines attempts to address this production in ways that organize these elements in creative and viable ways, which is important to both architect and client. The necessity to provide a fairly large communal space, which must ‘fit’ a multifaceted set of cultural and religious criteria into an often complex urban or rural context, must also respond successfully to the fundamentals of the building program, the local codes, structural and material constraints, and the site.

The problem of esthetics

The hegemonic dependence of many Muslims in Europe and America to their cultural origins and history is testimony to the problem of understanding the polemics of Muslim architectural esthetics in the West. Furthermore the problem of balancing the claims of art historians against those of an architect or designer and the emotional attachment of a client can easily aggravate the decisions for a building program. Architects are required to understand a host of historical similarities and differences, and

the interplay of regional and material relationships. Esthetic differences are most evident in the pre-modern mosques of Egypt, Turkey, North Africa, Iran, China, Malaysia, India, and West Africa.

For example, the West African adaptation of the hypostyle plan has been influenced both by the local environment, the availability of permanent building materials and a host of vernacular features. As the architect interprets any extant mosque from the Muslim world s/he needs to consider how scholarship has influenced our understanding of history; while profoundly enlightening, the view of the art historian is not always balanced because it more often gives emphasis to Arab-centric perspective in the framing of theoretical issues. For example, when a prominent Islamic art historian was asked about Muslim architecture in sub-Saharan Africa, he simply replied, ‘there is nothing there to study,’ to which we replied, ‘what about the thousands of manuscripts available to scholars in the libraries of Timbuktu?’ And what about the extant building traditions of Mali, Nigeria, Ghana, and elsewhere? Twentieth century, Western-dominant (orientalist) attitudes towards race and ethnicity may have affected his judgement and indeed the judgement that ‘African architecture’ in general had no special significance, except for North Africa

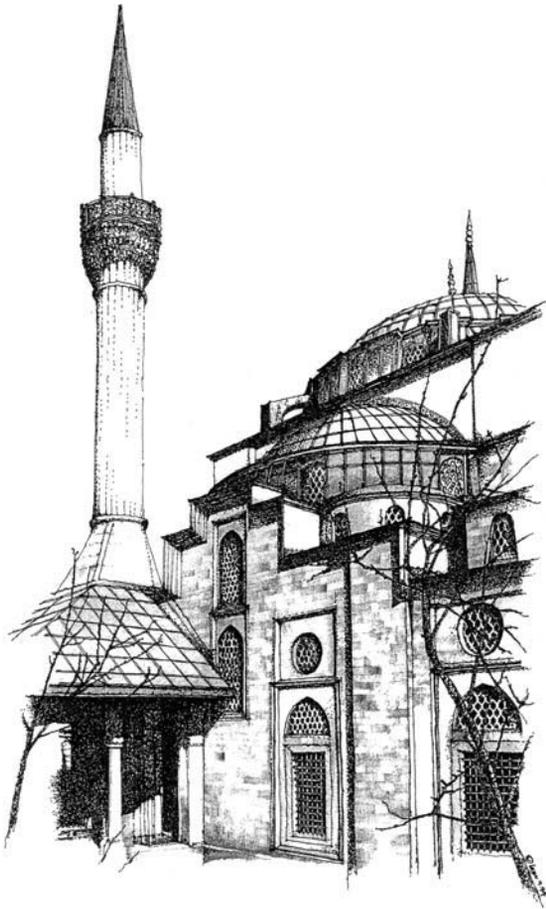


Figure 1.17 Partial elevation of an Ottoman mosque. (Drawing by Latif Abdulmalik)

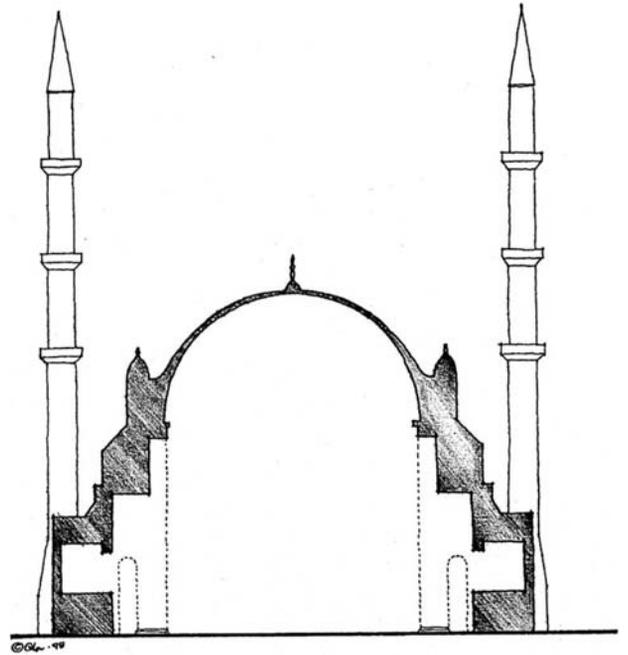


Figure 1.18 Section of an Ottoman mosque. (Drawing by Latif Abdulmalik)



Figure 1.19 An Ottoman mosque. (Drawing by Latif Abdulmalik)

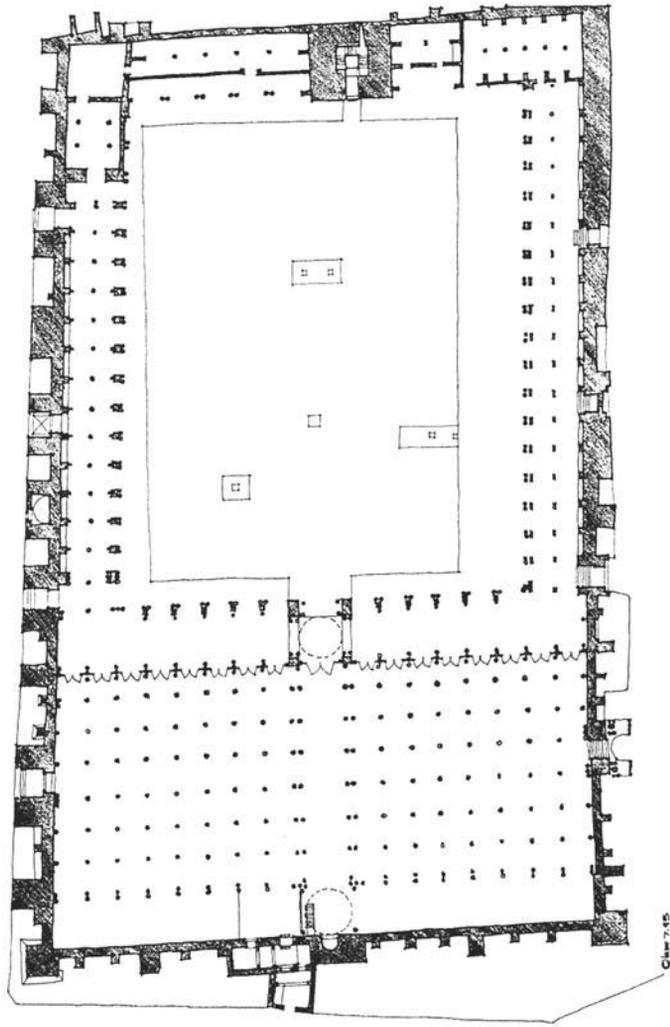


Figure 1.20 Drawing (floor plan) of the mosque of Sidi Uqbah at Qairouan, Tunisia. (Drawing by Latif Abdulmalik)



Figure 1.21 Drawing of the mosque of Sidi Uqbah at Qairouan, Tunisia. (Drawing by Latif Abdulmalik)

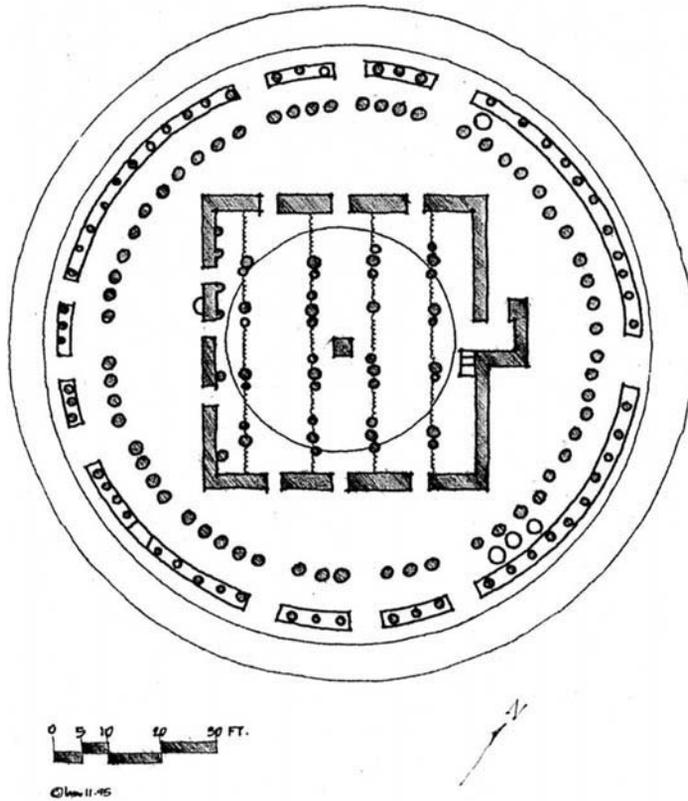


Figure 1.22 Drawing (floor plan) of the mosque at Dingueraye, Guinea, West Africa. (Drawing by Latif Abdulmalik)

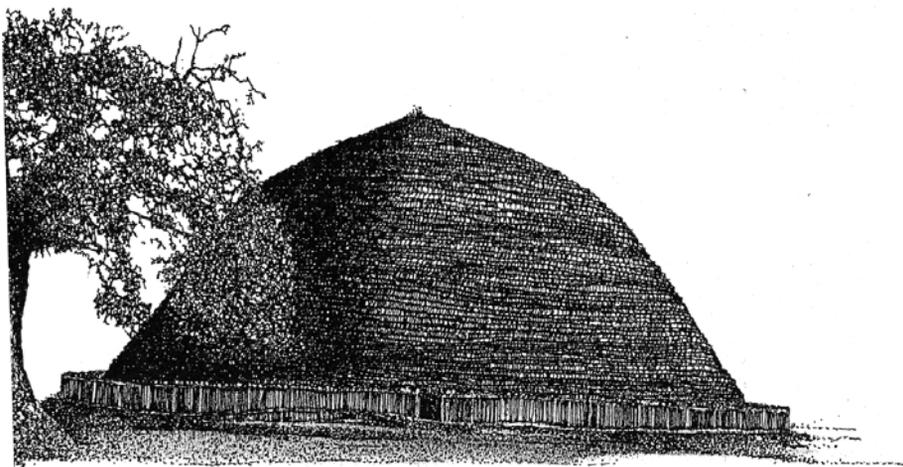


Figure 1.23 Drawing (exterior) of the mosque at Dingueraye, Guinea, West Africa. (Drawing by Latif Abdulmalik)

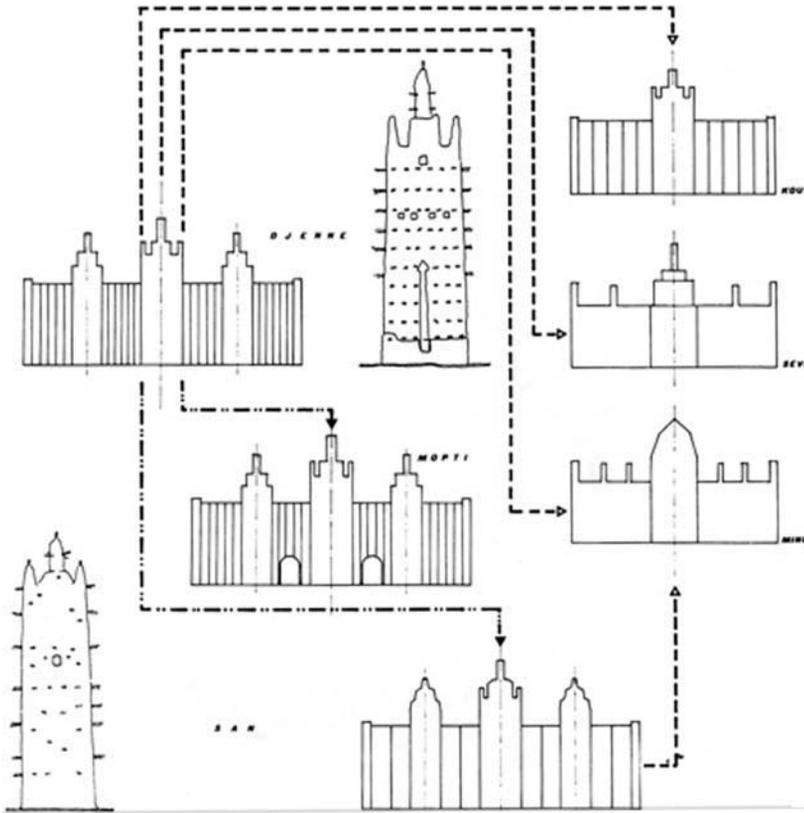


Figure 1.24 Key façade features of the West African mosque. Source: (*Mosque en adobe*)

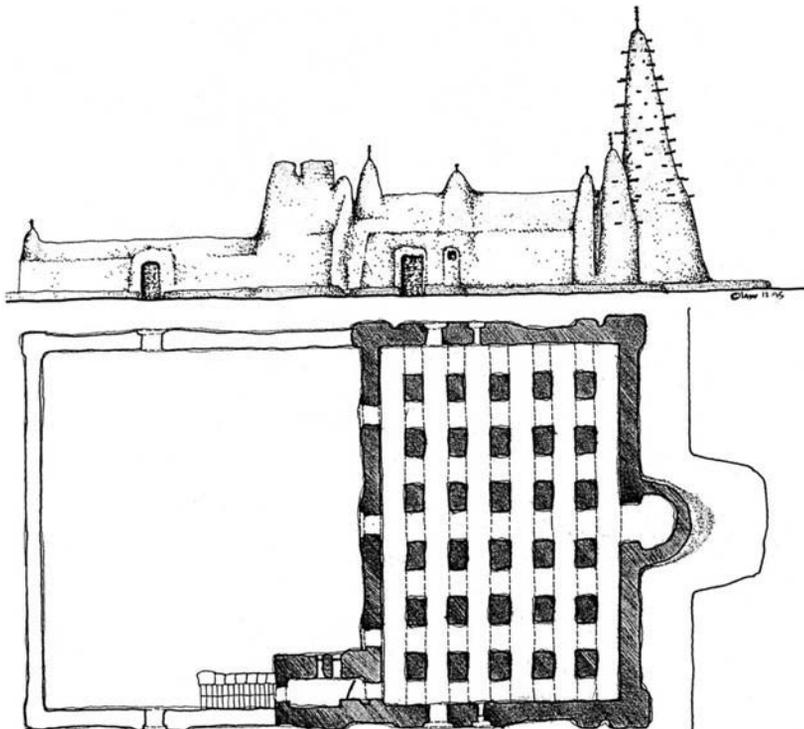


Figure 1.25 Plan and elevation of a West African mosque (Northern Ghana). (Drawing by Latif Abdulmalik)

and Egypt. This may be overstating the case a bit; in any case the standard language used by art historians, even those who write about Islamic architecture, speak of the non-standard 'primitive' varieties of buildings in Africa, merely to draw attention to the sophistication of buildings in the Levant, Turkey, and Iran. For example, critical to the art historian's notion of beauty is the surface treatment of mosques, which often carry a textual message. The West African mosque does not; it is treated with the elasticity of earth to render sculptural forms similar to the images one finds in the masking tradition and ancestral pillars of the region.

It follows from this premise that the language of Muslim architectural esthetics does produce an accurate mapping of differences and what each example demonstrates is in effect distinct conceptual and contextual processes. Furthermore failing to understand how to translate spatial order, geometry, materials, treatment of space and symbols etc., or interpret these themes may lead to fragmentation.

In this discussion we focus on the heritage of the West African mosque as an example that is particularly apt to the

problem of interpretation. Returning to the earlier remarks, the lack of clarity and appreciation for West African architecture raises many questions about topography, landscape, and meaning. This argument is particularly apt to the interpretation of building traditions of West Africa for three specific reasons. First, two distinct accounts bid to explain the attitudes of urban assimilation, which posits a wide attitudinal gap among disparate West African Muslim communities in Europe and America in central cities. Second, the transnational identities are affected by race and then divided by the language of place. Finally, émigré masons and builders and other types of technicians have not played a key role in the production of space and the building of the mosque. The Mande mosque incorporates 'space conceptions' that reflect the thoughts and ideas that give meaning to these structures, as end products and visual concepts. Finding creative ways to explain Mande mosque architecture must also consider building traditions, which are enriched by the vernacular world in which they live. In this sense the architecture of these buildings serves as a corollary of knowledge, of philosophical axiology meaning and esthetic reasoning.

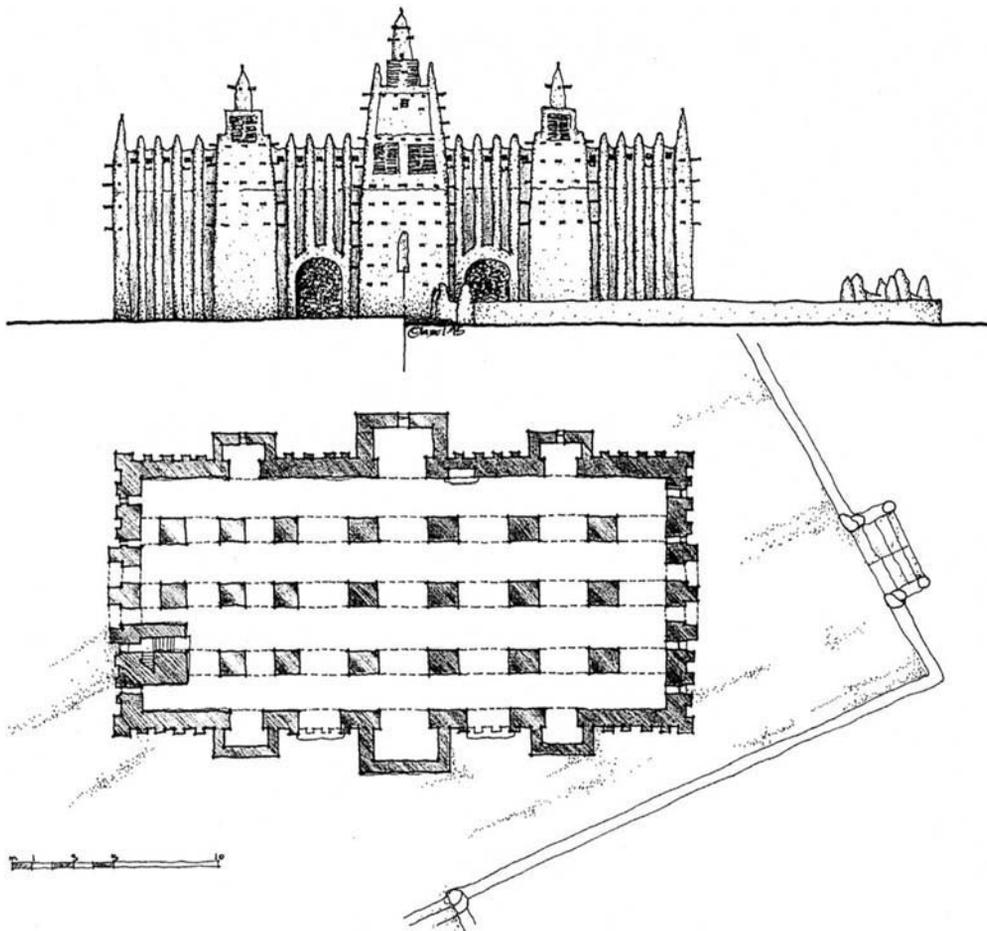


Figure 1.26 Plan and section of a West African mosque, Mopti, Mali. (Drawing by Latif Abdulmalik)

If the earlier suggested rendition of visual forms and spatial elements identifies the West African mosque as having regional uniqueness, then it could be argued that the buildings demonstrate a progressive expression in the development of mosque

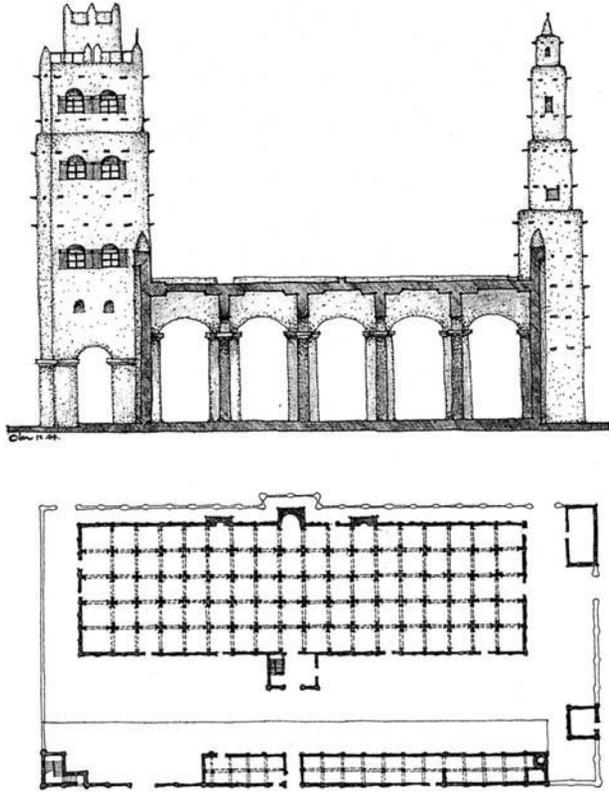


Figure 1.27 Plan and section of a West African mosque, Mopti, Mali. (Drawing by Latif Abdulmalik)

architecture. Through this development, specific examples of building typologies have evolved over time. The cultural transformation of the vernacular hypostyle recognizes the existence of underlying elements, which share a symbiotic relationship with the 'archetypal' model of the original mosque of Madinah.

Because of the stability and growth of Mande settlements and trading centers, the vernacular hypostyle associated with these settlements was able to sustain and thus promote architectural variations. Some of the elements, which are quite prominent in these variations, are the pinnacles on the roof parapet, the triple minaret on the front façade, the buttressing of exterior walls, and vertical exterior rib effect. In most cases the ribs become a series of decorative crenellations of varying size as they terminate at the parapet. The minarets are always engaged with the building façade and are heavily reinforced with timber members (*toron*). The roofs are flat and the use of the characteristic domes or vaulted structures, typically associated with Muslim architecture, are nonexistent.

On the one hand, the Mande mosque shares a functional definition with the wider community of Islam; on the other hand, the Mande mosque remains unique to its particular context and is thus categorized as an anomaly, within a larger esthetic context. Here the schema of decorative elements of the mosque has varying degrees of expression, and some of these elements are explicit while others are metaphorical or associative.

One example of an explicit element is the minaret, which in the Mande mosque has been merged with the *mihrab* to form one element. In some instances the *mihrab* bears a close physical and sculptural association to the baobab tree, which deserves further study. Natural earth is used by the Mande to build the mosque in the same way the prophet built his mosque at Madinah, and his prescription (*sunnah*) of not embellishing buildings lends itself quite easily to the Mande buildings either by coincidence, i.e. the nature of the regional environment, or by an intentionally conscious act of creativity. Yet, the absolute simplicity of the Mande mosque cannot be denied and in this

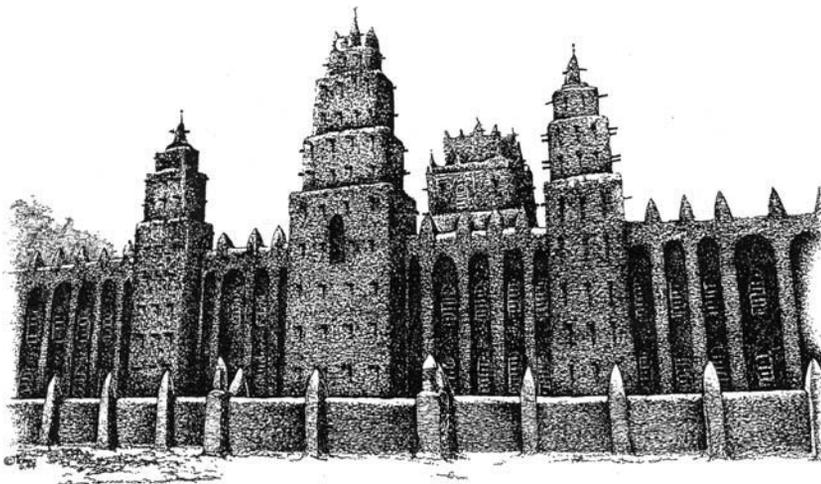


Figure 1.28 Façade of a West African mosque, Mopti, Mali. (Drawing by Latif Abdulmalik)

way it is more faithful to the Madinah model than the richly embellished buildings of the Levant.

But we know through study of building plans that the Mande mosque is a hypostyle plan, which conforms to the archetypal plan. The problem occurs when we begin to deconstruct the non-liturgical elements, such as the *mihrab*, the minaret, the façade, the parapet details, the structural components of the building, or when we try to decipher the meanings of these elements within other cultural contexts. The Mande builders themselves and their particular crafts are probably key to most of this understanding, since they know best what the elements actually represent and why and how they have been employed in the composition and functionality of the mosque. Most of the studies thus far have not engaged the builder in the analytical process but have relied more on distanced analytical and anthropological speculation.

Summary: place, image, and people matters

This vast introduction has been narrowed to focus on the idea of a space conception in citing the example of the West African mosque by virtue of the fact that Islamic art historians have generally neglected it and thus it has not formally entered mainstream discussion or practice. The general assumption behind this interpretation is that we can learn from the complex dimensions of space making and language patterns, via the construction of cultural and regional esthetic expressions. This discussion has raised more questions than it has answered because the emergence of any esthetic genre is always linked with human interventions, which are by their nature multifaceted and always varying in relation to emerging contexts. It is clear that many different factors in effect produce a diverse mapping of esthetic languages, forms, and decorative genres of vocabulary.

The most salient feature of 'Immigrant Islam' is a search for ways to accommodate tradition and modernity, while reinventing religious identity, reinterpreting religious practices, and confronting the idiosyncrasies of a secular and politically charged society. In this regard, we may embrace Professor Jackson's argument (2005:136):

At the bottom their depictions point to the fact that ... traditionally, this has entailed at least two interrelated challenges. First how are religious communities to relate to the dominant culture? Second how is religion to operate under a secular democratic state?

There are a number of issues here and we may ask the following question: Why this perplexing lacuna? First, the concept of modernity may give the idea that it represents a break with tradition and is thus diametrically opposed to tradition; such a notion would undoubtedly be false. Second, every society in the modern world has embraced and accepted various traditional ways of life and inherited practices. On the other hand, Muslim pragmatists speak in a familiar idiom, especially Muslim women like Rabia Van Hattum. In her essay 'Ranchos Mosque: A Memoir' (1995), Rabia reveals a poignant elucidation of piety, love, and labor, to commemorate the beautiful teamwork of Muslim men

and women, engaged in the construction of a small fifteen by twenty-five foot mosque at Abiquiu, New Mexico:

I'm [reminded of] when we raised the Ranchos mosque. The hearts of all the creatures are between our Lord's hands, and it is He alone who can cause goodness or other than goodness to grow here.

Finally, like-minded Muslims are in agreement that the mosque must take into account the welfare and the *raison d'être* of the whole community. In other words the notion of the whole shapes any activity or inquiry and the common basis on which the community can begin to adjudicate among differing claims and interests. From this brief discussion it is clear that the accumulation of concepts and practices that are produced by a community are closely related. In this way the architect and designer must also consider a whole array of issues. The primary task of this book therefore is to make explicit the methods and conventions that govern the design and construction of a mosque within varying contexts; it provides architects or designers, as well as clients and/or design reviewers, with criteria upon which they can determine the organization of a concept and subsequent build form. The book will help the reader to:

- select programmatic design language for research whilst identifying the possibilities and limitations within their own cost parameters for conducting the design of a mosque;
- decide on the most effective planning and design strategies;
- select and use appropriate design data (e.g. land use, mixed use) to develop a building in a manner that promotes energy conservation, to meet the needs of the present without compromising the needs of the future;
- choose and implement methods of data collection to create 'equity' and a sustainable edifice, to take advantage of a compact building design and to minimize negative impact on the immediate environment;
- think critically about 'green design' and the nature and values of the research agenda, especially the collaboration and cooperation with municipalities in planning efforts to help the architect tackle common environmental problems.

As emphasized above, no single authoritative style exists about which consensus rules. Simply take, for example, again the idea and form of the minaret, which remains largely symbolic today. What are the essentials that determine or define its height, size, proportions, and/or shape to its greater audience? In the absence of a so-called universally accepted standard, does this mean that anything goes? Likewise and more linked with modern standards, how can an architect establish such common and often thought of as innate procedures as the ratio of parking spaces or egress requirements in relation to the assembly occupancy and size of the Muslim prayer area *vis-à-vis* a typical church pew or seating criteria as often established in the nomenclature of particular zoning or building codes. Finally, what gives precedent to the adaptation of one style over another such as the style of a dome or minaret? All of these questions require a formulation of design criteria that architects and designers can use to form the parameters of design.

2

Orientation: addressing the urban context and the direction to Makkah

If a man [or woman], alone in a room, decides his [her] orientation to Mecca, the direction is ordained through the act of prayer, and in his [her] singularity is his [her] absolute freedom from reproach. The mosque is the place of human agreement to prayer. In its making, it attests to this sense of agreement, and allows an individual the same freedom from reproach as if he [she] were alone; yet it affords, thorough architecture, the generosity of the presence of many.

Jaan Holt, Architecture and the Wall Facing Mecca (1982)

The qibla is the direction to the Ka'ba, but what precisely is that direction? Two of the possibilities are the great circle and the rhumb line directions from the given place to Mecca [Makkah] ... from the commonly understood meaning of 'facing' the Ka'ba (or the Sacred Mosque), it seems natural to adopt the great circle direction for the qibla ... A classical definition in this spirit is given by Ibn al-Haitham as follows:

The qibla is the direction such that when a human observer faces it, it is as if he is looking at the diameter of the earth passing through the Ka'ba ... we know that this line of sight is precisely in the great circle direction to the Ka'ba.

*S. Kamali Abdali,
The Correct Qibla (1997)*

The wall facing Makkah

A important injunction in the Qur'an (Q. 2:149) states that the believer should face Makkah while performing the ritual prayer. This means that the edifice and indeed all mosques have a wall 90° to the direction of Makkah – this is commonly called the *qiblah* wall, which is laid out transversely to the correct prayer direction. We refer to this as the wall facing Makkah or the Axis of prayer. Owing to the importance and the necessity of calculating the direction of the *qiblah* when the site of a mosque is established various methods were firmly incorporated to determine its accuracy of the placement of the *mihrab* in the plan of the sanctuary. Taking this point into consideration, one common means of calculation is the great circle, the technical details for have been carefully defined in S. Kamali Abdali's essay, *The Correct Qibla* (1997). The great circle calculation can be worked out using geometry. It is the angle that is between the meridian (north–south line) and the great circle passing through the Kabah and the place of origin. The angle can be calculated from the properties of a spherical triangle formed with reference to the longitude and latitude of the two locations.

For example, the longitude of New York is 73° 50' W, latitude 40° 40' N. The great circle *qiblah* direction to Makkah would be 58° 38' ENE. In determining the *qiblah* the consensus (*ijma*) of the community is therefore instructive in this regard, since it can be taken as basis for understanding the legal and religious dynamics of the correct *qiblah*. Because legal reasoning is often transferred to religious practice, the debate concerning the *qiblah* also deals with a general disagreement among the many scholars. On an emotional level the liturgical importance of the Qur'anic injunction remains at the heart of the matter:

Hence, from wherever thou mayest come forth, turn thy face [in prayer] towards the Inviolable House of Worship [the kabah] and wherever you all may be, turn your faces toward it ...

(Q. 2:150)

Prior to starting the design process, the project should be clearly defined by the appointed building committee, and deemed feasible by the members of the community. For example, the relationship between an edifice and its adjacent structures can

best be illustrated in the case of al-Aqmar mosque, Cairo (twelfth century CE) where adjustments were made so that the building façade was parallel to the street. This practice continued until the sixteenth century in Cairo, Egypt; during this period several buildings were built to conform to the street alignment while maintaining an inclination to the *qiblah*.

The initial feasibility study should address the community needs, the anticipated activities to be accommodated by the project, the anticipated area required and budget viewed affordable. After the initial decision has been made to construct an edifice, the design committee should be assembled, with the architect (team leader) selected first. The architect will assist the client from this stage through to the construction of the building. The primary role of the building committee is to monitor the architect, review the architect's work, and coordinate all the information for the project. This would involve all the design and planning decisions and report to the community. These guidelines provide direction for the selection of a site and the development of the design for a site. They outline the planning process, including the many and varied participants in this complex process, including the mosque committee. The purpose of this discussion is to briefly examine a variety of site planning approaches toward the design of an urban mosque. Our ability to test the various site design possibilities for an urban mosque is the first step towards successful strategies in the planning process and the subsequent construction of a project. Indeed the formulation of a design strategy as it relates to the urban site is no easy task, yet is essential to the long-term viability and contextual 'fit' of the edifice within its social setting as well as formative belief system. Each concept must consider the rich, associative palimpsest of site conditions, the centuries of urban history, and spatial modalities that are evident in most western cities. This urban cameo was exemplified over two decades ago by Kevin Lynch's *Image of the City* (1960) and *Good City Form* (1981); Lynch gave us enough detail, legibility, and clarity to understand the shared perceptions of public places by its participants and by drawing our attention to the power of urban patterns, typologies, and explaining how change affects the enduring traditions of a place. Memories and patterns are reiterated within the lasting medium of architecture to continually ground the emerging new within its vital history. Public spaces in most western cities capture the general mood of the most enduring of these conventions, and as such design intervention for an urban mosque or for that matter any other public edifice requires accurate knowledge.

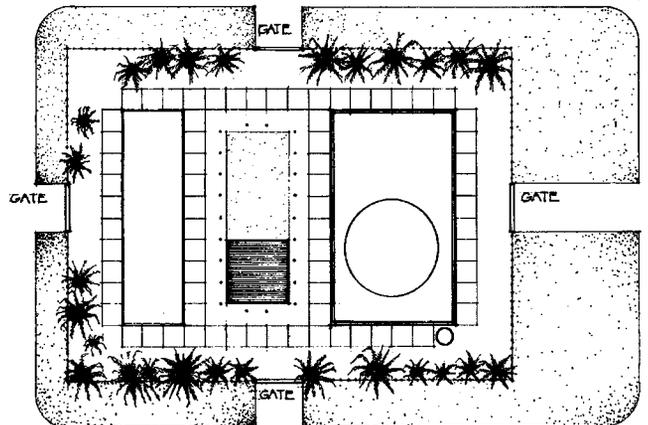
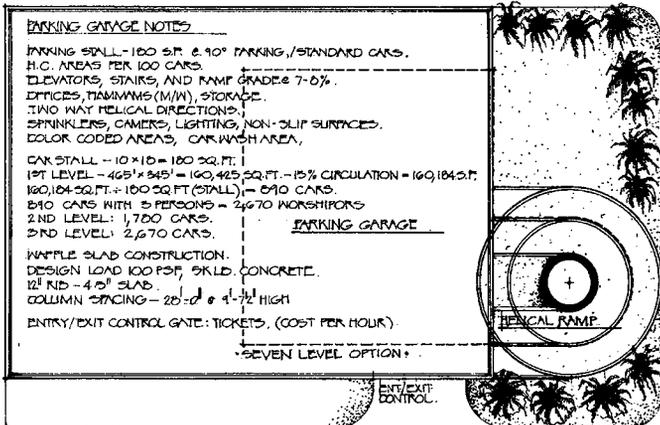
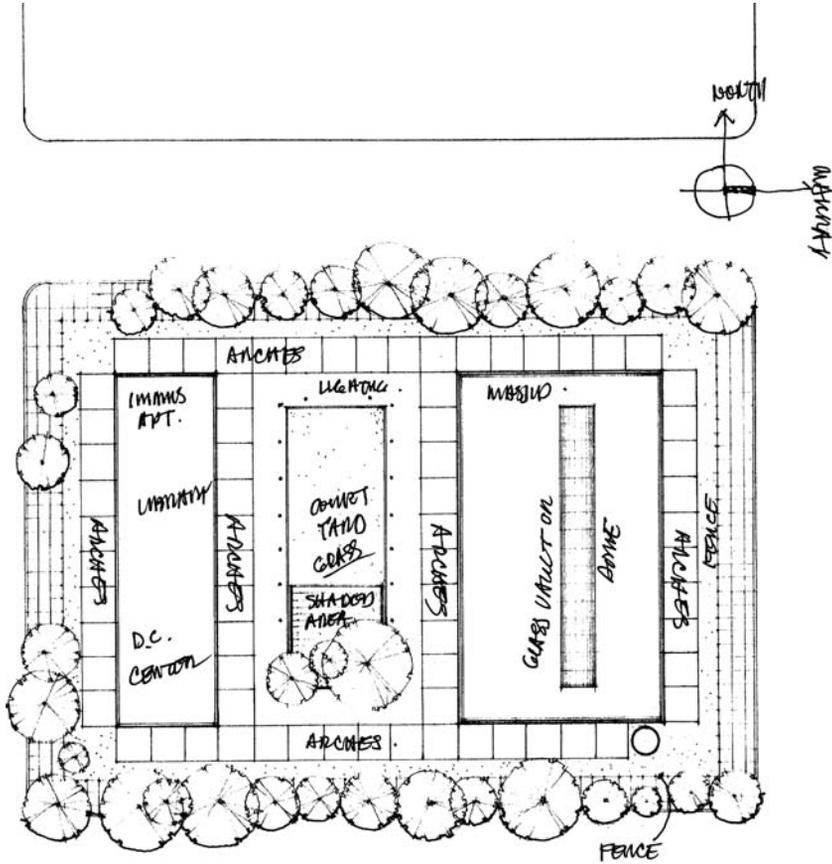
The conceptualization of 'site', which is advocated in this chapter, allows for distinct interpretations of 'place' to emerge *in situ*. We are fully aware that the literature on this topic is now widespread but far from adequate to understand the problems associated with designing an urban mosque. Ours is a view which searches for ways to allow architect, designer, and client to critically establish an authentic scheme that feeds on assimilating and integrating an edifice into a site and its context. This chapter also sets forth basic design guidelines for the development of an urban site. Our goal is not only capturing the intrinsic beauty associated with the edifice, but to demonstrate ways to improve and 'fit' with the physical environment, while allowing for the mosque to communicate dialogically within its context in vital and enduring

ways. To situate the urban mosque, it is important to understand two essential terms: *intervention* and *design methodology*. First, conventional wisdom suggests that the built environment should be determined by the integration and cross-fertilization of desirable modes of design knowledge to produce acceptable esthetic and meaningful solutions. Intervention introduces the idea that urban inhabitants share familiar features, qualities of life, and as such design knowledge can produce a building to simultaneously bear on a multitude of social, political, civic, and religious concerns. Second, a community is a specific category of inhabitant, i.e. the Muslim community has its own distinct esthetic tendencies and social patterns. Thus the design methodology for an urban mosque can either be regarded as having the same qualities and characteristics of a place to bring creation into being and to facilitate construction or it can be derived from a configuration that has nothing to do with the characteristics of a place. It must be noted, however, that this dichotomy must be understood within its capacity to be either generator or inhibitor of design.

In addition to technical knowledge, design methodology requires the knowledge of what a community or client desires (which must be negotiated within a community composed of multiple Diaspora or immigrant sources), and the unique constraints of cost and site conditions; together these can help the architect to introduce an appropriate configurational 'fit' for the site. In the planning process, it is important to establish various design elements and these can be constructed in three ways:

- (a) To focus on the process we may define the site/urban context for the mosque in relation to the important codes and zoning regulations of the city.
- (b) To define a conceptualization of place/site we may begin with the construction of a graphic representation of possible permutations based on the client's ambitions, which have a direct effect on the project. It would be helpful to demonstrate indispensable connections to the empirical site considerations to construct the relationship between theory and value.
- (c) Fundamental knowledge *in* and *of* the client-community is essential, since it is the impetus to understand change and ideology.

Design drawings and study models must be considered beforehand in the initial design phases, continuing through the development of the master plan, site plan, and building plans employing these models in the planning process. Determining the precise needs for the client will dictate the range of scope of the project; the use of design drawings and study models therefore implies the need to avoid confusion. Likewise determining precise needs of a mosque is further complicated by the availability of land and the cost of construction, and therefore it would be wise to approach the site creatively and with flexibility. All elements of mosque design, i.e. ancillary buildings, a day-care facility, children's play area, a garden, parking, and the domicile of the resident imam or mosque director should fit reasonably well with the site context. We must remember that these amenities will serve the entire community and are directly related to the immediate neighborhood; therefore space for social gatherings or other distinctive features must be clearly integrated into the site as a whole.



PARKING GARAGE = 090 - 2,670 CARS.
 MASJID INCOME AND COMMUNITY USE

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SCALE: 1" = 60'-0"

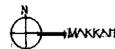


Figure 2.0 Site plan study for an urban mosque. (Drawing by Latif Abdulmalik)

Design Criteria for Mosques and Islamic Centers

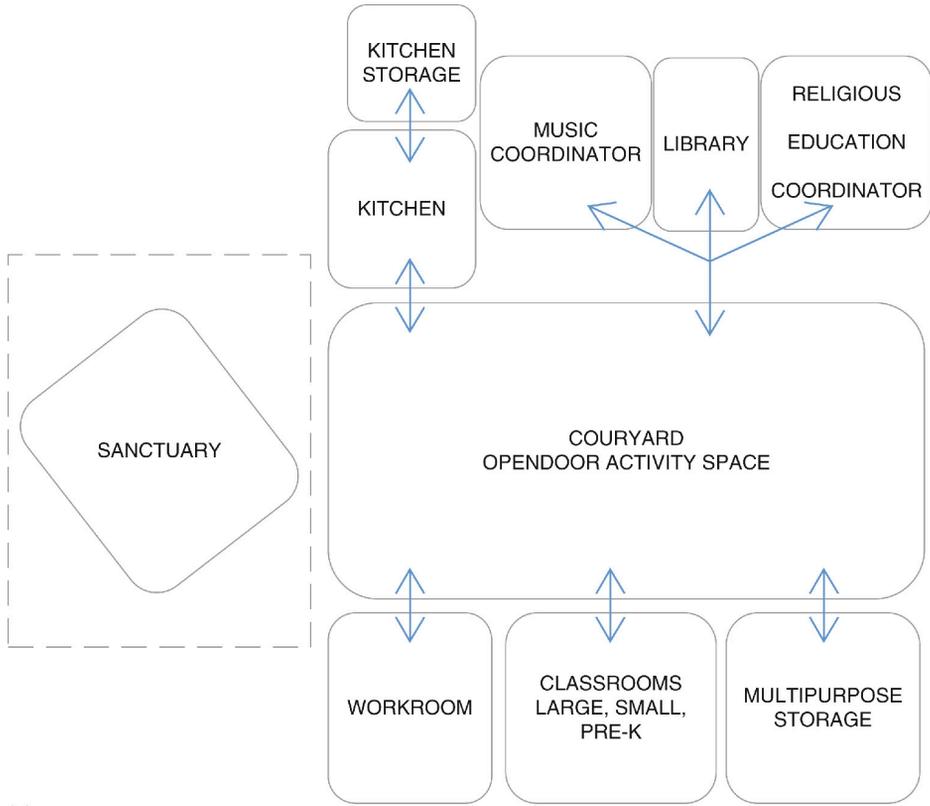
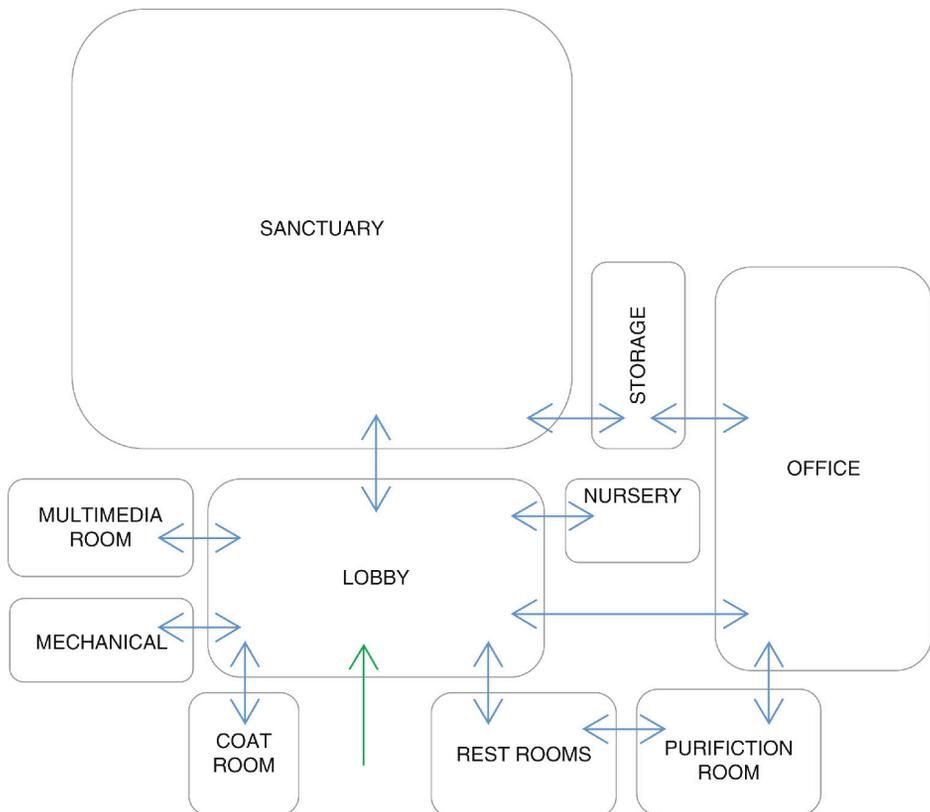


Figure 2.1 Diagram of the location of ancillary spaces in relation to the *musalla*. (Drawing by Errol Browne, parts a and b)

(a)



(b)

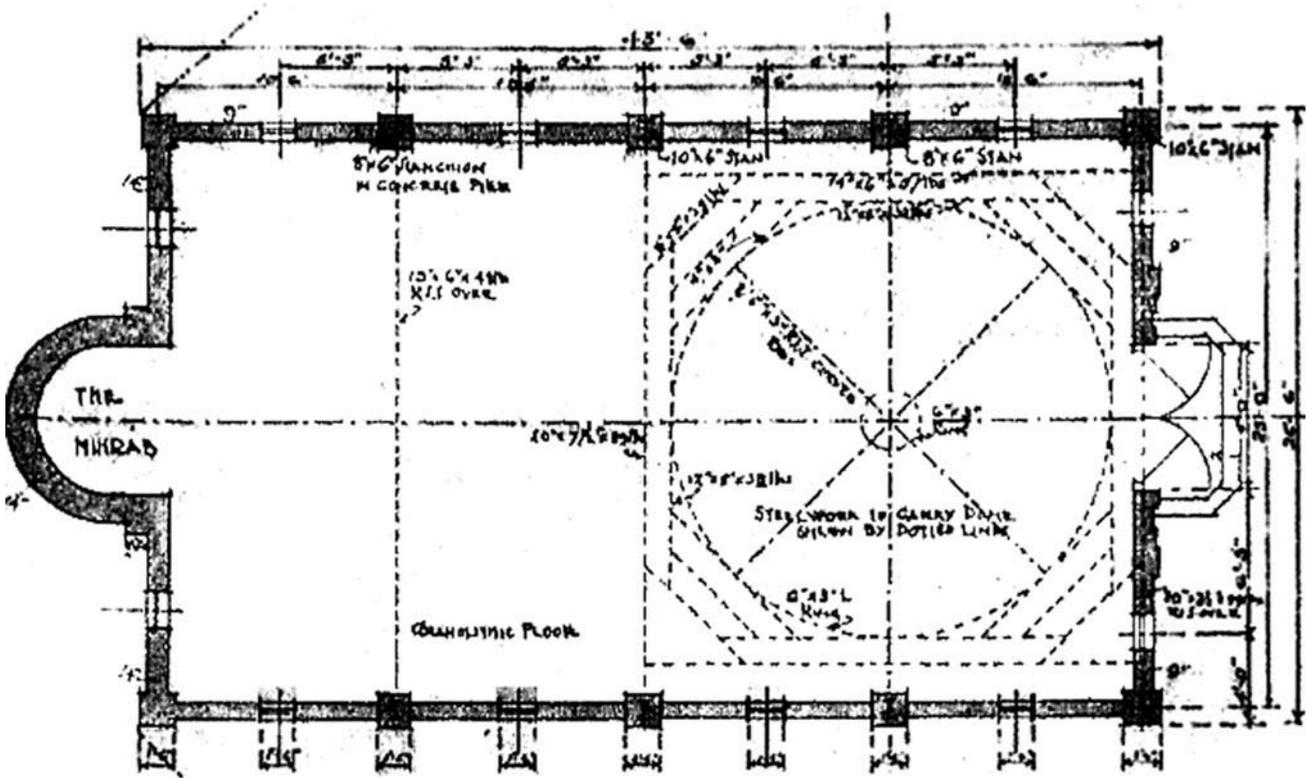


Figure 2.2 Plan of the mosque at Southfields, London, circa 1926

Table 2.0

Site acquisition or site selection	Time schedule
<ul style="list-style-type: none"> • Location analysis and site evaluation • Determining land value and terms • Legal and environmental rights, constraints and risks • Process for development on the site, zoning, and approvals 	
Site sustainability evaluation	Item
	<ul style="list-style-type: none"> • Moderately priced • Minimal contribution to global warming • Minimal land area needed • Extremely efficient land use • LEED recommendations
<p>Partial list adapted from <i>Congress for New Urbanism</i>, http://www.newurbanism.org</p>	

Design Criteria for Mosques and Islamic Centers

As the design process progresses the financial funding should continue as a parallel process. The building committee will review the architect's cost proposals based on the development of master plan drawings, outline specifications, and models that illustrate the project to the community at large, potential patron or donor. The architect will also be required to provide accurate estimates for budgeting. Fundraising for the project follows a similar path to the design method. It may be useful to assign the fundraising task to a committee other than the building committee and to identify the persons responsible for each task.

Table 2.1

Committee tasks	Assigned to
<ul style="list-style-type: none"> • Source of financing (fundraising, donor, etc.) • Select a fundraiser • Total amount needed for the project • Financing terms • Develop the financial package 	

Urban design considerations

Four primary design objectives help establish the quality and character of the program for an urban mosque. These can be used to guide the overall site development and planning process.

- The design of a mosque or Islamic Center provides an opportunity to create an innovative social environment appropriate to the size of the community, which also reflects the character of the locale.
- The design of a mosque should use sustainable energy-saving materials and construction techniques from proven performance standards to respond to climatic conditions.
- 'If you build it they will come.' The designer should create a master plan with a controlled variety of uses and flexibility allowing for future expansion in relation to the site context. Most Muslim communities in Europe and America are transient and can therefore grow rapidly once the mosque is fully established.
- The designer should establish a clear pattern of land use and urban forms, which includes the prominent placement of entrances, ancillary structures, and parking to heighten the contrast of the urban setting.

The programming of building design criteria should be approached to bring greater definition to the site plan and to encourage community and participant interaction. This additive principle is even more important when civic and commercial areas adjacent to the site are well established, as in the case of London, New York, and Paris mosques. The city's urban code should be viewed as a prescriptive method to graciously accommodate the mosque facility rather than a proscriptive component. The pivotal feature of the site plan is the orientation of the

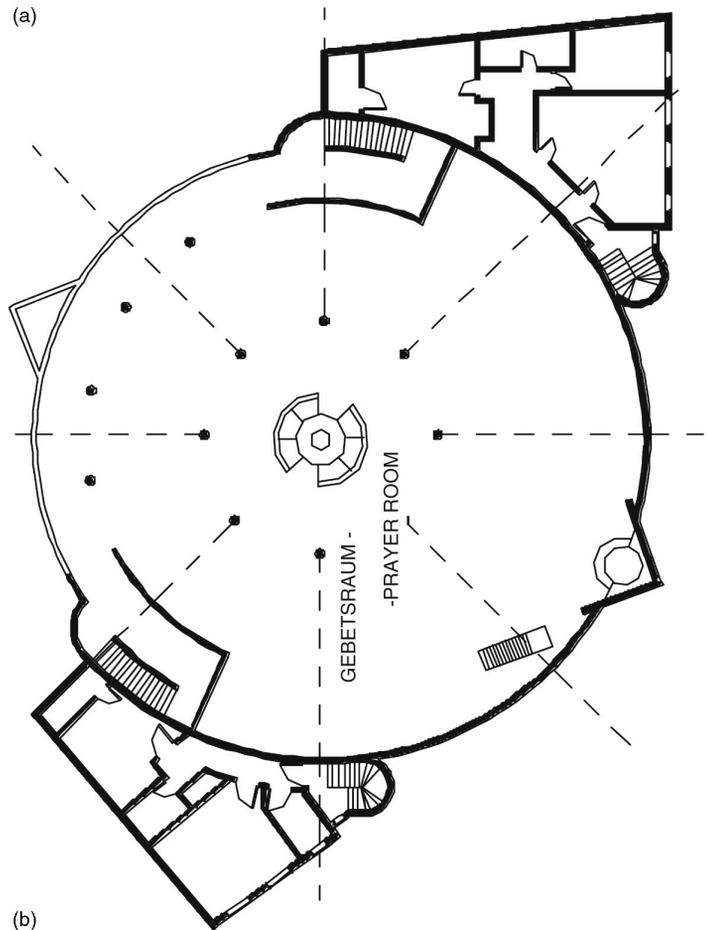


Figure 2.3 Mosque at Mannheim, Germany. (Courtesy of Google Earth) (b) Drawing by Errol Browne

prayer hall towards Makkah; the rest of the building is free to comply with this liturgical requirement or to follow the organizational grid of the city.

A detailed site study is essential, because it provides a visual assessment of features such as significant views, landscape and

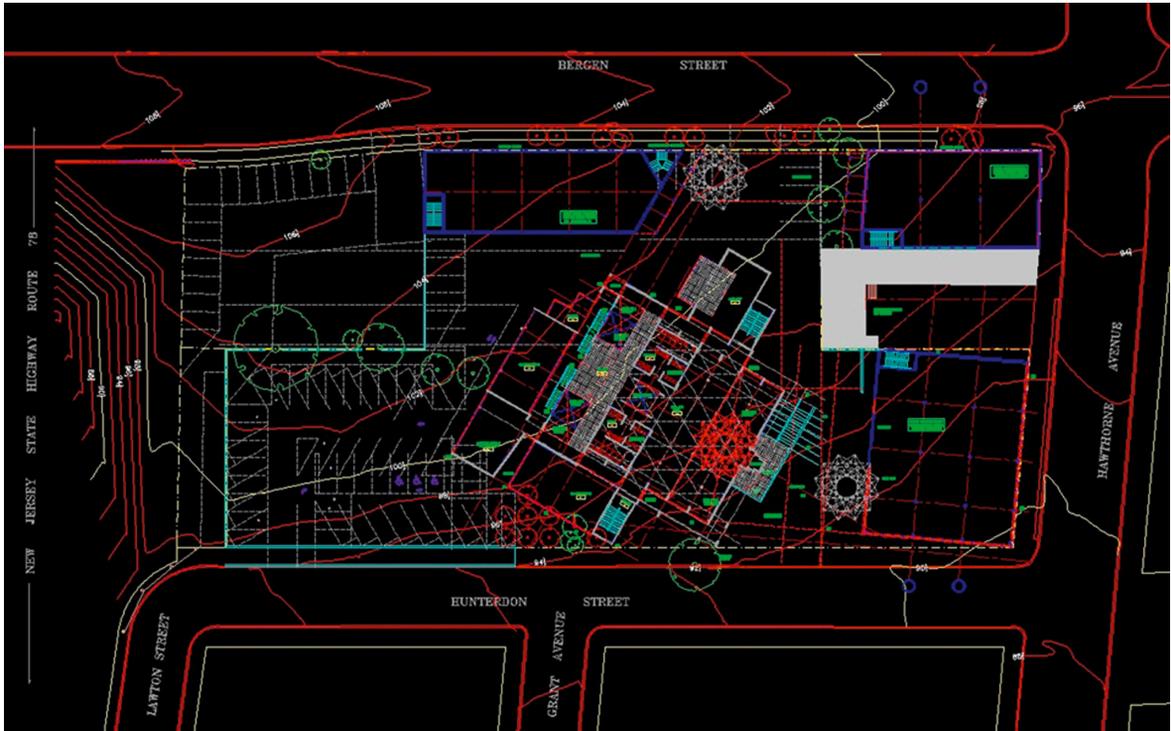


Figure 2.4 Site plan study for an urban mosque, and school, commercial and office space. (Drawing by Integrated Metropolis, Austin, Texas (Craig Anz, Akel Kahera, and Iain Kerr))

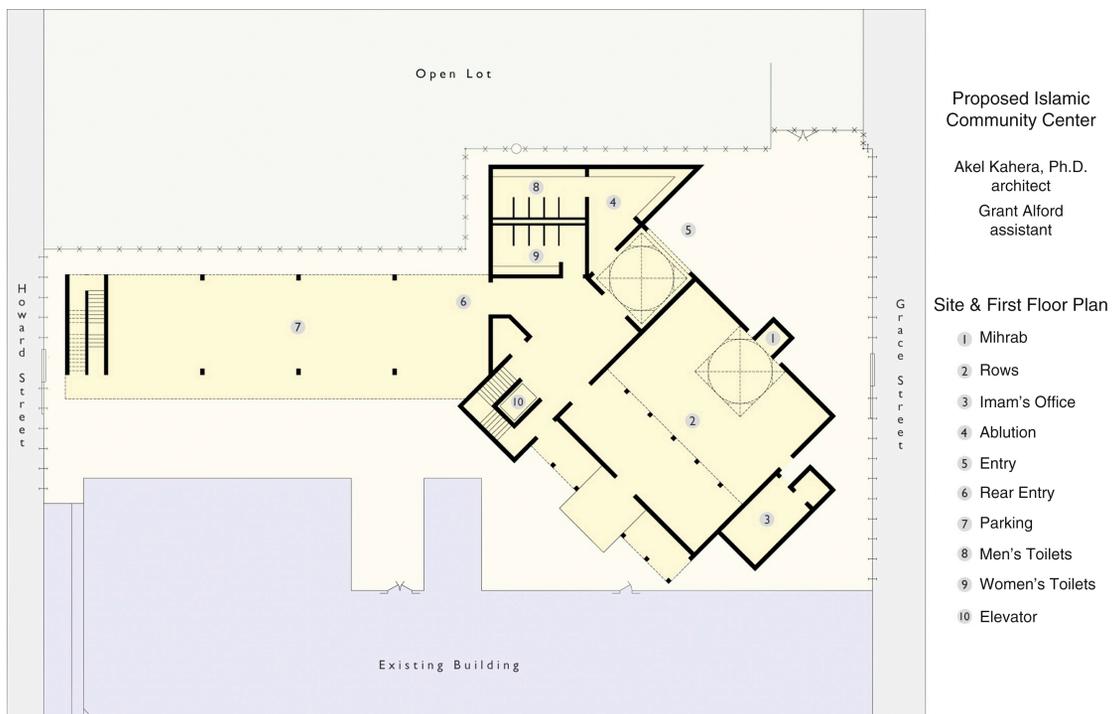


Figure 2.5 Site plan of the Islamic Center of Irvington, New Jersey. (Drawing by Akel Kahera and Grant Alford)

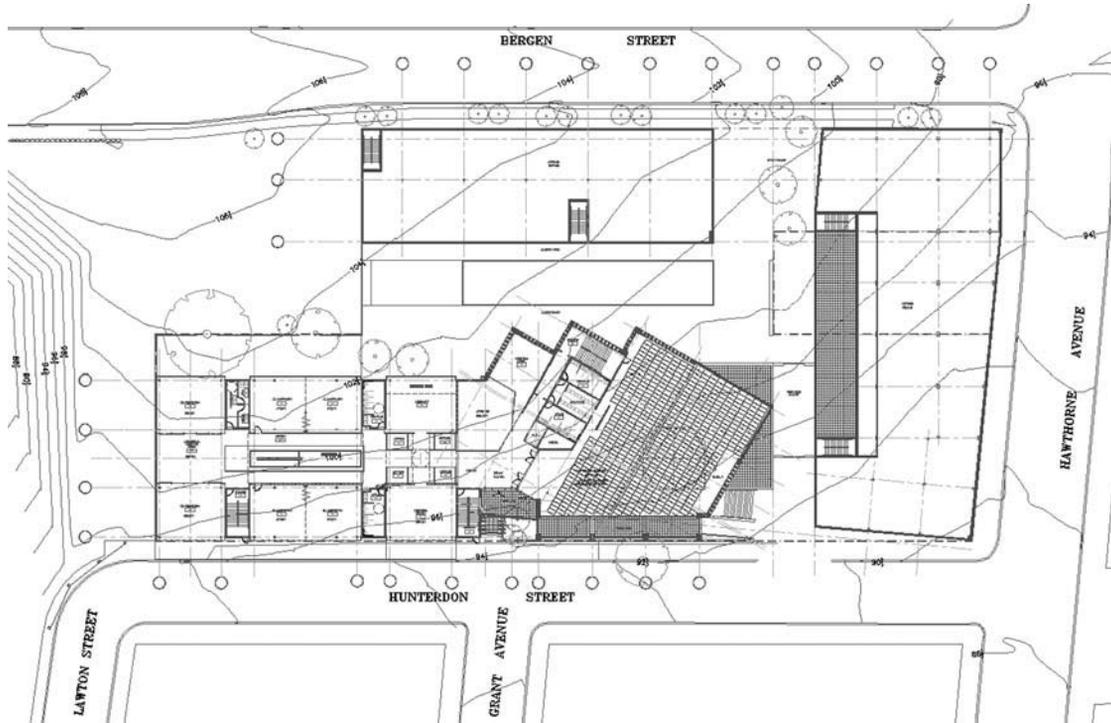


Figure 2.6 Site plan (alternate study) for an urban mosque, and school, commercial and office space. (Drawing by Integrated Metropolis, Austin, Texas (Craig Anz, Akel Kahera, and Iain Kerr))

building character, and other prominent topographical features including traffic, pedestrian movement, and noise levels. The site study provides the opportunity to accomplish the following ground rules:

- (a) An accurate appraisal of existing site conditions.
- (b) A complete assessment of any and all potentially problematic site conditions.
- (c) A comprehensive review of sustainable, environmental design considerations.

A thoughtful site study can also provide a large-scale organization of the mosque's relationship with the context of the place. This also allows the designer to modify the drawings until finally centered on the real conditions and ideals. For instance, today we have evolved new ways of seeing such as 'wayfinding', which connects spatial identity within the context to the building commodities and functional spaces.

On some level perhaps we have begun to understand the seminal role of site planning and urban design without foreclosing the possibility of bringing critical thinking to the process of design intervention. Hence the environment we create must be treated with all the best intentions for all co-effective stakeholders. These site guidelines are intended to promote a human quality, visual order, and a compatible character with existing site and socio-cultural conditions. In this regard architects and designers should formulate the design objectives

for the mosque to develop a program to include the following provisions:

- (a) Site planning and design principles must respond to the desired vehicular and pedestrian circulation, and parking. Friday is the day of Muslim assembly, normally between midday and mid-afternoon; likewise during the holy month of Ramadan the mosque attendance will increase and exceed normal times of worship, especially in the last ten days of the month. To accommodate the time of peak use, site planning principles need to consider existing roads, parking, and other important traffic data.
- (b) Architectural design principles should be responsive to energy conservation, sustainable environmental design, and low but cost-effective maintenance of the facility; each of the five daily communal prayers lasts no more than ten minutes, except the Friday midday prayer, therefore it is not necessary to tax the HVAC or electrical system over a twenty-four-hour cycle; energy conservation will become a permanent cost feature and therefore the system must be sensitive to the high and low peak use.
- (c) Two of the five daily prayers occur at night and a third one at dawn; at weekends there may be an increase in mosque attendance for educational or social functions.
- (d) Compatible, unobtrusive, and tasteful signage, site furnishings, and exterior lighting integrated with the building design



Figure 2.7 Courtyard (entry), Grand Mosque of Paris. (Photo © 2006 by Catherine Galley)



Figure 2.9 The minaret of the Grand Mosque of Paris. (Photo © 2006 by Catherine Galley)



Figure 2.8 Courtyard (sahn), Grand Mosque of Paris. (Photo © 2006 by Catherine Galley)

help preserve the identity of the facility and should add to the esthetic quality while blending with local features.

- (e) Landscape design principles require foliage appropriate to microclimate conditions; warm or cold seasons help define the desired landscape character. It is particularly important to have

paved surfaces, pedestrian areas, and site lighting to be especially designed to enhance entryways and architectural features as well as to foster building security and quality accessibility.

- (f) When applicable use properties of the great circle to determine the *qiblah* direction.

One and only one great circle passes through any two given distinct points on a sphere that are not mutual antipodes. This is so because the three non-collinear points consisting of the sphere's center and the two given points determine a unique plane, and the intersection of this plane and the sphere uniquely determines that great circle. On the other hand, infinitely many great circles connect any two antipodes, since these two points and the sphere's center are on a straight line – a diameter – and infinitely many planes contain this line (Abdali, 1997).

On a sphere, the shortest path between two points is along the great circle between them. Two distinct points lying on a great circle divide the great circle into two arcs. Unless the two points are antipodes, the two arcs are of different lengths. The shorter arc is the shortest distance on the sphere between the two points. Proving this assertion is difficult, but intuitively it seems as evident as the statement that the shortest distance between two points on a plane is a straight line between them. Because

of the shortest distance property, the great circle arc between two points on a sphere can be found practically by stretching a piece of string tightly between the two points (Abdali, 1997).



Figure 2.10 Grand Mosque Paris. (Photo © 2006 by Catherine Galley)



Figure 2.11 The minaret and dome, Islamic Center of Boston (Roxbury). (Photo © 2008 by Muhammad Abdus Salaam)



Figure 2.12 The minaret and entry portal, Islamic Center of Boston (Roxbury). (Photo © 2008 by Muhammad Abdus Salaam)

Table 2.2

Smart design and site planning
<ol style="list-style-type: none">1. Create opportunities for mixed land uses2. Take advantage of compact building design3. Create design opportunities and choices for the larger community4. Create walkable opportunities for social spaces for gathering5. Make design decisions that are predictable, fair, and cost-effective6. Create opportunities for social spaces for gathering
Adapted from Environment Protection Agency guidelines for smart growth.

The site planning process

The first step in the site planning process is to define project goals and objectives of the project, which will result in a master plan for the mosque. Both client and architect/designer should review the plan to determine project guidelines to meet the needs, goals and objectives, which become crucial to the program requirements. The program requirements determine the true project scope for the mosque. And the functional relationships of the site plan establish spatial arrangement to produce an efficient use of land and natural features that impact the project. The area of the site includes the building footprint; vehicular parking; and service zones; pedestrian circulation; landscape design and open space for social activities and play. The architect should begin with a study of the site to provide the specific data about the properties and buildings adjacent to the site and utilize the master plan to establish first and foremost the *qiblah* axis (Makkah direction).

Table 2.3

Site study					
Site feature	Welcoming	Neighorly	Stewardship	Pride	Friendly
Vital/active			X		
Sustainable			X		
Celebratory				X	X
Real/indigenous	X	X			
Parking conditions	X		X		
Safety/security	X		X		

- (a) The scope of work for the project can be used to determine the functional relationships of the proposed mosque facility. This process consists of analyzing the interactions between budget cost and probable completion time to determine construction methods and estimated construction costs.
- (b) The desired functional relationships can be defined graphically through the use of diagrams, power point presentations or any medium that can effectively convey the design concept. These diagrams help organize the plan and they clarify the appropriate relationship or division between various mosque functions. They also help to identify all structures that are historically or culturally noteworthy.
- (c) The master plan should be presented to the mosque community or displayed for members of the community to review over a designated time period. This should lead to a vote or some form of consensus for the preferred master plan for the mosque. This process may take several iterations, and both client and architect should proceed judiciously with these stages of the process. The master plan may be one of the selected alternatives or a composite of several schemes. This plan should be presented and approved by the local planning board as the final step in the process.
- (c) Where possible, the mosque facility should be placed on an elevated site, for example the Rome mosque. The site should always be selected with future expansion in mind.
- (d) The architect should orient the building so that the main entrance is visible from the main streetscape, pedestrian pathways, and parking areas. The main entrance should be readily identifiable and the main prayer hall (*musalla*) should be the focal point of the facility. The Boston Islamic Center and the London Regents Park mosque are good examples of this principle.
- (e) The four primary components of the mosque site plan are administrative facilities, educational facilities, social facilities, and the main prayer hall or *musalla*, all of which may be organized into one individual building or several adjacent parts. Sustainable design is critical to the overall success of the project; it can be accomplished through the management of these principles with the other design disciplines.

Site design

- (a) It is preferable that the urban mosque facility should be sited near retail facilities, public transportation, civic and education institutions, and housing. The Paris, Boston, and Regents Park mosques are good examples of this condition.
- (b) When land is inadequate no one can expect the master plan to fulfill all the requirements of the client, so in some cases the mosque can share parking with adjacent facilities such as schools that have occupancy peaks at different times of the day. Sharing rather than competing for the same space is a good way to build strong community relationships. The Boston Islamic Center is a good example; it was designed to provide educational facilities for the entire Roxbury community by virtue of its proximity to the Roxbury Community College.



Figure 2.13 The exterior landscape features and entry portal, Islamic Center of Boston (Roxbury). (Photo © 2008 by Muhammad Abdus Salaam)

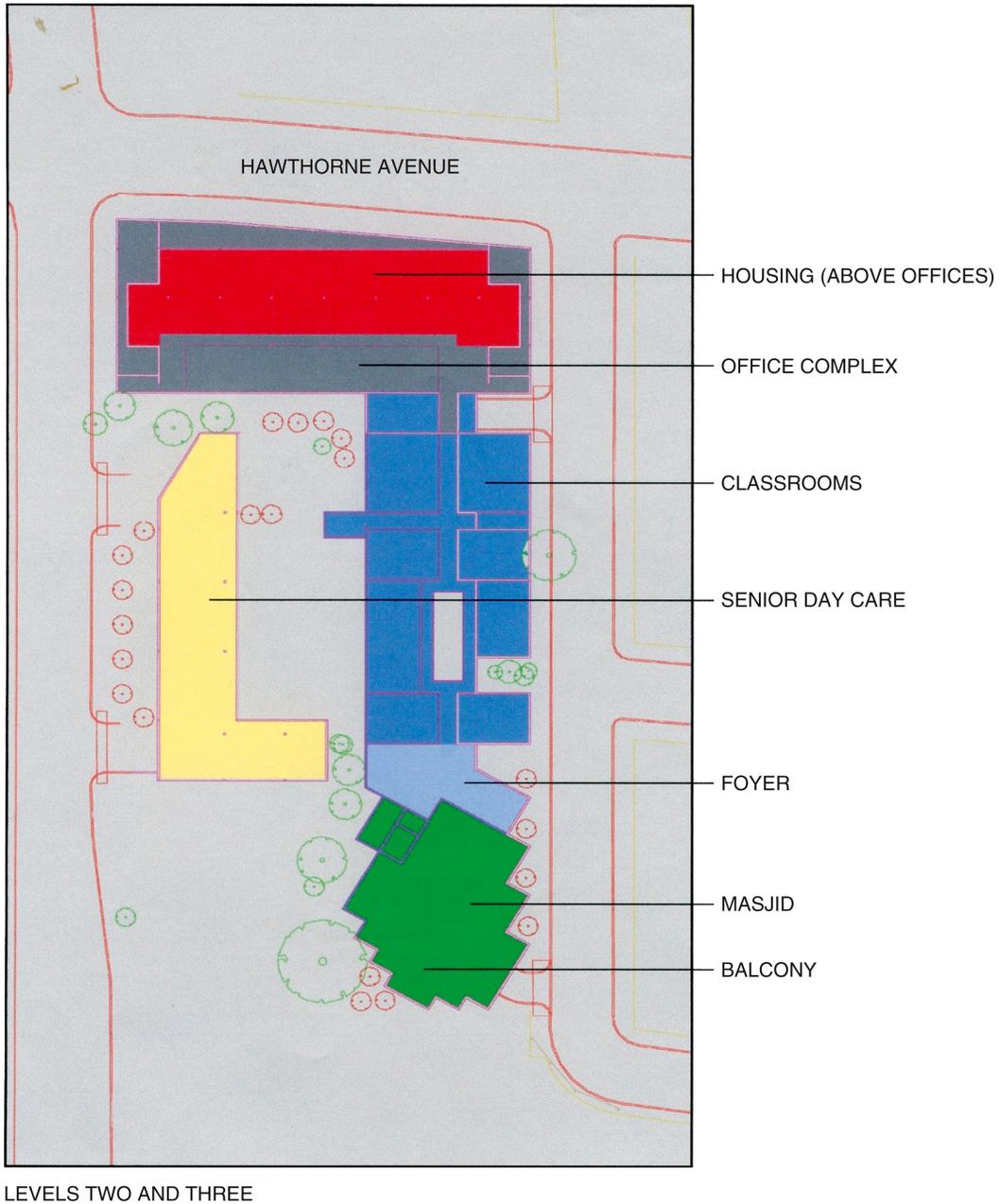


Figure 2.14 Site plan studies for an urban mosque, school, commercial and office space. (Drawing by Integrated Metropolis, Austin, Texas (Craig Anz, Akel Kahera, and Iain Kerr))

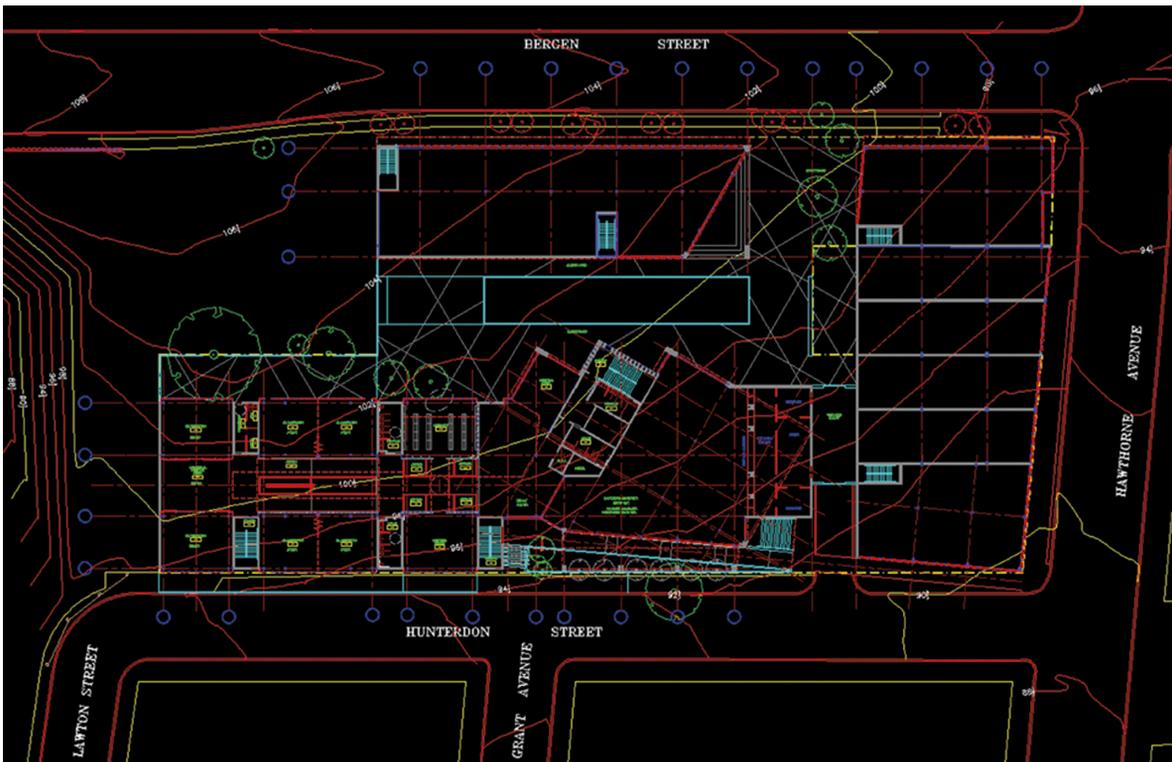
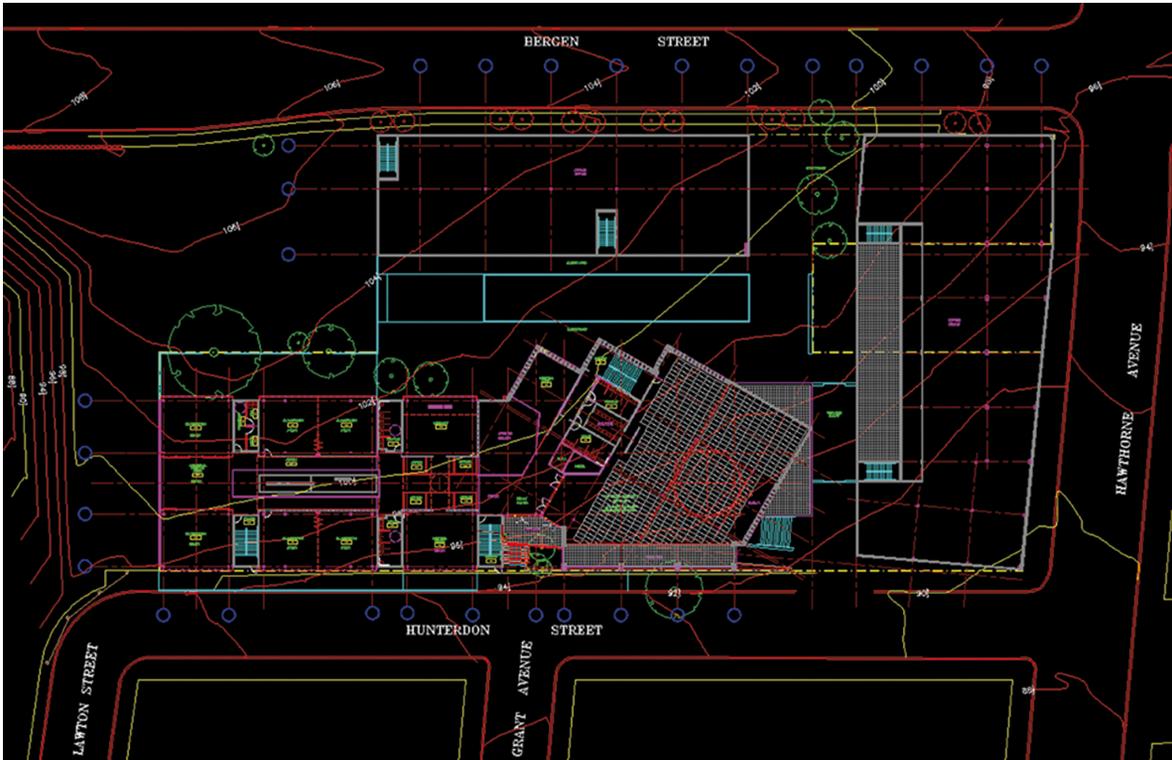


Figure 2.14 Continued

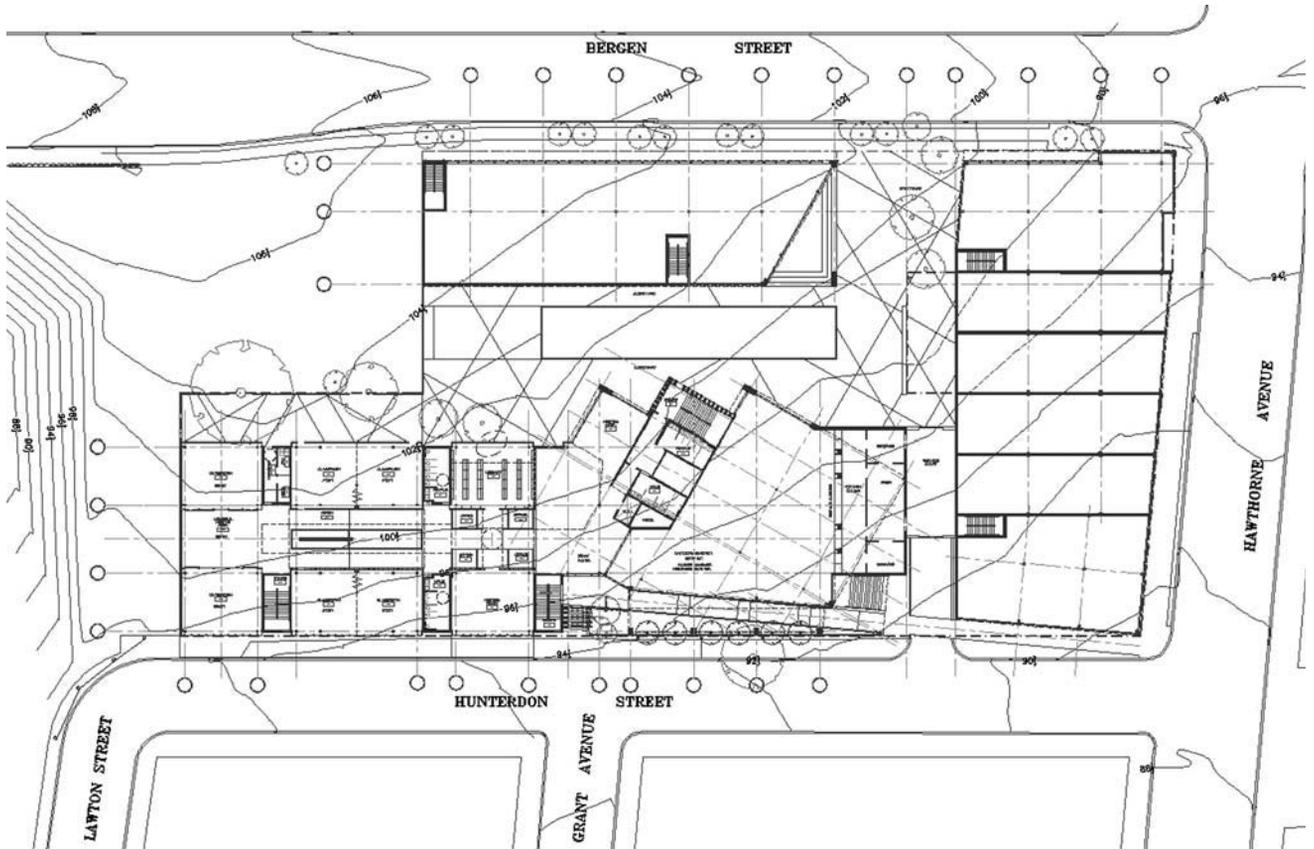


Figure 2.15 Site plan studies for an urban mosque, school, commercial and office space. (Drawing by Integrated Metropolis, Austin, Texas (Craig Anz, Akel Kahera, and Iain Kerr))

Site amenities

- (a) Provide separate parking areas from adjacent streets to avoid congestion during periods of peak use. Parking screens should be well matched with the architectural character of the site. Examples of screens may be walls, selective placement of trees, etc., to break up the visual impact of large parking areas. Landscape design schemes should preserve and enhance the existing attributes of the site, improve the environmental features, and improve visual quality.
- (b) Design parking areas to be cost-effective; in high traffic areas where land is limited, more than one level of parking is recommended.
- (c) Pedestrian circulation paths are to be convenient, safe, and separated from vehicular circulation; include barrier-free requirements and architectural elements in the surrounding landscape. Consider landscape design principles that balance and harmonize the visual environment during the planning and design process as a means to preserve natural resources and to modify environmental conditions.
- (d) Provide adequate reception areas at building entrances that allow for a transition to the various facilities and the main prayer hall to introduce human scale and unity.
- (e) Provide shade structures for people to sit in waiting areas outside of the mosque next to pedestrian flow to allow for both congregation and circulation.
- (f) Consider outdoor spaces as a transition into the facility and additional activity areas to tone down architectural elements, frame visual zones, and to articulate open space.
- (g) Because seasonal variations occur in summer and winter, site planning for the optimum orientation requires careful design and methods of cooling, heating, and thermal comfort. These climatic parameters affect the design objectives of the mosque program bearing in mind the condition of environmental impact. Response to site therefore integrates design, planning, and environmental conditions, which consider energy consumption, passive climate control, and renewable resources as opposed to utilizing finite resources. 'Green building' calls for environmentally related buildings that are responsive to the efficient use of resources and a holistic esthetic purpose in design, which may include health, safety and comfort, and the following:
 - Maintaining positive environmental biodiversity (vegetation, soil, air, and water).
 - Maintaining the use of renewable resources (such as water and solar energy).

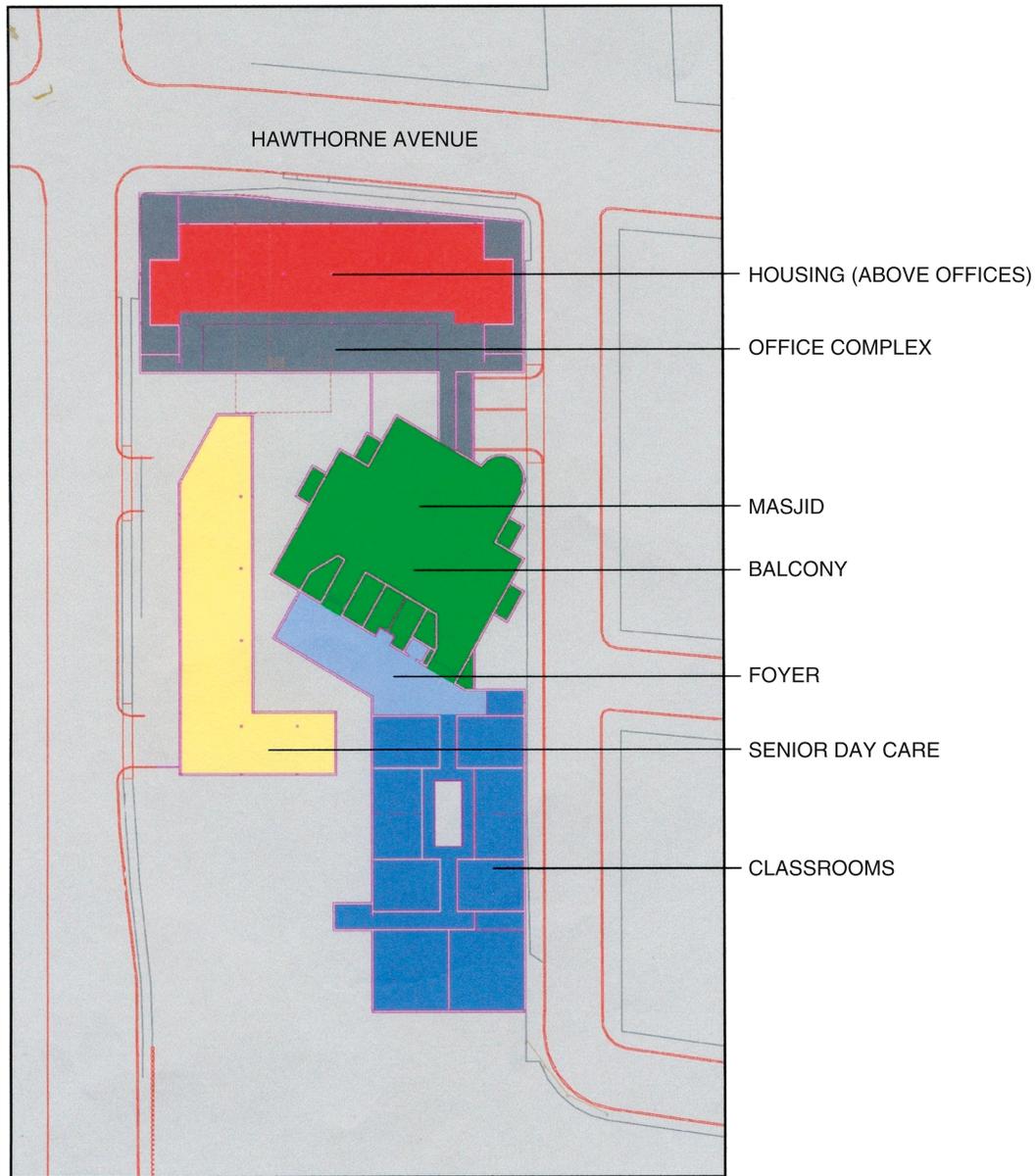


Figure 2.15 *Continued*

- Maintaining maximum use of passive thermal comfort and the minimum use of energy consumption.

These three precedents inform the site selection, design, and planning of a mosque; they also highlight the need for a regional style of architecture, which is responsive to context. The designer must find a way to articulate the program requirements of the

mosque in the design process with the careful application of appropriate environmental considerations. For example, landscaping elements may be used to soften light and glare, and provide shade and a zone of comfort in a particular region of the country. In the design of a mosque it may be acceptable to use passive systems to achieve thermal performance and no plant equipment where the external shade temperature is the same inside the envelope of the building.

Design Criteria for Mosques and Islamic Centers

Active building systems – air conditioning, mechanical ventilation, artificial lighting – use plant equipment to modify thermal comfort. Plant equipment can be costly to operate and maintain, and it consumes a high amount of energy to achieve environmental comfort. A third system uses both active and passive means to conserve energy. By monitoring the building performance thermal efficiency can be achieved by controlling passive and active zones within the building to conserve energy. A number of tactical design decisions concern the size and placement of window openings, the fabric of the building, the height of ceilings can allow for day-lighting, and



Figure 2.18 The Islamic Center of Rome. (Photo © 2008 Google Earth Images)

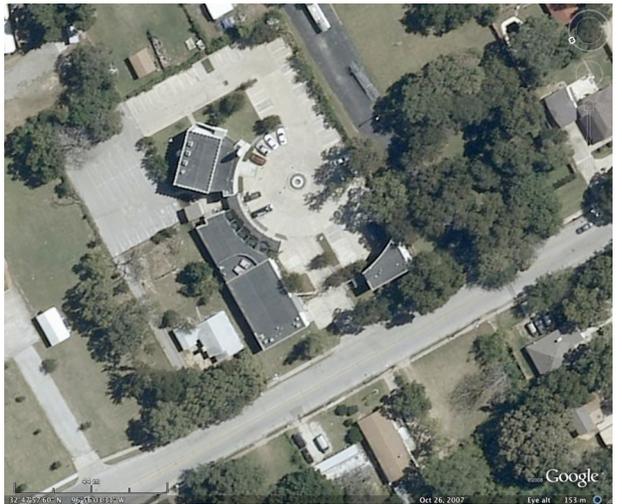


Figure 2.19 The Anjuman-e-Najmi, Irving, Texas. (Photo © 2008 Google Earth Images)

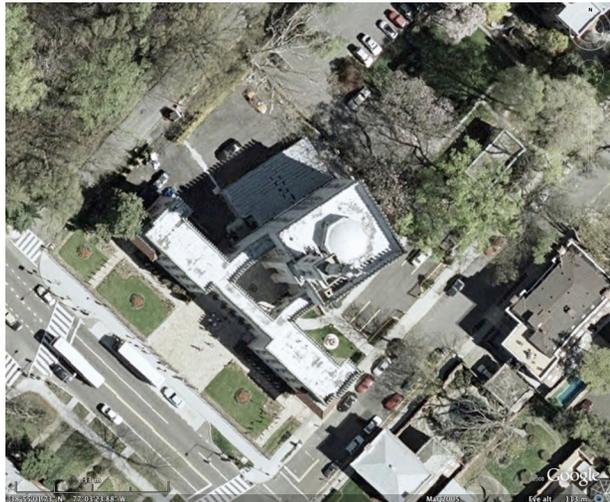


Figure 2.16 The Islamic Center of Washington DC. (Photo © 2008 Google Earth Images)

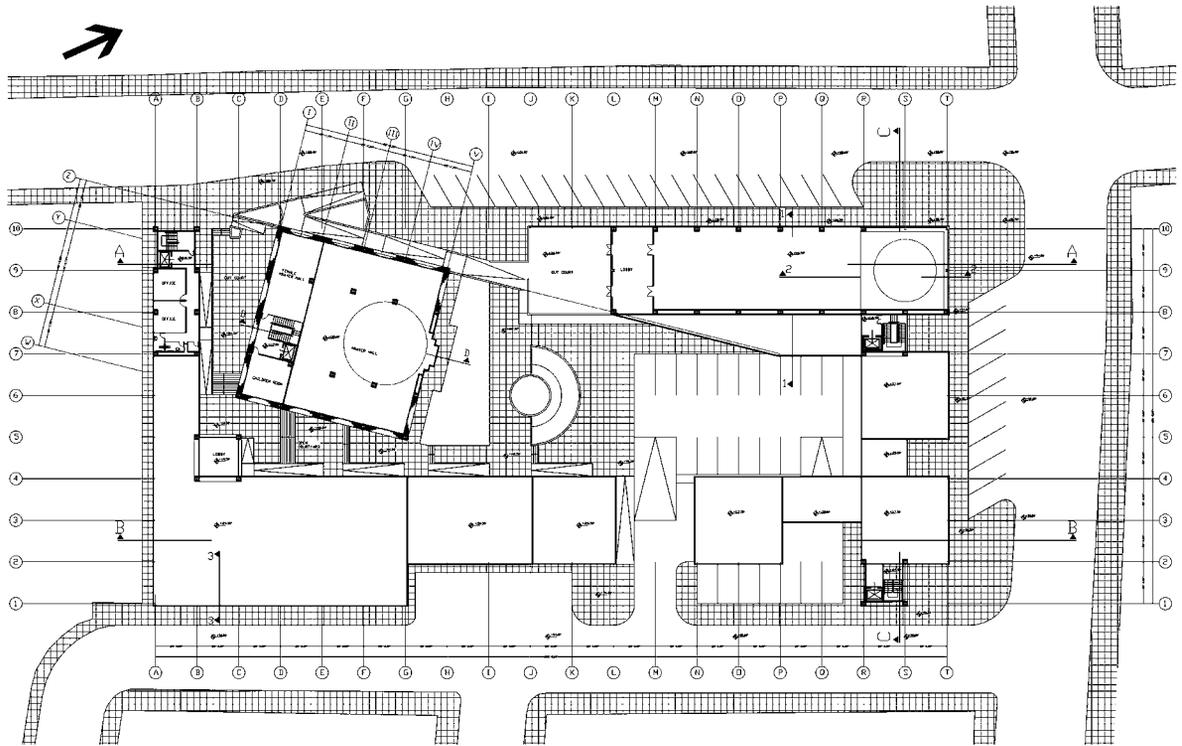


Figure 2.17 The Islamic Center of Boston (Roxbury). (Photo © 2008 Google Earth Images)

ventilation in both active and passive zones of the building. This kind of design information is important for integration of the design and planning of the mosque with the climate type and region.

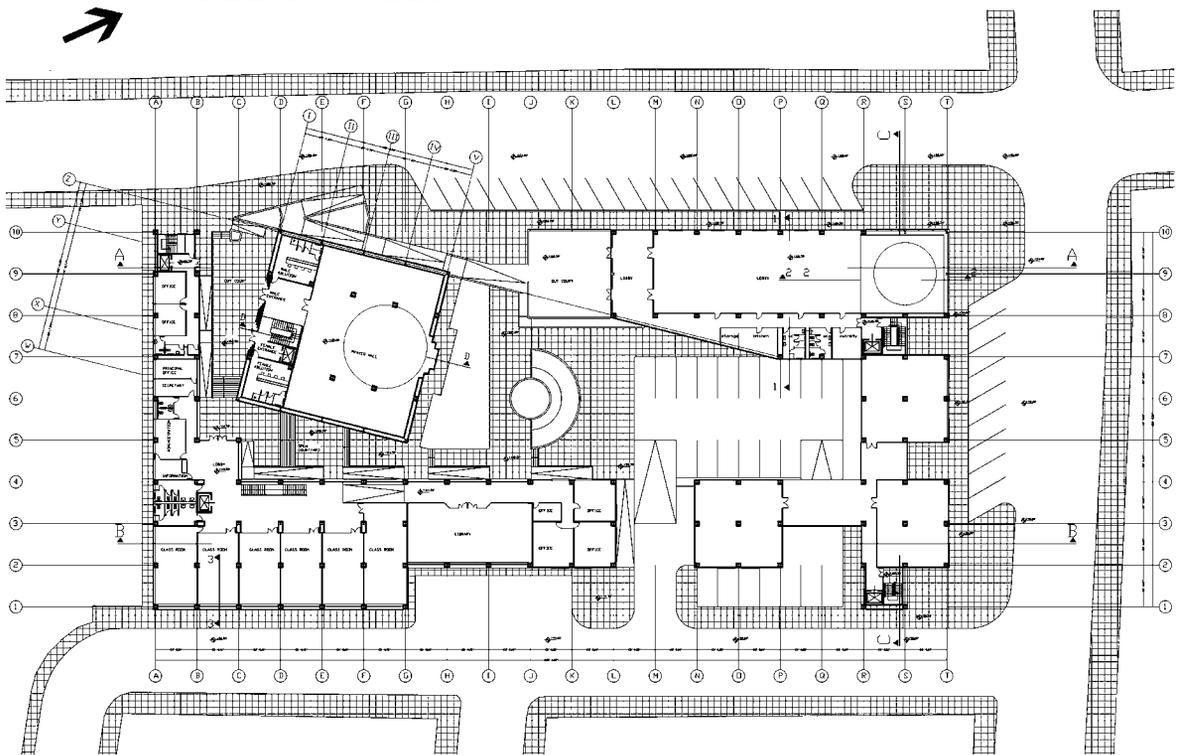
Zoning and place making

In Europe and America the dominance of zoning regulations is an ‘index’ to make certain claims about building types and in order to negotiate the collective good and to adjudicate building



THIRD LEVEL PLAN

SCALE 1/16=1.0



SECOND LEVEL PLAN

SCALE 1/16=1.0

Figure 2.20 Islamic Cultural Center of New Jersey, site plan. (Site plan by Murad Abu Salim)

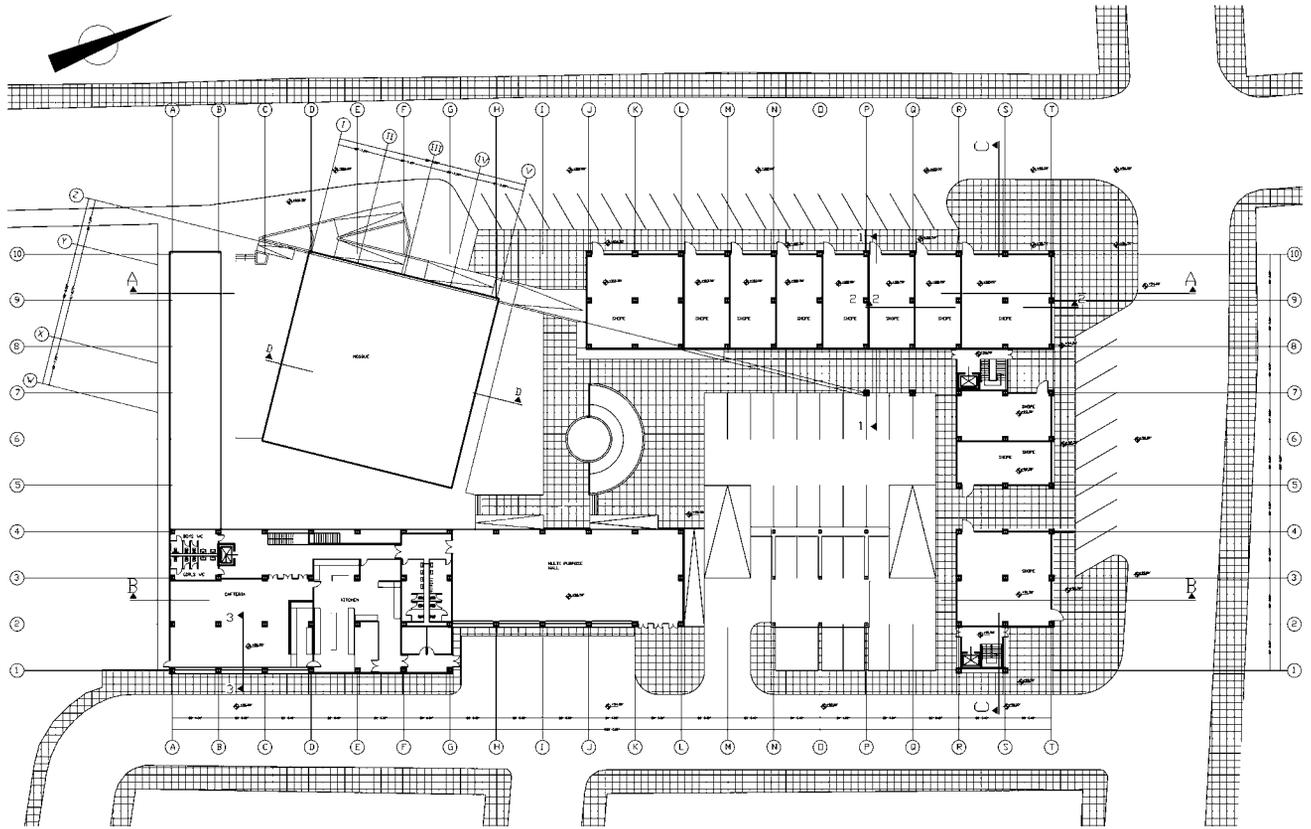


Figure 2.21 Islamic Cultural Center of New Jersey, site plan. (Site plan by Murad Abu Salim)

applications to any given context. One of the challenges of designing an urban mosque, along with the sustaining beliefs of zoning regulations, is to explore the extent to which the creativity of the architect and designer can achieve optimum results and a significant architectural quality. In a larger context the urban mosque creates new tangible variations in the way we may interpret urban conditions along with the interaction of spaces and sites that help negotiate zoning regulations, which can create a new idiosyncratic expression.

A model for environmental development, Hassan Fathy's mode of sustainability, provides us with an antidote against insensible modernization and stresses the value of traditional forms of construction that bridge the rift between the end user and reconstruction. His architecture dissents from postmodernity with several questions that emanate from his philosophy of *place making*, primarily an architecture that seeks to enhance ecological and socio-cultural equilibrium while avoiding disruption of the natural environment. Undoubtedly, intervention admits a particular obligation to embody a *sense of place* – one that governs the process of building or recognizes essential reciprocity with the end user as the primary impetus for 'normative spatial values' of a community.

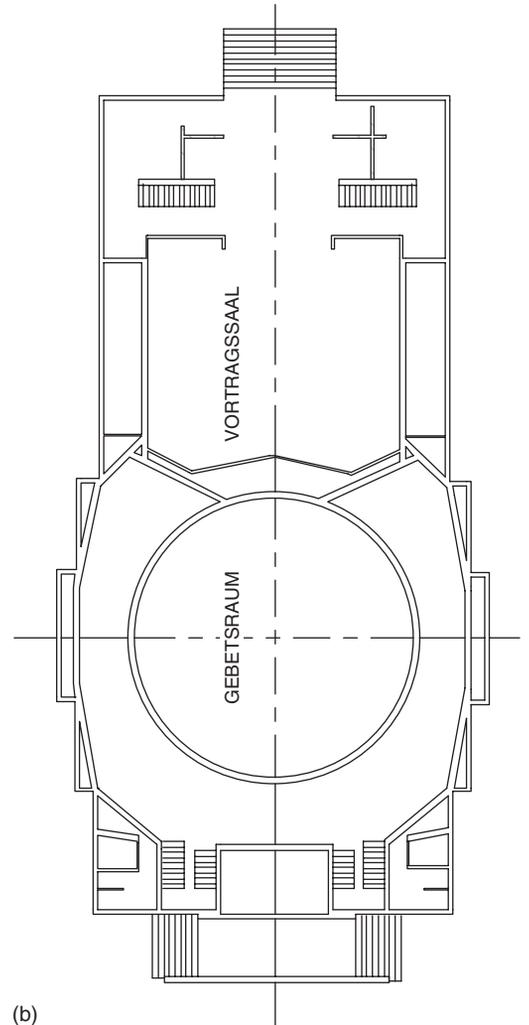
His architectural views enable us to experience things as they are naturally, not as an artificial or abstract disconnected consciousness. Consistent with Heidegger's notion of building and dwelling, while each thing possesses certain qualities from other things, they also have a common reality: the *truth of their existence*.

Returning to the subject of 'place' the development of the site can be determined by means of intrusion, rupture or dissent, or by applying the terms we proposed above to aid in the production of a simple scheme. While the temptation is to engage in ideas that suggest differentiation, to propose difference single-handedly is to advocate dissent. It is easy to forget that the urban mosque serves a community and therefore consensus must come within reach of the process and the professional role of the architect. In addition we must also consider the function of the mosque, and the correlation of various criteria that constitute possible alternatives in the design process. It should be made clear that the way to proceed with the composition of any site will be the organization of spaces, which are determined by first creating the general scheme. Once the general idea for the site plan is established it may then be possible to complete or perfect it. During the composition of the site plan for the mosque the proximity of the various parts of the edifice,



(a)

Figure 2.22 Imam Ali Mosque Hamburg, Germany. (a) Aerial view. (b) Floor plan. (Courtesy of Google Earth (part a)) Drawing by Errol Browne (part b)



(b)



Figure 2.23 Islamic Center London (London Central Mosque), Regents Park. (Courtesy of Google Earth)

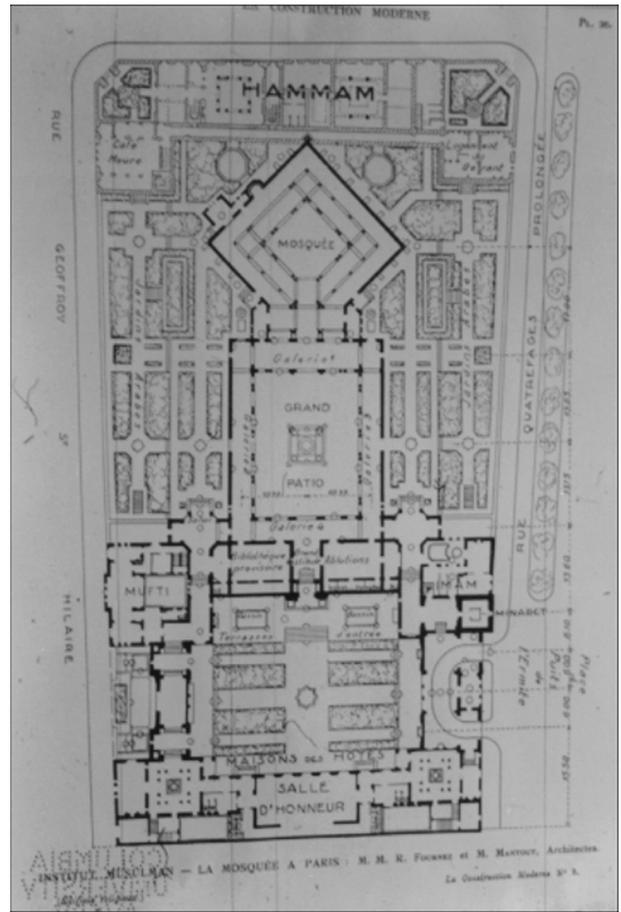
e.g. education, prayer, social and administrative, are to be guided by rational considerations. It is therefore the distinction of composition that implies that some tentative solutions might unfold by proceeding along the guidelines noted above. By contrast interpreting and employing these assumptions may be considered general rather than specific; this suggests that the primary elements in the design of a mosque are subject to a number of radical variations in the creative process.

To carry this notion of composition further, the architect must transcend the previous limitations of functionalism as the only panacea of creative expression. This is obviously an oversimplification, but as we observed in the introduction the proponents of historical nostalgia will find no easy solution by neglecting the extremes of modernity. On the other hand, the extremes of modernity have consistently misrepresented the nuances of culture. Certainly there are risks worth taking but the mosque is too important an edifice to simply conceive within the play of ideas to inspire a concept. Against this are strategies that we propose that may allow the architect to recover the fullness of certain



(a)

Figure 2.24 The Grand Mosque of Paris. (a) Aerial view. (b) Site plan. (Courtesy of Google Earth (part a))



(b)

Table 2.4

Lessons	
<p>Sponsors and designers of mosques</p> <ul style="list-style-type: none"> • Concentrate search for sites on areas zoned for places of worship • Avoid sites that do not conform to zoning requirements • Look for sites accessible by public transport and/or on an arterial road • Take parking requirements into account when assessing the suitability of a site • When selecting a site, consult prospective neighbors about your plans • Before finalizing the site selection, discuss your plans with the planning department and local councillors • When developing a plan, take into account the preferences and concerns of the neighborhood/community • Do not rely on political or personal contacts to get planning approval. Give attention to standards procedures and expectations • Do not attribute political, ethnic or racial motives to those objecting to your plans. Public discussion should be limited to planning matters • Develop a mosque that architecturally and functionally blends into a neighborhood 	<p>Public officials</p> <ul style="list-style-type: none"> • Revise planning policies, zoning by-laws, and regulations to include diverse forms of places of worship • Systematize planning policies and standards to remove ambiguities and excessive requirements • Reduce divergences between the planning policies and standards of neighboring jurisdictions. Clarify rationale for any specific requirements • Ensure that the planning process is clearly spelled out and that timelines are specific • Keep public discussion about a place of worship strictly confined to planning matters. Councillors and elected representatives have a special responsibility to avoid political and social stereotyping • Rationalize traffic and parking requirements, basing them on demonstrable and measurable conditions • Develop official plan policies encouraging shared or complementary parking facilities among places of worship and/or with shopping centers <p>Adapted from Qadeer and Chaudhry (2000).</p>

themes around which the sphere of religious significance and design can open dimensions of relative creative freedom.

The request for proposals (RFP)

Before a contract to design a mosque is awarded to an architect, design proposals are to be evaluated and compared; the best offer, if any, is then selected. The RFP is one of the commonly used efficient ways of improving the process of selection. A request for proposal or RFP may be sent to prospective designers or architectural firms who are short-listed or identified in connection with the requirements of the project. The RFP process allows the client to create a list of relevant questions. On the basis of this checklist, a matrix will be created, which will determine the worth of finally selecting a designer or a firm for the duration of the project.

Table 2.5

Architect's selection for this project (partial list of items to be provided in an RFP to the client)
<ol style="list-style-type: none"> 1. All architects are to state their qualifications and approach to the project 2. Does the architect have the qualifications necessary for satisfactory completion of the proposed design work? 3. Has the architect successfully completed similar scope and size projects? 4. Does the architect have specialized experience and technical competence in the work proposed? 5. Who are the personnel to be assigned to the project? 6. List for each person's licence, years of experience and assurance that this person will be assigned to the project for its duration 7. Provide past performance reference for other similar types of projects 8. Provide a copy of the architect's quality control procedures

Summary

In urbanism, as with all socially oriented endeavors, it is imperative to maintain the critical conditions for socially activated thought and action. Habermas (1971) prescribed a fundamental hermeneutic notion of how collective knowledge and accepted morals, values, and norms, are communally formed and applied by its people. Similarly, Islamic Law also prescribes a useful and lasting version of the legal concept of *urf*, as 'what is accepted by people and is compatible to their way of thinking and is normally adopted by those considered to be of good character' (Kahera, 1998). In this, we see that Islamic thought already had in place a primary structure for the collision of cultures, and that an outside culture could not override from a proxy vantage an existing, established culture distinct of place. This idea would be mutually destructive, with loss of identity on both sides. When dealing with innumerable types of habitat

conflicts, the meaning of habitat can become manifest through language; it comes forth in the language of the Islamic Law (*shari'ah*). The concept of community has a profound impact on our understanding of urbanism and the definition of an urban mosque. For example, how does a community maintain the conventions of architectural space over time? What are the agents that affect the socio-spatial behavior or habitat patterns of a community, and how can legal axioms explain such conditions?

Hence the overriding of another concept of urbanism and place also indicates a loss of respect and of ethical character, ethics that can only come from socially accountable stakeholders. The power to regulate a habitat dispute is cloaked in the conduct and behavior of people who may know full well of zoning laws and ordinances. To avoid conflict both the architect and the client should raise the following ten questions:

1. Are there any natural features to be preserved for environmental protection?
2. Are there any natural features that will be impacted by new construction?
3. Will the historic preservation of existing structures or other landmarks be influenced by the design of the mosque?
4. Will the proposed vehicular and pedestrian circulation create points of conflict?
5. Are the utilities that serve the area adequate for the new construction?
6. Are there any legally required buffers, setbacks, easements, and right-of-ways?
7. Are physical security and safety clear zones required for emergency vehicles?
8. Does the minaret height affect the use of airspace?
9. Are there any desirable visual and architectural impacts to be enhanced?
10. Will there be significant vegetation, especially trees and shrubs?

The aim of these questions is to inculcate a strong sense of affection (*topophilia*) for the place and not an aversion (*topophobia*) to it. Lasting well into the twenty-first century as it is today, the idea of 'sustainability' becomes an idea representing the essence of collective reasoning and the epistemic framework in place for understanding ethical 'rightness' within and for an urban society and its shared endeavors. Likewise the response to the foregoing ten questions requires fundamental knowledge of the urban context, since it is the impetus to understand physical change and the use of public space. A deeply seated, philosophical base supporting urban intervention comes from Ibn Khaldün (1332–1406), whose ideas on the subject have extraordinary relevance today. Much of his work discusses the necessary conditions for planning and construction of cities through the idea of '*umran*', which means basically 'culture' (Mahdi, 1964) and indicates the necessity of understanding the dialectic between civilized and (un)civilized (or perhaps intangible) urban society. His notions of culture correspond with those of

Design Criteria for Mosques and Islamic Centers

modern sociology and anthropology, umran means ‘the cumulative social heritage (ideas, attitudes, and activities) of a group as objectified in institutions and conventionalized activities in a particular time and place’. The principal mode is to: ‘live, inhabit, dwell, continue, and remain in a place; to become

inhabited, stocked, or cultivated (not necessarily in an opposite state to nature), and to be in good repair (sustainable, ongoing process); cultivate, build, institute, promote, observe, visit, or aim at a *thing* or *place* (substantiated meaning *and telos*)’ (Kojiro, 1989).

3

The design of the sanctuary (*musalla*)

According to Lefebvre, the goal of a mosque's designers is to shape or reflect the perceptions of the practitioner, but how a space is actually used or 'lived' cannot be controlled or predicted. A mosque planning committee and their chosen architect can attempt to shape perceptions by their choices; however, the users of the mosque ultimately determine how the mosque functions within, and are often the dominant influence on the external appearance as well.

Vincent F. Biondo II,
The Architecture of Mosques in the US and Britain (2006)

The sanctuary (*musalla*) of an urban mosque

The text of the *hadith* describes the mosque of the Prophet Muhammad built in the seventh century CE at Madinah, Arabia; from all accounts it functioned as a place of public worship, a seat of government, education, and a refuge for any destitute émigré. The Prophet's mosque was originally a simple orthogonal walled space, with an open courtyard with two or three doors and a shaded prayer enclosure or *musalla* to one end facing Makkah. The *musalla* was supported by columns, which were spaced at regular intervals to hold up the roof structure. The simple structure would become the paradigm for future mosques, which were built following the expansion of Islam in the first century after the death of the Prophet. In general the Muslim community takes its historical precedents and religious traditions quite seriously; this very much describes the development of the plan of the *masjid-Jami*, away from Madinah. The plan was developed and refined to what we find today in most countries of the Muslim world, in Europe and America.

In many ways the space of the urban mosque is not created *ex nihilo*, cultural and religious meaning are suggested through the aesthetic configuration and the production of space. Two telling examples are the *Grande Mosquée de Paris* (1926) and the *Islamic Cultural Center of Washington DC* (1957); both buildings are imbued with sets of esthetic dualisms, which lay claim to the universal function of the edifice, in tandem with a culturally specific regional style influenced by the patron, client, and architect (Kahera, 1999, 2002a; Gale, 2004; Nasser, 2004). Likewise, Henri Lefebvre (1991) in *The Production of Space* speaks of analogous spaces, repellent spaces and *utopias* or spaces occupied by the symbolic, the ideal, and the imaginary.

Hayden (1997) also writes about 'connecting the history of struggle over urban space [and the] poetics of occupying particular places'. Esthetic values of a sanctuary (*musalla*) are often confused

by what meaningful relationship pre-exists with an immigrant's emotional struggle, experience and prior religious practice before coming to the west. Hamidou Kane's (1961) novel *L'Aventure ambiguë* convinced us that the potential to become displaced, confused and off-balance already existed as early as the 1960s among immigrant Muslims who were migrating to the West in the post-colonial era. In his narrative, he describes the disorientation of a Senegalese Muslim who set forth from the heart of his native land only to find himself at the periphery of French society, estranged from God and country. And if we also consider the sensibilities attached to Diaspora and esthetic consciousness – dress, language, diet, religious practice, and other various facets of everyday experience and identity – we recognize the problem is rooted in several affinities tied to memory and accustomed to daily routine or ritual. Memory is crucial because it is used as a mechanism for maintaining various habits and customs, thus keeping them alive through isolation or free from the contamination, and making them mutually exclusively meaningful to the immigrant community.

Hayden (1997) outlines the elements of space and how they connect people's lives but more importantly how the power of an urban landscape nurtures public memory. In discussing the plight of urban Muslims in Toronto, Isin and Siemiatycki (2002) offer a number of relevant points that are applicable to our discussion. They argue that 'this specific struggle was one of many for Toronto's growing Islamic population seeking appropriate places of worship'. To this end, they ask, 'How do we interpret these conflicts that are simultaneously about space, identity, faith and fate, and that are increasingly visible in urban politics?'

To place the sanctuary (*musalla*) in context requires a discursive reading of architectural praxis and coming to grips with a number of extant cultural tropes. For example, the technical virtuosity that an architect and designer can use to translate the historical model for the plan of an urban mosque is made possible through the profound

understanding of space, form, and order. Secondly, to understand the problem of space form and order as it relates to the plan of a *musalla* we also need to recognize that theoretical approaches do differ, therefore we will confine our remarks to the idea of ‘a space conception’ as it relates to communal worship. In essence, the sanctuary is a communal worship space and carries with it the dynamics of social–spatial interaction and shared community values and meanings. However, it is also often the source of many ideological tensions, as we will expand upon in Chapter 5. Broadly speaking, any design development associated with the sanctuary must first address the questions related to the problem balancing the particular demands of communal worship, space, and gender along with the prescribed use and function of the sanctuary (*musalla*). Above our knowledge of building practices, material culture from other epochs can inform our basic understanding of contemporary esthetic values. Various solutions exist in the case of the Islamic Cultural Center of New York, the Grand Mosque of Paris, the Islamic Center of Rome, and the Regents Park Mosque, London, etc., as these examples involve a range of imaginary and diverse design alternatives.

But it is the immersion of the design ideas in the planning stages of the sanctuary that disclose the frustration many architects may face and that will also lead to a lack of clarity in the final solution. In addition, the delineation of styles within each building program and the priorities of a site or budget are often contested when the architect is asked to generate imaginative solutions to a design problem. Furthermore it is with the sanctuary mode that we are drawn most fully into a debate about the relationship between architecture and ritual and the experience of sacred space; more specifically the emotion, sentiment, and sensory stimulation are exceedingly complex to say the least.

Nevertheless, the design of a sanctuary (*musalla*) is also informed to a great extent by such factors as cost, materiality, and the impulse to embrace tradition and/or modernity. In fact, the demands of cost can often overpower all other parameters of design. In either case, the interaction is between the distinguishing attributes of sacred and profane spaces (with respect to Emile Durkheim and Mircea Eliade) such as the *musalla* and ablution vestibule; the accommodation of men and women, by contrast, can provide a basis for establishing suitable settings for the needs of the faithful and thus define specific spatial conceptualizations into built architectural form.

The guidelines set forth herein are to be considered as a generic or preliminary design format because individual project requirements will vary between contexts, programming, and regulatory controls. Therefore, the following is an overview of the basic processes for building urban mosques and Islamic community centers. The parameters may vary according to local requirements and socio-cultural fabrics, for example the city of Houston, where zoning regulations have been greatly relaxed *vis-à-vis* places where regulatory, land use, building type, and zoning controls are more stringent. However, they may be used as a basic guiding reference for the design and construction of urban mosque projects that include new construction and renovation.

Historically many other components in the formation of mosque architecture gained acceptance; these features of societal importance were developed with the mosque. There are two other

Table 3.0

	Assigned task	Estimated time
Programming the project		
1.	Collecting the facts (diligent data collection)	
2.	Establishing goals (problem identification)	
3.	Developing concepts	
4.	Determining needs (problem solving)	
5.	Project statement	
6.	Budgeting (cyclic ongoing process)	
Architecture and design services		
1.	Research and master planning	
2.	Schematic design	
3.	Design development	
4.	Construction documents/cost estimate	
5.	Supplemental services/ follow-up	
6.	Bidding and negotiations	
7.	Construction administration	
8.	Permit and other approval assistance	

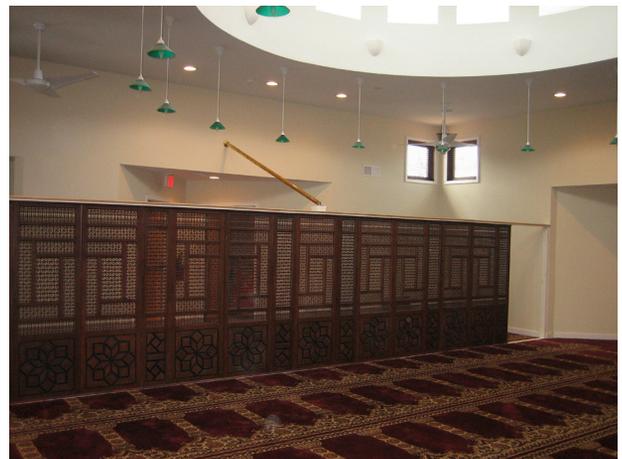


Figure 3.0 Sanctuary of the Islamic Center of Huntington, West Virginia. (Courtesy of McCoy Architects LLC)

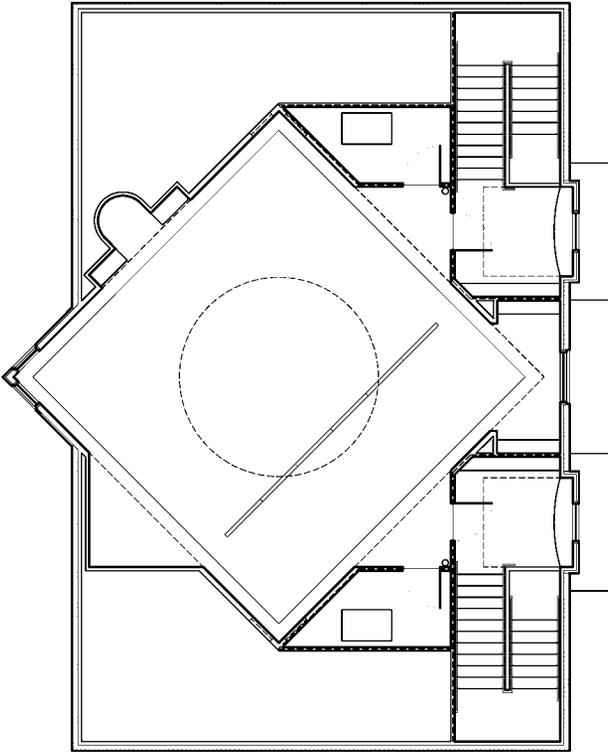


Figure 3.1 Plan of the Islamic Center of Huntington, West Virginia. (Courtesy of McCoy Architects LLC)

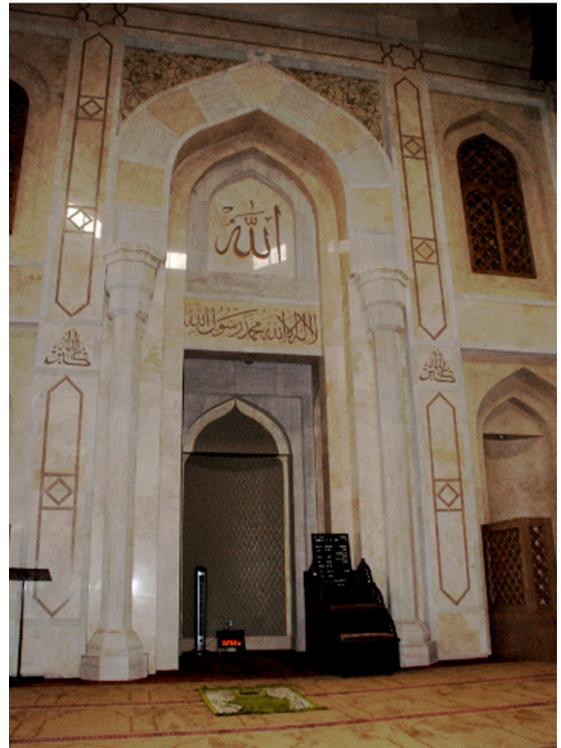


Figure 3.2 Mihrab and sanctuary of the Friemann Mosque, Munich. (Photo © 2007 by Craig Anz)



Figure 3.3 Mihrab and sanctuary of the Al Farooq Mosque, Atlanta, Georgia. (Photos © 2007 by Akel Kahera)

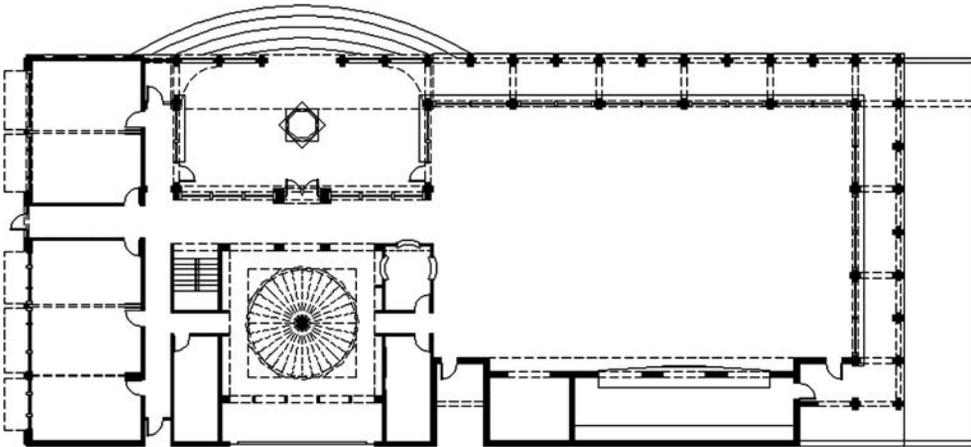


Figure 3.4 Islamic Cultural Center of Austin, Texas. (Drawing by Integrated Metropolis, Austin, Texas (Craig Anz, Akel Kahera, and Iain Kerr))

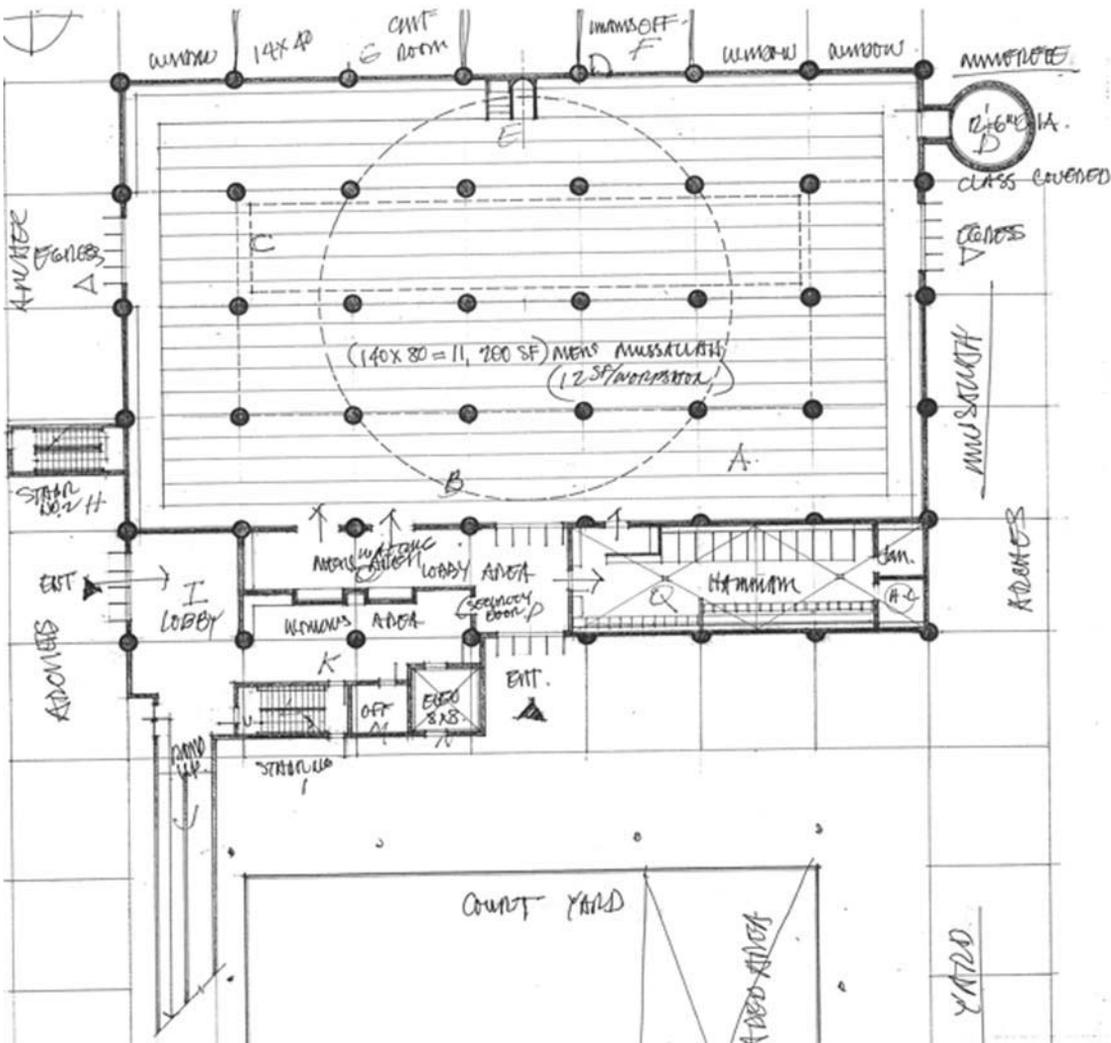


Figure 3.5 Design study for a sanctuary. (Drawing by Latif Abdulmalik)

types of institutions that deserve mention: the *bimaristan* (hospital) and the *madrasah* (college) have been included in the scheme of the complex. Over the last two decades the publication of research on the subject of Muslim education suggests a changing dialog between function and form of the mosque, especially in Europe and America. It is evident that recently constructed mosques allocate most of their planning needs to a prayer hall, especially for Friday prayer, and ancillary spaces for social gathering, such as classrooms for informal education. This type of plan is not limited to a specific function, which enables the congregants to define the unlimited use of space beyond the primacy of worship. Undoubtedly, an affinity of architectural language exists everywhere in Muslim architecture, which may suggest a correlation between the treatment of meaning and form, but the sentiments of a community, builder, architect, or patron may also have recourse to time, space, and memory. In Europe and America the problem of time, space, and memory presents some unique problems with regard to the way in which various esthetic themes are adopted.

Space, form, and order of the *musalla*

First, the design of the entire mosque project needs to be developed. Because the design is developed collaboratively the architect meets regularly with the mosque planning committee, interviews all the users, and assists in fully defining the needs and objectives by preparing a program document. It is important to remember that the design is based upon the programmatic goals of the mosque and is represented by drawings that are conceptual initially and then become more technical and detailed (established) as the design progresses from an idea stage into written and illustrative documents that legally define the quality, materials, and components.

Esthetic values attached to the layout of a mosque sanctuary (*musalla*) are further complicated and confused by the absence of an established typology – that is, similar to the chronologies that exist for, say, churches or synagogues. It might perhaps seem at first unreasonable to compare church and synagogue typologies with the mosque since liturgical practice is decidedly different among the three different types of buildings. We refer here to the plethora of design guidelines and supporting regulatory aspects that exist for both church and synagogue within their dominant cultural settings. However, we find such similar data is virtually absent for the mosque, particularly in contexts that are different from their original (Diaspora) locations (as in the USA or Western Europe). An architect who is commissioned to design the sanctuary of an urban mosque has therefore to decide such guidelines both independently as well as interpretively to existing contexts. This becomes problematic because in the process of formulating such design criteria within each varying context, set of regulatory codes, and/or socio-cultural dynamics, decisions about esthetic values, as well as spatial meaning, are invariably made.

In approaching the design of a sanctuary (*musalla*), the desire to achieve spatial equity and integration of a sacred space, it is helpful to depend on our knowledge of the first mosque built at Madinah in the seventh century CE as the fundamental historical precedent which in essence transcends through all mosque design. The plan

of the seminal building, in contrast to many mosques built today, was not constructed with walls that segregate women, although they prayed in designated rows. Since the principal function of the *musalla* is the performance of communal worship for both men and women, the designer would need to approach the composition of a plan for the *musalla* such that it fulfills its primary function: *social inclusion*. A well-designed plan can enhance the harmony, scale, balance, and composition of the *musalla*. A corresponding discussion is reflected in Isin and Siemiatycki's description concerning 'integration and assimilation' by understanding one's identity and the configuration of urban space. Isin and Siemiatycki (2002) offer at least two relevant strategies. Accordingly, the first step is 'how Diaspora communities make and remake space ... through strategic differences that draw upon their religion and culture'. The second consideration is 'how Muslim Diaspora reshapes urban space by strategically articulating certain needs and how it encounters equally strategic resistances'.

The principal function of the *musalla* is the performance of communal worship for men and women; the designer would need to approach the composition of a plan for the *musalla* such that it fulfills a primary function: inclusion. A well-designed plan can enhance the harmony, scale, balance, and composition of the *musalla*. If the *musalla* requires columns, it is important to consider the ability of the congregants to form straight lines without interrupting the spatial requirements of its occupants (audio-visual, movement, functional relations, etc.). A *musalla* without columns may tend to be more sensitive to the performance of worship because it enables parallel lines to be formed without interruption. Therefore, spacious vaults and/or large, open spans are often the preferred structural typologies that can free up usable space, thus creating the ability for more dynamic social inclusion and long-term spatial adaptation. However, it can also be argued that the significant precedent associated with the multi-columnar, hypostyle hall (going back centuries to the Great Hall at Karnak) can strengthen the esthetics properties associated with the Arabesque and its reiterative patterning, spatial formations, courts, directionality, and representations of infinity. In this, the architect is mandated within the first initial steps of design to conceptualize the significant effect of an open-span versus a column-supported *musalla* in such a way to make the idea intelligible and meaningful, as well as feasible, to the client and the future users.

Knowledge of the spatial modulation noted above would permit the architect to establish a design cadence that suffices to justify the measure and proportion of the *musalla*. There is no formal liturgy *per se* in Muslim worship driving the design of the worship space other than the emphasis on the collective, communal performance of the prayer (*salat*) facing the *Qiblah* direction toward Makkah (Mecca). These fundamental requirements generally direct a basic plan that can accommodate both men and women in relation to the prayer leader (*imam*) or the orator (*khatib*) in the case of Friday worship. This acknowledgement makes it possible to analyze the form of the *musalla* in itself in order to determine what types of proportions and ratios are possible. The floor surface of the *musalla* is in essence a series of parallel lines, since there is one dimension in which movement takes place, based on the *qiblah* axis or the *qiblah* direction.

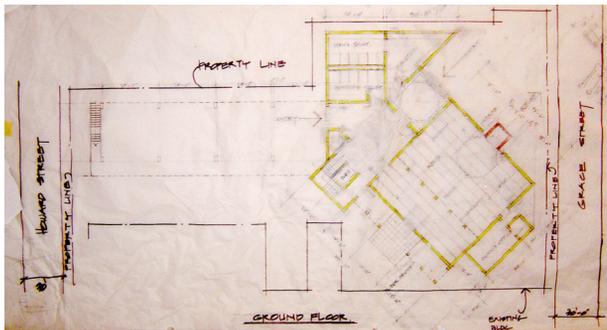


Figure 3.6 Study model of the Islamic Center of Irvington, New Jersey. (Designed by Akel Kahera and Grant Alford)

In sum, the requirements for *salat* require a clean, carpeted (comfortable) area that would allow the various prayer postures to be performed with relative ease and without obstruction or inconvenience to spiritual concentration throughout the four primary positions: standing, bowing, prostrate, and sitting (see Figure 4.8). Although there is no formal liturgy, the length of each prayer cycle (*rakat*) follows the same format and may only vary in two ways: the

number of *rakats* performed or the duration of the particular recitation in each *rakat* from the sacred text, the Qur'an. The overall plan of the mosque as a complex of functions should be considered from two fundamental aspects: the *musalla*, its size and configuration *vis-à-vis* the relationships and arrangements of all non-worship and support-related uses, essentially the dichotomy between the sacred and the profane and how they are manifested in relation.

(a) The locally detached musalla

The locally independent *musalla* is a provisional prayer room, typically attached to some other everyday function or use (offices, airports, hotels, hospitals, shopping areas, campuses, etc.). Analogously, this typology acts similarly to a detached chapel or prayer room (away from the formality of the church) in western, Christian culture. Typically found in cities across America and Europe, the storefront *musalla* provides a place for spiritual repose, as simply a 'breathing space' to escape from the hustle and often the unbearable stress of urban life. Although the use of this type of *musalla* may be solely for employees, staff, or students it provides easy access for communal worship on a daily basis during working hours because it is located in the immediate vicinity of a school, university campus, corporate office complex, or other types of corporate facilities. This type of *musalla* could also be located in a hospital, an airport, shopping center, or a shopping mall, with the size determined according to the number of people who used it regularly. By placing a *musalla* in a prominent location on a university campus the users will be able to access the facility with ease; unlike a mosque the *musalla* could be a simple space, a clean carpeted room adequately ventilated and lit with required ablution facilities and storage.

(b) The musalla in an urban mosque

The *musalla* in the urban mosque plays a constructive role, which has broad use and function within its urban setting. As our case studies show, the typical, minimum size for an urban mosque ranges from around 1000 to 1500 worshippers. Because urban mosques, by definition, are normally located in densely populated areas, it is not uncommon to find more than one in a single setting, depending on the demographics, populations, concentrations, and cultural divisions of the city. The *musalla* serves the faithful use on Friday, the primary day of communal worship, and on other specific religious occasions, for example during the month of Ramadan. It is best located in close proximity to residential neighborhood and commercial areas to foster ease of use, and is often framed with other significant urban functions and typologies (shops, eateries, meeting spaces, courts). Public transportation is often required to get to this edifice, and travel time and distance may vary in each city, issues that should be sorted out early in the site selection and analysis processes. Although Paris boasts a well-established urban mosque that dates back to 1926 and Washington DC's Islamic Cultural Center was built in 1957, the recent growth of the Diaspora, immigrant, and indigenous communities in America and Europe in the last two decades has given rise to new urban thought along these lines. Planning the size of a new urban mosque in the absence of accurate

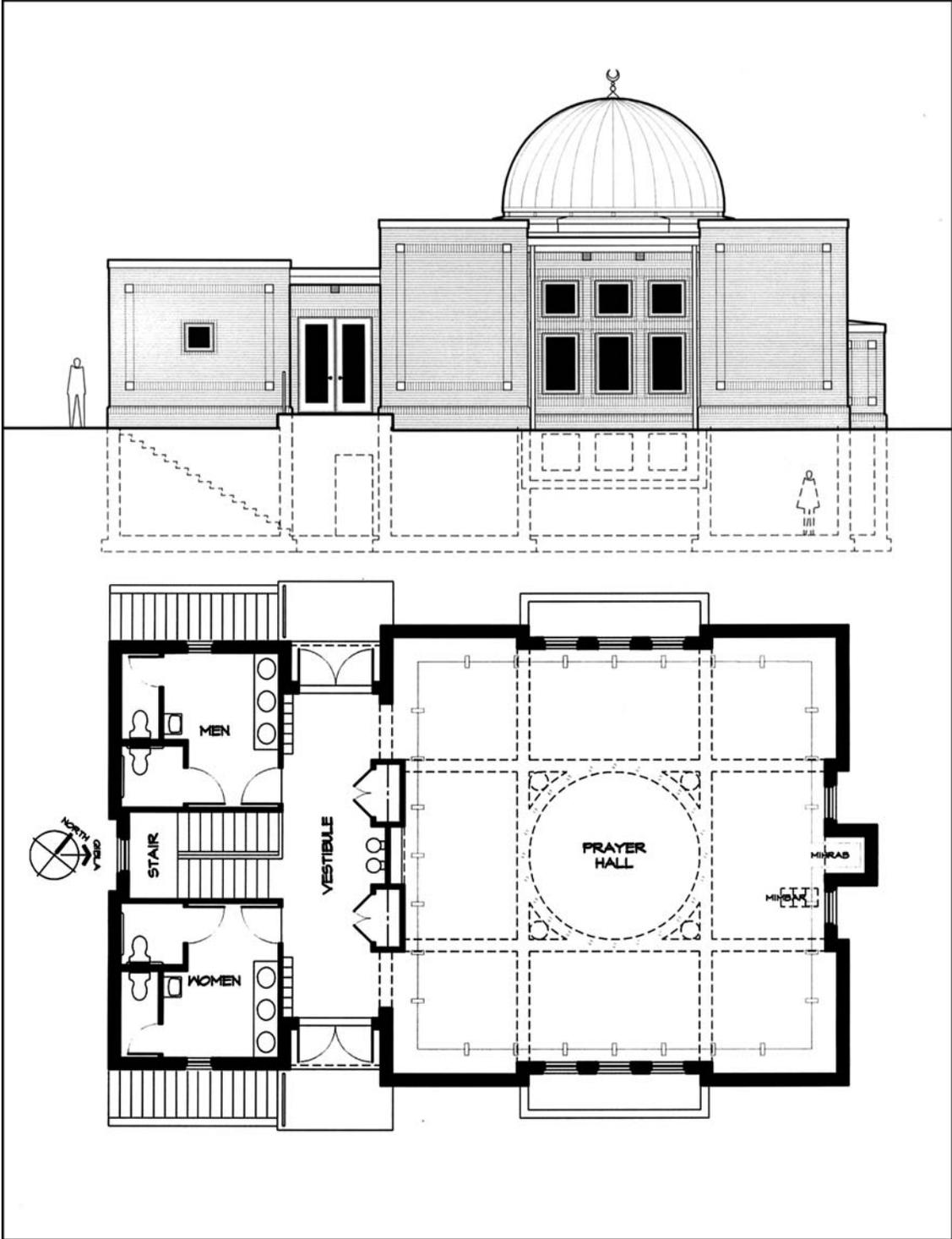


Figure 3.7 The Islamic Center of Somerset (plan and elevation). (Courtesy of McCoy Architects LLC)

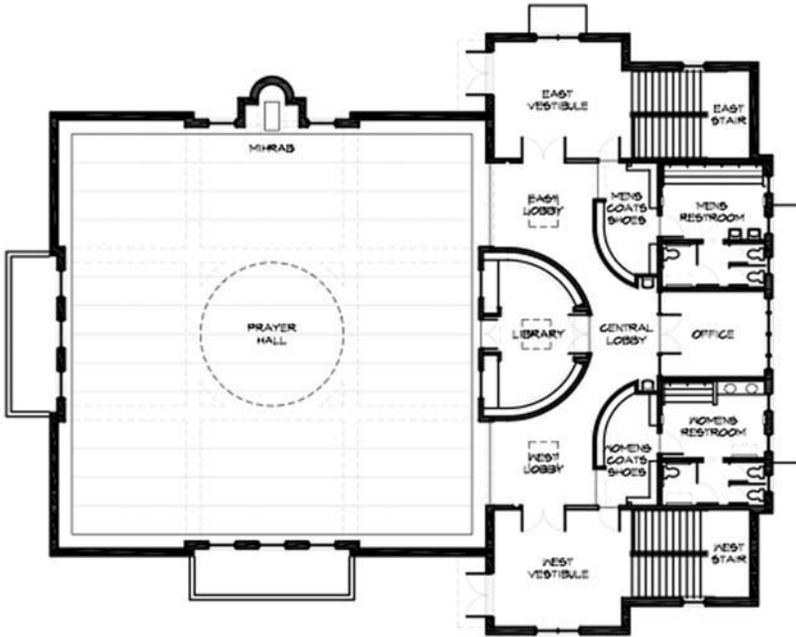


Figure 3.8 The Islamic Center of Elizabethtown, Kentucky. (Courtesy of McCoy Architects LLC)



Figure 3.9 Sanctuary of the Islamic Center of Boston (Roxbury). (Photo © 2008 by Muhammad Abdus Salaam)



Figure 3.10 Sign indicating the name and address of the building of Al-Farooq Mosque. (Photo © 2008 by Akel Kahera)

demographic data can be difficult, but through responsible inquiry and due diligence is essential to the long-term success and vitality of the mosque to both its users and in the local context.

(c) *The musalla in the islamic center*

The urban mosque in larger metropolitan cities is often referred to as an Islamic Community Center, because it generally serves a multitude of functions for its worshipping community. Their

presence serves major cities such as the ones found in places like New York, London, Rome, Paris, or Boston. In larger cities (population $\geq 500,000$), dependent again on demographics, cultural dynamics, and regulatory constraints, there could be more than one Islamic Center to perform the *Eid* prayer, which occurs twice per year. However, most major cities normally have only one major Islamic Center, serving as the primary cultural hub and generator of community identity and solidarity within the ranges of its urban center. The example in Table 3.2 is based on 1000 mosque attendants on a typical Friday.

Table 3.1

Children (0–10 years)	Female	Male	Capacity
10 per cent	30 per cent	60 per cent	100 per cent
100	300	600	1000

The minimum size for the Islamic Center is found to be around 1000–3000 worshippers, but should be planned in advance for growth and expansion depending on site regulations, growth of community, and expected financial gains. If the urban mosque or Islamic Center serves a heavily populated city, as we see in Europe and America, the size can be determined according to the number of worshippers that frequent the mosque on a daily and especially Friday prayer. It should be noted that the required area is determined based on the number of worshippers that attend the mosque. Generally all the items described below and in Table 3.3 are found both in the urban mosque and the Islamic Center.

Table 3.2

Outline of a preliminary program for an urban mosque		
Item no.	Function/use/type	Minimum required (sq. ft.)
1	Imam's office and conference room	200
2	Library	500
3	Day-care facilities	3000
4	Kitchen and dining area	1000
5	Conference room	200
6	Teaching/lecture halls	1000
7	Ablution area/toilets	3000
8	Janitor's storeroom	100
9	Recreation/multipurpose	3000
10	Auditorium/banquet	3000
11	General storage	500
12	Child care/playroom	200
13	Entry lobby/shoe storage bins	500–1000
14	Classroom/typical	200
15	Bookstore	500
16	Security/audio-visual room	200
17	Mechanical equipment	500–1000
18	Teachers' lounge	300–500

Some Islamic Centers provide the resident Imam (religious official) and his immediate family with an apartment and supporting facilities. The Islamic Center normally requires the resident Imam to lead the five daily prayers and the Friday prayer, as well as often serving other subsidiary functions like counseling, teaching, conflict resolution, and promotional meetings. Therefore it is very convenient to have the Imam located in close proximity. The size of the unit for the Imam may vary between three and four bedrooms with dining and living rooms and a study. The Imam's office, library, and conference room have to be located where they are directly accessible to and from the mosque. The office should be located in a convenient way so that the Imam can reach his place or the *mimbar* or *dais* without interrupting, stepping over, or having to go around worshippers.

A public, accessible library should be included with the urban mosque and Islamic Center mosque especially to serve the educational and intellectual needs of the community. Generally, there is no maximum limit for the library size; however, the size is dependent on the occupancy and the sizes and types of library collections (preserved archives, periodicals, digital, etc.). Depending on the size and available funds, a key feature to these libraries in our case-precedents beyond book storage is a prominent, acoustically sound and well-lit (naturally lit) reading area. The library can be connected to the teaching, lecture, and multi-use community meeting rooms. The walls of sanctuary space itself can and are often incorporated as a place for the display and reading of sacred texts, celebrating intellectualism within the comforts and atmosphere of the sacred place. Educational facilities in the form of classrooms (*madrassa*) and supporting offices, storage, rest rooms, etc. are often also included in the project, depending on the programmatic needs of the community. In these cases, these facilities are designed based upon occupancy and follow the basic design requirements associated per structural type and building-use classifications per code. In all these cases, designs should follow the highest set of esthetic and conceptual standards as one would expect on any publicly celebrated architectural type.

Estimating the area of a mosque

Knowing that the *musalla* in a mosque generally requires more space per person, roughly 2 ft. 6 inches \times 4 ft. or 0.80 m \times 1.2 m, than the other ancillary areas, these properties should be applied in the laying out of the *musalla* with precision. There are a number of key factors that determine the area of a mosque, the most fundamental of which is the spatial capacity of worshippers. To estimate this, a rule of thumb is used for each individual who occupies a prayer area of about 10.5 sq. ft. or around 1 m². The actual recommended area is 80 cm/2 ft. 6 inches wide in the sitting posture and 120 cm/4 ft. while prostrate/length. To estimate the gross floor area of a small mosque 20 per cent is added and 30–40 per cent for gross areas in larger congregation mosques. While many building codes for assemblies and places of worship do not have matching nomenclature specially for 'prayer areas' in this sense, it may be possible within these codes to substitute occupancy requirements one might have derived from the same number

of ‘seating areas’ or ‘pews’, but this is ultimately dependent on the interpretation of the city regulatory departments and the particular code officials reviewing the plans. As a rough overview, to estimate the gross area of the mosque we recommended the dimensions given in Table 3.3.

Table 3.3

Recommended dimensions			
	Musalla	Urban mosque	Islamic Center
Net area	9 sq. ft./1 m ²	10.5 sq. ft./1 m ²	10 sq. ft./1 m ²
Gross area	1.2m ²	1.3–1.4m ²	1.5m ²
Total occupancy	500	1000	1500

Women represent 30–40 per cent of the urban mosque population in most cases. Occasionally this figure could be as much as 50 per cent. The same criteria used in men’s prayer space calculation should be adopted. Specific needs for women may include a nursing/babysitting room, a lounge and separate ablution facility, and women’s prayer area. Despite the actual gender percentages determined, all rest room facilities must still meet the basic requirements for total occupancy and use set forth in the plumbing and accessibility codes for their regions. Most areas in the USA, and many other nations as well, follow the International Building Code (IBC) for its uniformity and clarity as regards health, safety, and welfare issues.

Table 3.4

Recommended parking requirements			
Item	Service radius	Capacity/ worshippers	Cars
Urban mosque/ major city	30 miles	500–1000	50–100
Islamic Center/ major city	50 miles	1000–3000	100–300
Local mosque/ university, etc.	3 miles	100–200	10–20
Parking	One parking space for each 10 individuals and additional space for handicap use		

Recommended design criteria

- By juxtaposing a sensation of order with the *qiblah* axis (axis of prayer towards Makkah), which is controlled by the placement of the *mihrab*, the plan will demonstrate a particular clarity; to achieve this twofold pattern it is preferred that the sanctuary be rectangular in shape with the longest side oriented toward

Table 3.5

Recommended handicap parking spaces	
Total number of parking spaces provided in parking facility	Minimum number of required accessible parking spaces
1–25	1
26–50	2
51–75	3
76–100	4
101–150	5
151–200	6
201–300	7
301–400	8
401–500	9
501–1000	2 per cent of total
1001 and over	20, plus 1 for each 100, or fraction thereof, over 1000

Source: 2004 A.D.A. for Handicap Parking.

qiblah so that the longest possible rows can be formed. The length–width ratio is recommended to be 2:1 approximately.

- Consider the climate; if it permits the sanctuary to have an open court it will serve as a supplementary prayer area. By the same token the court can be open to the sky and it will also function as a normal extension for the sanctuary area and for informal gathering.
- The sanctuary should be dedicated to inclusion rather than exclusion; there are of course any number of ways this quality can be achieved. Thus the planning of the sanctuary involves the choreographic organization of both men and women to serve a wider function and to enhance the ritual ambience in a direct manner. The architecture of the sanctuary should be therefore conceived to admit flexibility in use management of the HVAC system and lighting and multiple modes of use, i.e. daily use, Friday and weekends, and also during the month of Ramadan, when prayer activity is more intense during the night.
- The sanctuary should be designed with an esthetic strategy that is concerned with the effort to induce the participation of male and female worshippers – that is, to coerce active involvement in the ritual proceedings.
- Ambulatory spaces attached to the sanctuary need to be particularly configured to enhance the movement from profane; ambulatory spaces may include administrative, educational or recreational, and should be located so that they become accessible for other types of functions, weddings, funerals, and other types of religious activities.
- The sanctuary only takes meaning when there is a feeling of spiritual repose and solitude; therefore the sense of spiritual delight, visual perceptions, and bodily motion should connect the temporal as well as the spatial experience in the simple act of worship.

Table 3.6

Minimum requirement for ablution facilities				
Mosque capacity	Ablution taps	Toilets	Sinks	Shower stall/optional
300 female	10	5	5	1–2
600 male	20	5	5	1–2

- In the eyes of the general public the minaret (and dome) should display the main external architectural features of the edifice and should reflect the sanctity of the faith. In this regard the architect should avoid ostentatious use of forms, surface treatment, and decorative patterns.
- The proposed space distribution criteria for calculating the size and dimensions of the sanctuary including the women prayer-place and the other necessary elements should be carefully studied and approved by all the congregants.
- Purification (ablution) – perhaps no act is more important than the act of prayer itself. Ablution is the key prerequisite for prayer. The emotive act of performing ablution is no more and no less the setting that prepares the worshipper for the experience of a whole series of ritual movements: standing, bowing, prostration, sitting and reading the sacred text. The ablution space is therefore a public ritual space as well. Therefore, the location and configuration of the ablution area is inextricably linked to its vital role; it should be planned very carefully. Toilets should not be placed on the *qiblah axis* (i.e. facing the direction of Makkah). In that respect we should note again the idea of sacred and profane that distinguishes this space from the sanctuary; the reciprocal relationship to the entry vestibule and the sanctuary is therefore complex, so the layout of these modes of space need to be carefully planned.

Descriptive models and concept examples

A number of design examples have evolved over time in the Western world. It is important for the architect and the congregant to remember that the process is certainly not linear; therefore it is important to capture the essence of what people do in an urban mosque, how they use it, and how the architect can outline the philosophy of the proposed solution involves analysis, synthesis, and evaluation. From the very beginning, programming the concept is a multi-issue-driven exercise, which the designer must perform and the congregant must experience.

Table 3.7

Issue	Checklist for the building, the site, and the sanctuary
Audibility	Lecture, <i>Khutbah</i> , recitation of the Qur'an by the Imam
Circulation	Information, materiality, parking, pedestrians, and vehicles
Comfort	Physical, psychological
Economy	Elegant means, efficiency
Environment	Adaptability, expansion, multi-use
Image	Identity, symbolism (minaret and dome), ordering
Interaction	Congregants, public, social, religious, educational, cultural
Orientation	Mihrab, ordering sequence, plan recognition
Ambience	Emotional repose, spiritual repose, solitude, spirit of place
Safety	Security, unauthorized entry/access, perceptual
Site	Climate, solar, wind, precipitation, vegetation, topography
Traffic	Vehicles, service, pedestrian, handicap access, wayfinding
Context	Demographic, historical, ethnic, political, social, cultural
Esthetics	Composition, patina, materiality, scale, form, delight

Adapted and modified from Duerk (1993).

4

The concept of space and geometry

*Admire me! Beauty draws me to you
or rather brings us to a common origin
In the darkness rises the dawn of changing lights,
projecting the brightness of my colors throughout
Don't say 'ah', a chandelier made of earth!
You that has been made of clay*

Inscription found in a mosque (de Premare, 1981)

In the foregoing verse we find that the meaning that is conveyed is related to beauty and human perception. In keeping with this concept the esthetic features of the mosque can also be further classified into three distinct tropes: literal, metaphorical, and visual. The primary aim of this chapter is to identify what distinct patterns of spatial order exist in the urban mosque as it relates to the esthetics and form of the edifice. Literally, urban mosques bear a close functional similarity to one another, although they are never identical. Metaphorically every mosque embodies a particular sense of architectural expression and identity, and the character of the edifice may be a means of sustaining particular modes of design response to a site or esthetic genre. In consideration of the fact that architectural space, by definition, imposes limits on the urban context, the properties of the plan and indeed the geometry of the plan express a powerful intuition of the designer based upon function, order, and structure.

Finally, it can be argued that visually the tenets of 'Islamic' geometric patterns were conceived as a set of devising principles, and that they indicate a systematized convention of esthetic and design practice, for which examples can be found in many extant mosques. There is no clear evidence that a synthesis of both modes consistently occurred but it is unmistakably clear that the layouts of various plans we have studied share a common language, that of congregational worship. It should be noted that the notion of congregational worship also refers to the idea of a 'cultural trope' as it is used in modern sociology and anthropology in the text *Interpreting Visual Culture* (Heywood, 1999). In order to analyze some of the variations concerning the characteristics of a mosque we have contextualized geometry in terms of spatial order(ing). In this way we can examine a few conditions, which may affect the ordering of a plan, section or elevation of an edifice, or to understand the factors that have influenced design.

Keith Critchlow (1999) and others have convincingly put forward the idea of Islamic cosmological patterns. The primary thesis suggests that the overall effect of mathematical symmetries found in Muslim Art and Architecture creates a sense of 'sacred geometry'. Properties of the Golden Ratio and other types of geometric ratios are evident in many examples of sacred and secular architecture. For example, the influence of tessellations or pattern construction can be found in the work of M. C. Escher, who borrowed heavily from the decorative themes found in the Alhambra palace in Muslim Spain. Rubinowitz (2000:197) has argued that 'chaos is the opposite of geometric order'.

He further states, 'It is relatively easy to distinguish geometric order from chaos in architectural compositions, but the definition of these concepts is difficult.' Likewise the 'dynamic symmetry' found in various types of plants and flowers has been demonstrated in a study by Paul Marchant, 'The Essential Structure of Geometry in Nature' (2008:106–124), such as the:

flower of *Nymphae lba* (the lotus flower); The leaves of *Oxalidaceae* which show the division four into eight indicating the possibility of square and octagonal polygon; The *Euphorbia maritime* (the seedpod of spurge) which shows three-fold and six-fold segmentation of the intersecting circular chambers; The flower of *Papaveer orientalis* reflects the diminishing scale of Root Three and the controlling central radial patterns of twelve-fold division; The flower of *Allium christophii* which shows the repetition of six florets, whose buds move out from the center of the flower head to make a continuous array of shapes, much like the primary grid of the equilateral triangle.

All of these demonstrate a relationship between lines, ratios, proportion, and geometry, which pertain to the structure and aesthetics of a mosque; in attending to them we engage, *ipso facto*,

in a discourse on the theory of art and geometry and its relationship to worship. In this regard one may note that terms such as *space* and *geometry* assume entirely different forms of representation and meaning as they are embraced or as they assume new critical definition.

Our discussion here will study the various types of geometric patterns, which have been developed in the design of the urban mosque with regards to the plan, section, and elevations. It will focus on the 'ordering' of geometric properties, which affect the resulting design. As part of the analysis we offer some primary analysis to explore and to critically examine the classification of geometric patterns and the algorithmic construction of the design. We have found it essential to adapt this approach owing to the immense power and the efficacy of geometric properties in Islamic art and architecture on various aspects of design. Geometric properties exercise their own language, they specify types of order that pertain to design and the organization of the plan. We are therefore exploring an alternative way of reading the building of an urban mosque, since it advocates a novel interpretation in the occident. Apart from being overly sympathetic to the views of Critchlow and others, the danger with this type of interpretation is that it does not recognize the cultural diversity that existed within the indigenous habitat of Islam (*Kulturalandschaft*), for example the existence of *African Fractals* in the work of Ron Eglash (1999). Eglash (1999:3) has argued that 'While fractal geometry can indeed take us into the far reaches of high-tech science, its patterns are surprisingly common in traditional African designs and some of its basic concepts are fundamental to African knowledge systems.'

Admittedly the word 'geometry' is problematic, especially to explain the complexities of a design system. Nevertheless, the study of geometry in Islamic art is important because it informs the complexities of an edifice and it authenticates our understanding of the functions of the building system. To sustain a discourse our inquiry will consider geometry as far as it highlights various design connections or assists the architect to generate or develop a viable concept for the design of the mosque.

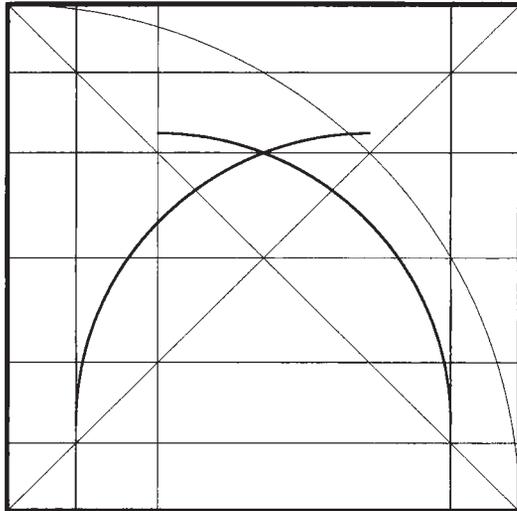
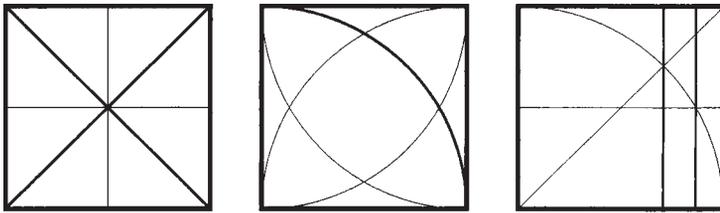
Again, geometry is the primary language of Islamic sacred art, which makes it informative to investigate the system of geometry that can be applied to the plan, section, and elevation of a mosque on its own terms. The ordering system found in Islamic art owes its origin to a cosmological order based on *belief, order, space, materials, and symbols*.

The system has four basic characteristics: trajectory (*ramy*); line (*khatt*); balance (*ilmam*); posture (*ashbah*). These basic characteristics are made up of a small number of repeated elements. In Islamic sacred art the making of a complex whole by the repetition of a few elements satisfies both an apparent need for intense visual stimulation and the search for unity. The repetition is a fundamental theme in mosque architecture as in poetry, music, and art. Above all, geometry may also be fundamentally understood as the measuring of the earth, and for this reason it is related to science, art, and religion. However, within the prayer space this measurement is also understood in terms of distinctly human measurement, its embodied movements and positions in prayer as spatially dynamic and its relative location



Figure 4.0 Detail of the Islamic Cultural Center, New York, geometric pattern. (Photo © 2008 by Zain Abdullah)

to the greater expanse of the earth as in its lines of directionality to sacred place. As a science geometry is normally included in the discipline of mathematics. However, numerical mathematics is in fact derived from geometry, which is of a much more fundamental order than the manipulation of numbers, or numerical relationships or the rationalization of a natural system for the division of space, which is the creation of man. Geometry exists everywhere in the universe; its order underlies the structure of all things from molecules to galaxies and even in the circumambulating of the sacred mosque at Makkah. Geometry can be derived from natural forms and from the laws of the universe, although the natural world exceeds the system in complexity. In the making of sacred art, inspiration derived from the laws and patterns of geometry paves the way towards spiritual intuition and beauty. A concrete example would be that of calligraphic decorations, which are read, recited and understood; Qur'anic inscriptions serve as a constant sign of Divine Revelation to the faithful. On the other hand, geometric patterns express the principle of unity in multiplicity.



(b)

(a) APPLIED GEOMETRY OF $\sqrt{2}$

Figure 4.1 (a) Design using geometric patterns based on the 'root-2' mosque. (b) Design using geometric patterns (*muqarnas*), Oxford Center for Islamic Studies at Oxford University. (Photo © 2008 by Craig Anz (part b))



Figure 4.2 Lower level prayer space. Wall showing Arabesque patterns, floral motifs, and calligraphy

Finally, we may also speak of Islamic sacred geometry as having an inner reality transcendent of outer form, which has remained throughout history the basis for sacred structures. A theory of correspondences underlies Islamic sacred geometry, proportions, harmonic relationships, beauty and order; forms of

a crystal, natural objects such as the *muqarnas* and *tessellations* are all part of a universal continuum and a structure of created existence. The circle is the organizing element, which underlies each element in the construction of *tessellations*. In Islamic sacred art the circle is defined as *the geometry of the line*; it provides the structure for all complex patterns using geometric configuration. Contrast this with the renaissance expression: *God is a circle whose circumference is everywhere and whose center is nowhere*.

The *muqarnas* manifests static equilibrium and the state of perfection on motionless bodies, typified in the regular shape of a crystal. The ascending movement of the *muqarnas* presents thousands of facets to the light and the light confers on the stone, wood or stucco the quality of precious jewels. At the same time the *muqarnas* seem to be woven of luminous vibrations. A good example of the modern interpretation of the *muqarnas* can be found in the entry portal of the Islamic Center of New York.

With regards to interpretation we may also speak of sacred geometry as having an inherent harmony that is recognized as the most cogent expression of a divine plan, which underlies the world as a metaphysical pattern, which determines the physical. This divine plan is linked to mystical tenets *as above so below*,

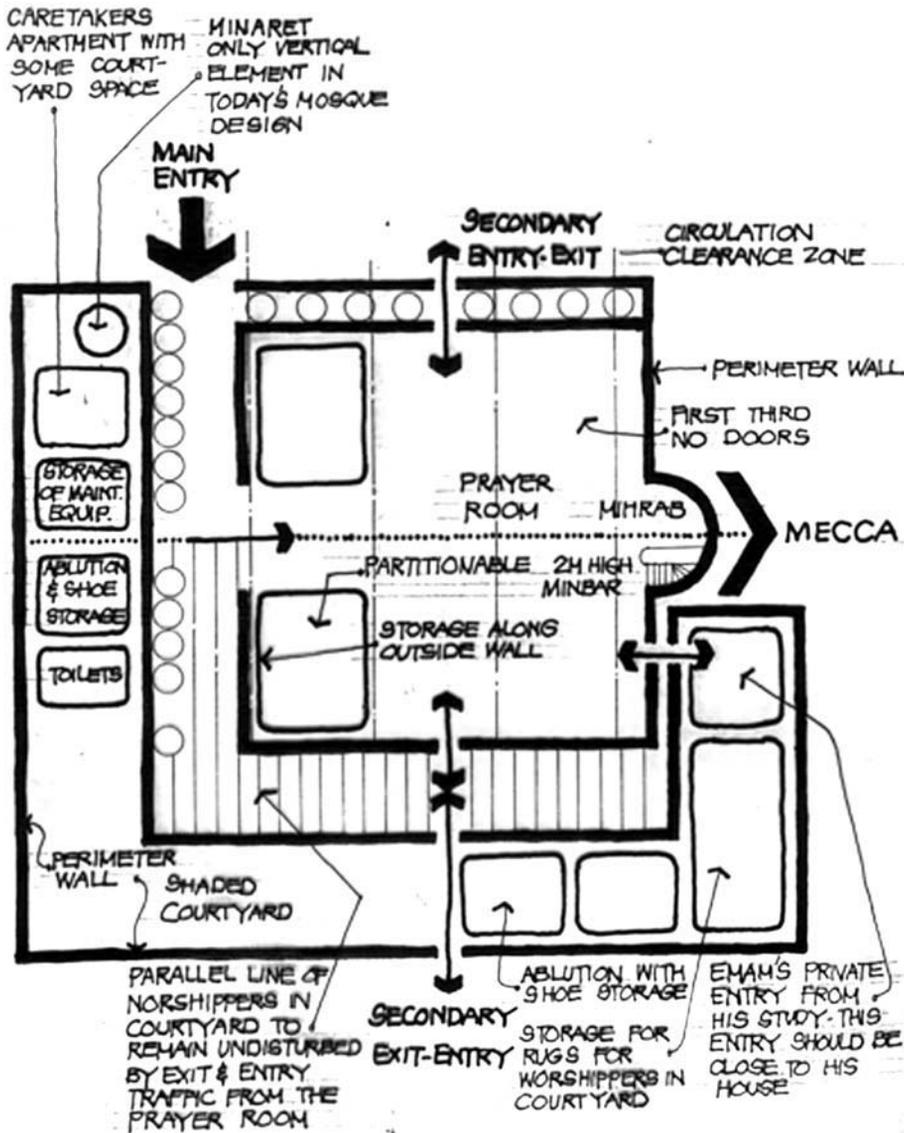


Figure 4.3 Generic plan for an urban mosque showing various typical interrelated functions and their placement

or that which is in the lesser material world reflects that of the greater cosmic world or the macrocosm.

Take, for example, the enclosure of a mosque; when laid out it simply demarcates a place separate from the profane world. There is no ritual required in the laying out of a mosque; the only liturgical requirement is the 'axis of prayer' (the *qiblah*) or the orientation of the building towards Makkah (the *axis mundi*).

The shape of space

The plan of the mosque, like most Islamic patterns, can be based on one or two grids – a grid of equilateral triangles or one of squares. For example, at the façade of the edifice or the alignment

of the plan to the urban grid or to the *qiblah* axis, the plan of the edifice may not be designed to fit within a frame. Thus the axis of prayer may form the basis of this characteristic and it may be juxtaposed against one or more of the geometric patterns derived from the site. Because geometry may be the result of patterns that consist of repeated elements that move outward from a central point of the edifice such as the *mihrab* or dome, these patterns may be repeated indefinitely but may also be limited by the edge of the space they define.

To demonstrate how the two principles of geometry and unity are given concrete expression we must turn to the examples drawn from the dogma of *tauhid* or monotheism (literally: unity, oneness). The remarks that follow will attempt to clarify the idea of 'unity', since it informs the use of geometry

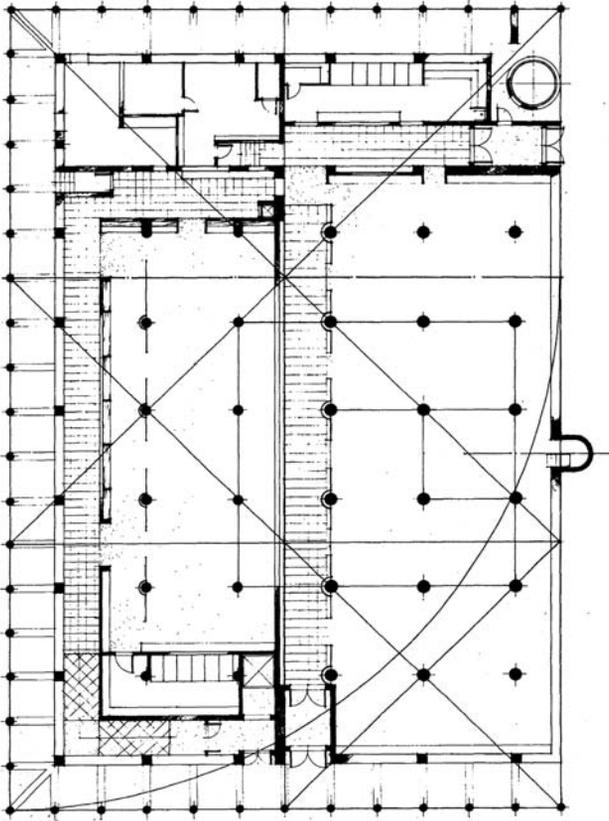


Figure 4.4 Floor plan based on geometric system.
(Drawing by Latif Abdulmalik)

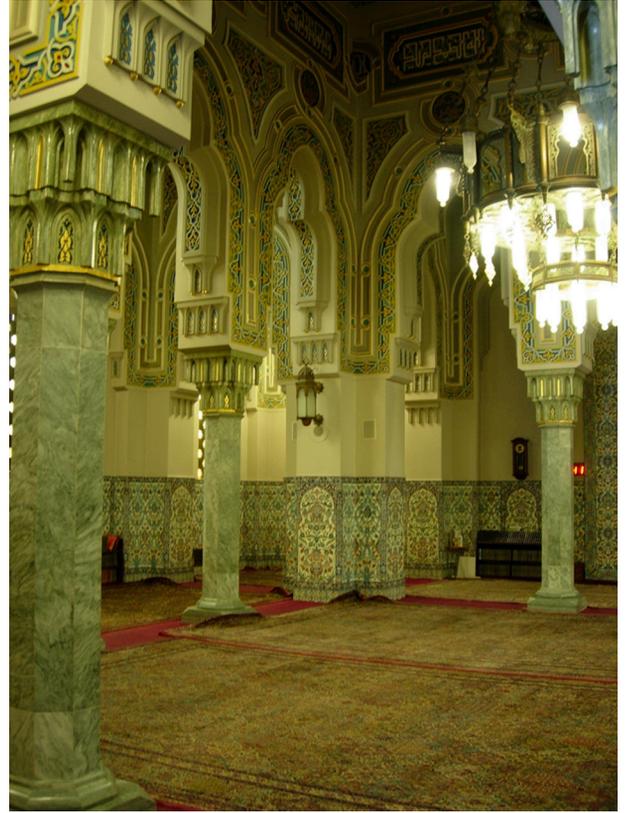


Figure 4.5 Islamic Cultural Center, Washington DC: the main prayer hall, showing Arabesque tile patterns. (Photo © 2007 by Mark Susman)

both as an ordering system and a decorative device, which also explains the absence of iconography in a mosque. The concept of *tauhid* (monotheism) is the antithesis of the concept of aniconism – iconography and polytheism – in which the artist makes a design that relates to some human or imaginary form. Unity or *tauhid* eminently reflects the Divine names of God (*asma Allah al-Husna*): take, for example, the name *al-Musuwwir*, the Fashioner, or He who gives shape to His creation; *al-Hayy*, the living or He who gives life and indeed the structure of life; *al-Khaliq* or the Creator of the universe; and finally *al-Aleem*, from which we get ‘*ilm*’ or knowledge, etc. The second principle presupposes that the unity of the universe is controlled by God *al-Khaliq* or the Creator.

Unity is also a principle of distinction between the sacred and the profane, for it is by its intrinsic essence that every visual expression is essentially distinguished from all others, in such a way that it is unique and can neither be confused or replaced in any form or fashion. This concept can be summed up in a familiar religious injunction: ‘*Thou shall not create any graven image*’; while Christianity has found ways to negotiate the interpretation of this commandment, Islam has adhered to its literal and spiritual sense.

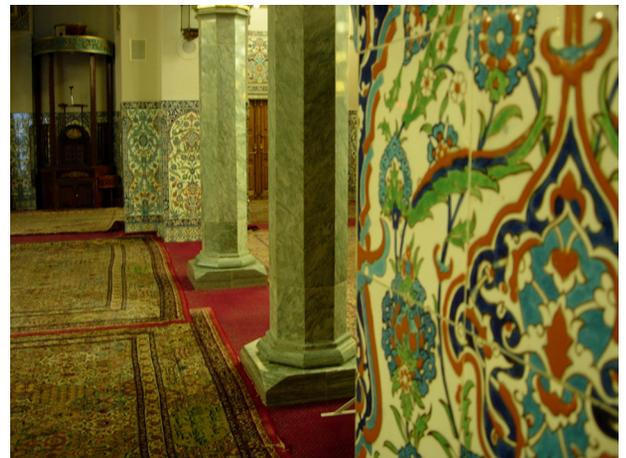
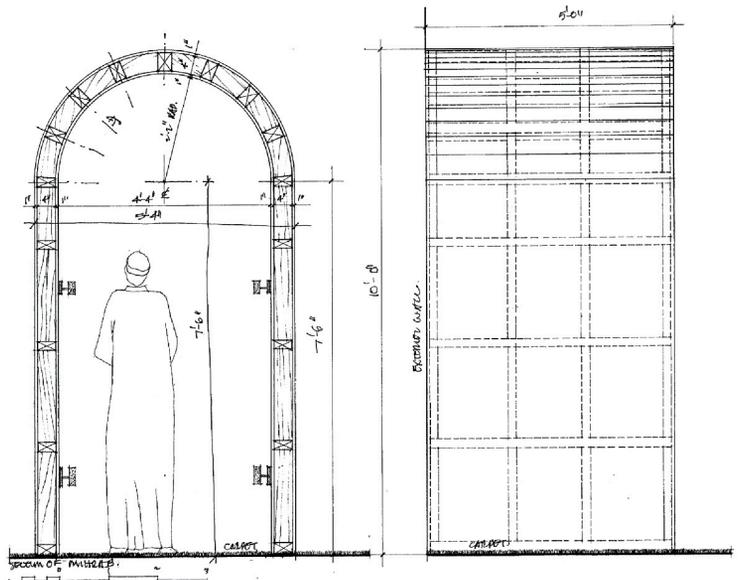


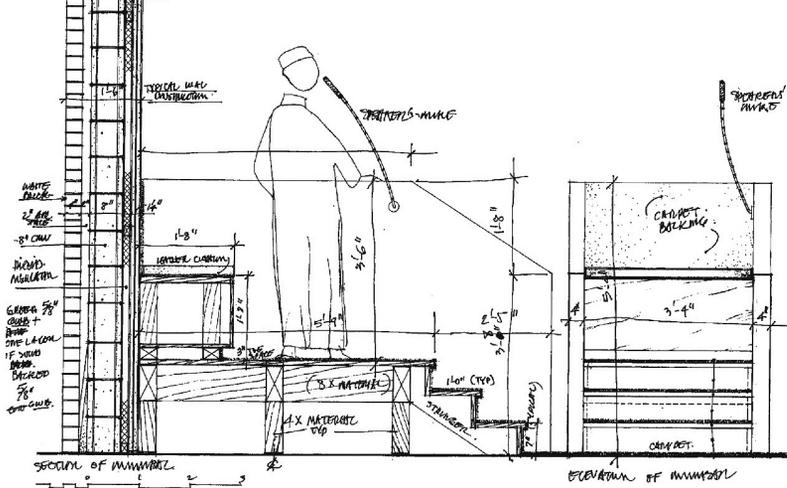
Figure 4.6 Islamic Cultural Center, Washington DC: view of the main prayer hall, showing Arabesque patterns. (Photo © 2007 by Mark Susman)

Mehrab



(a)

Mimbar



(b)

Figure 4.7 (a) Detail of the *mihrab*. (b) Detail of the *mimbar*. (Drawings by Latif Abdulmalik)

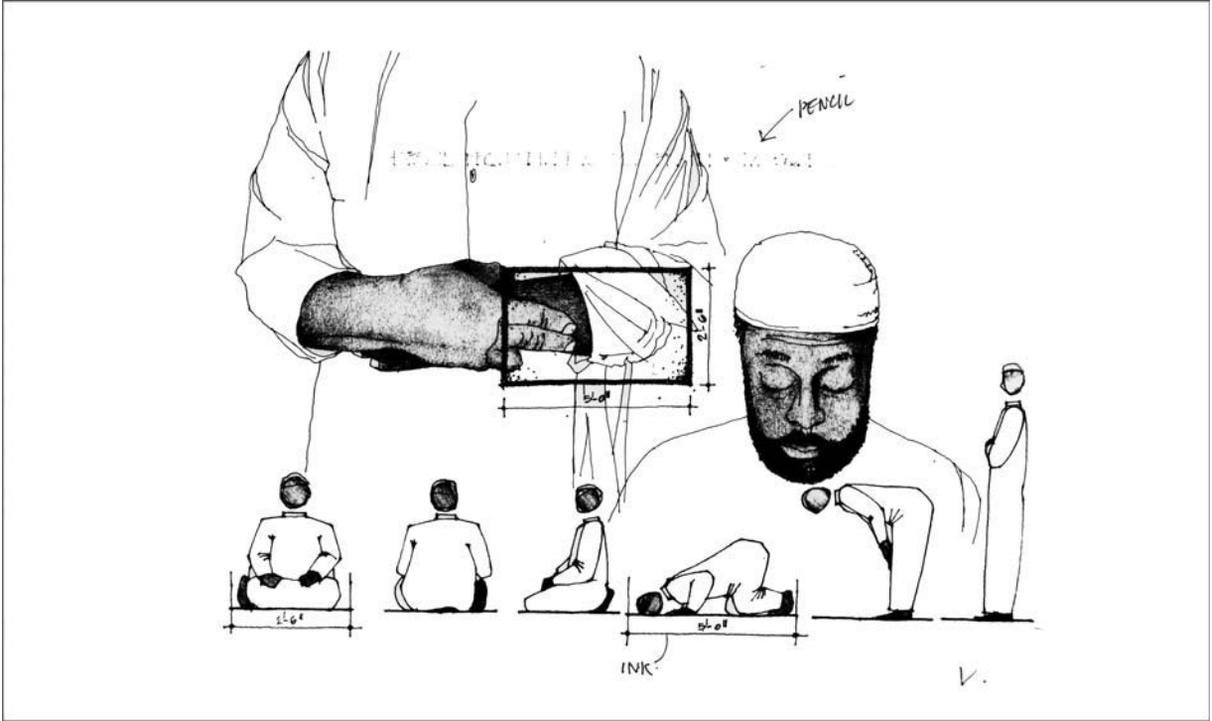


Figure 4.8 The postures of prayer. (Drawing by Latif Abdulmalik)

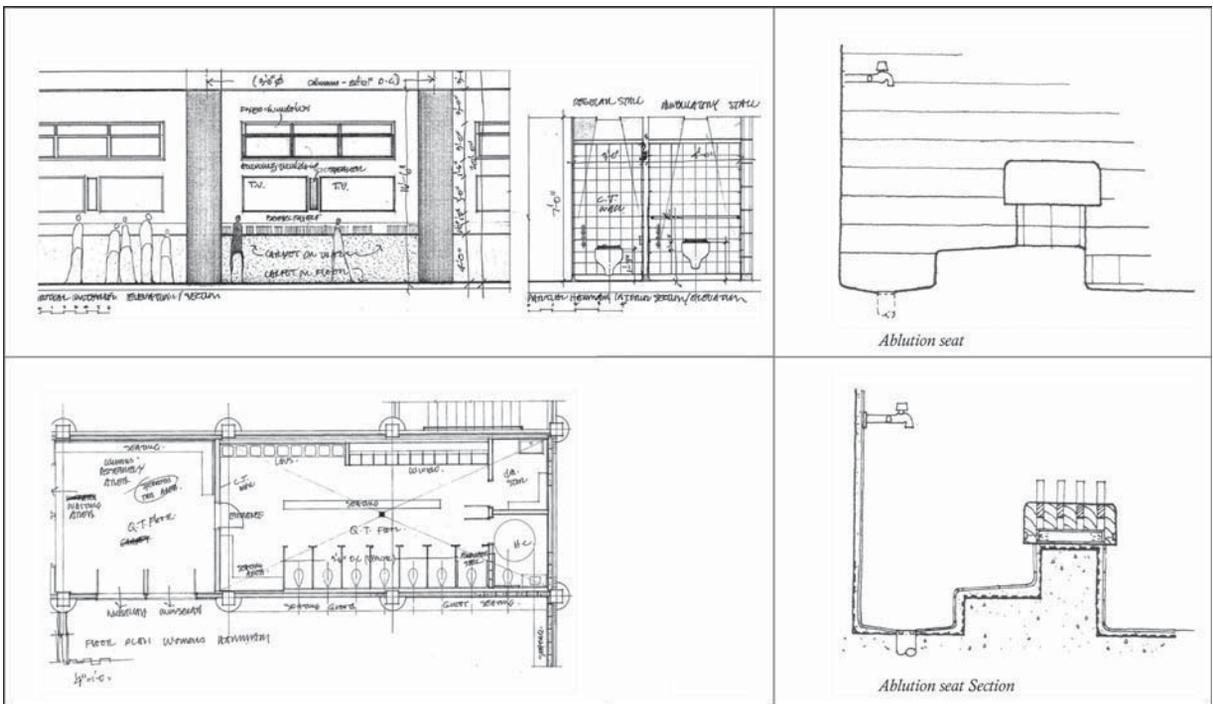


Figure 4.9 Ablution room details. (Drawing by Latif Abdulmalik)

In Islam the primary aspect of *tauhid* is reflected in a fundamental monotheistic formula: *la illaha ill Allah* (there is no God but God). It is through this distinct formula that we recognize the 'finite' and the 'infinite' aspects of unity in Islamic sacred art. Every aspect of Islamic sacred art is finite but not absolute, since it does not assume an autonomy that does not belong to it. The primary reason for avoiding figurative representation in sacred art is to avoid illusion (*al-wahm*) or corruption of the human imagination. More precisely, illusion projects one 'order' of reality into another; this means that every artistic creation must be treated according to the laws of its domain of existence and must make these laws intelligible. While man cannot change these laws he seeks to understand and interpret them. Finally, it is possible that the extravagant claims associated with various indigenous narratives attached to the various secular objects and miniature paintings may have encouraged some art historians to support their own claims and to adhere to entirely different points of view. But extant physical evidence that can be found in the religious texts, the Qur'an and the *hadith* points to an exegesis that suggests that the remembrance of God is not contingent on any form of iconography.

A commonsense approach

Because the plan of the edifice, especially the sanctuary, is two-dimensional, the plan is often set against a contrasting background, of walls and ceiling and fenestration. The architect must decide if it is his/her intention for this background to create space.

Such interlacing is used to the same effect in geometric designs. Other geometric designs maintain two-dimensionality in another way: fitting all the polygonal shapes together like pieces of a puzzle; leaving no gaps eliminates the spatial interplay between foreground and background. This type of construction is known as tessellation, a word derived from the Latin *tesserae* (the pieces of a mosaic).

With regards to image of the edifice we offer another definition of spatial 'order': the Latin *ordo*, to put in order or to arrange in a sequence, which would persist through time in a contiguous manner. This definition reveals the structure and theme of an urban mosque. And although in each case listed below the function, structure, and theme may have transformed, we shall see below how 'order' remained a primary element, conditioning the form in response to the urban context. Not that the idea of geometry as a metaphor would make the point a legitimate one, but of course the idea we propose is a problem of design and the making of meaning.

In other words cultural values can be conceptualized in terms of human behavior and a belief system, which is reflected in the image of the edifice. Before we discuss the details of the spatial aspects and the legality of congregational worship, some additional remarks are necessary. In the framework of a wider historical discussion concerning the outgrowth of urban mosques in the occident, it contributes to a better understanding of the formative themes of the edifice as they relate to the injunction

of the Qur'an. An important question remains, however: to what extent is the hypothesis of geometric 'order' analogous with the *Weltanschauung* of Islam?

In accordance with the Qur'anic exegesis of communal worship we may consider the following Qur'anic verses:

1. The sanctity of the mosque

*And the places of worship (masajid) are for Allah (alone):
So invoke not anyone along with Allah.*

(72:18)

2. The day of assembly

*O ye who believe! When the call is proclaimed to prayer
on Friday (the Day of Assembly) hasten earnestly to the
remembrance of Allah and leave off business (and traf-
fic): that is best for you if ye but knew.*

(62:9)

3. The orientation of the edifice

*To Allah belong the East and the West: So wherever you
turn, there is the Presence (Wajh [literally 'face']) of Allah.
For Allah is All-Pervading, All-Knowing.*

(2:115)

*Turn then thy face in the direction of the Masjid al-Haram
[the Sacred Mosque at Makkah].*

(2:144)

Several conclusions can be drawn from the foregoing reference to the Qur'anic text. First, a type of understanding emerges that we may refer to as legal injunctions. Second, no matter how complex or correct the analysis may be, what is more important is the relationship between the language of the Qur'an and communal worship. Our interpretation of the space of the urban mosque enables us to recognize a spatial pattern and a visual image. With regard to our interpretation three essential features can be discerned:

1. Geometric 'order' can enhance the sense of communal worship and a spiritual *Weltanschauung* throughout the space of the mosque.
2. Geometry can be used to create ordered shapes and spaces as a pure conception of harmony, beauty, and balance.
3. Geometry offers a vehicle for both design and decorative art if we understand the rules that underlie it; many of these rules also exist in nature.

As we suggested earlier, a possible hypothesis sees the use of geometric order as a valid approach to the problem of design. Here we conclude the discussion with the assertion that the concept also illustrates a particular example of visual *stimuli* enhanced by knowledge and collective memory. We realize that the argument is a complex one but to concern oneself seriously with the relationship of memory to the question of communal worship itself are two aspects that seem adequate to give us a

rigorous demonstration of the complexity of the problem. From this relationship we can also derive a sense of the value of tradition and an ethical justification or psychological assurance of a cognitive sense of being. The primary implication of the discussion of visual memory informs the main theme of architecture, art, and worship. Until a further conclusion can be drawn the fact remains that the expressive connotations that we find in this tripartite concept contribute to the architect's understanding of a mosque and involve more than historical and descriptive facts. Finally, we return to the central issue of the discussion.

This point of comparison between art, architecture, and worship appears to be the result of the widespread belief that a mosque must conform to pre-existing ideas such as the classification, type, function, and use of the mosque. In theory and practice we find this observation to be useful to the understanding of the development of the urban mosque. There are four or more stages of development: an early period dating to the turn of the century, such as the Grand Mosquée of Paris built in 1926. Bayoumi (2000) gives us a poignant description in the following remarks:

La grande mosquée was not only a piece of the colonies brought wholesale into Paris; it was an example of the modernist arts of display and surveillance. Presenting cultural difference through symbolic capital like the grand mosquée would serve the function of keeping the idea of Muslims in Paris colonial in essence, since here was a site from which Islam could be produced and appropriated for a colonial project that was more powerful than ever – and at the edge of decline. Thus, the French state's choice to offer a spectacle of Islam to the Parisians keeps the state in control of defining Islam's essence. Additionally, to maintain and control that definition, the state would need to police identity itself, keeping an open, regulating eye on the Muslims in their midst. The mosquée can be seen as an example of the desire to fix identity in a city (and state) increasingly caught in the whirlwind of its own movement and speed, and thus convinced that nothing should be hidden from its view.

The second period is characterized by the likes of the Islamic Center of Washington DC built in 1957. As stated by Kahera (2005b), the Washington *masjid* provides a convincing narrative. Firstly, the skillful use of inscriptions can be traced back to an earlier epoch. Clearly Mario Rossi (the architect) felt free to use

a variety of inscriptions to create a nostalgic composition that borrows from a different place and time. Secondly, the edifice provokes a number of questions concerning the syncretic use of extant features in an American *masjid*. Thirdly, it evokes cultural values related to time, space, memory, and beauty. In the production of religious art and architecture, the American Muslim community claims one or more of these values. Memory is crucial to Muslims in the Diaspora, because it can be used as a mechanism for maintaining various cultural habits and customs, thus keeping these sentiments alive in an alien environment.

In the third period we witness an increase in building activity that resulted from a change in style and the proliferation of mosques in the West, such as the London Central (Regents Park) Mosque, which was completed in 1977. Like the Grand Mosque of Paris it too has colonial origins. Lord Lloyd, the chairman of the British council and former high commissioner to Egypt, approached Prime Minister Neville Chamberlin, noting that 'London was without a place of worship for the majority of the inhabitants of the Empire'. The land for the project was donated in 1940. The fourth period, from the 1990s to the present day, witnessed a separation from traditional styles, such as the Islamic Center of New York completed in 1990.

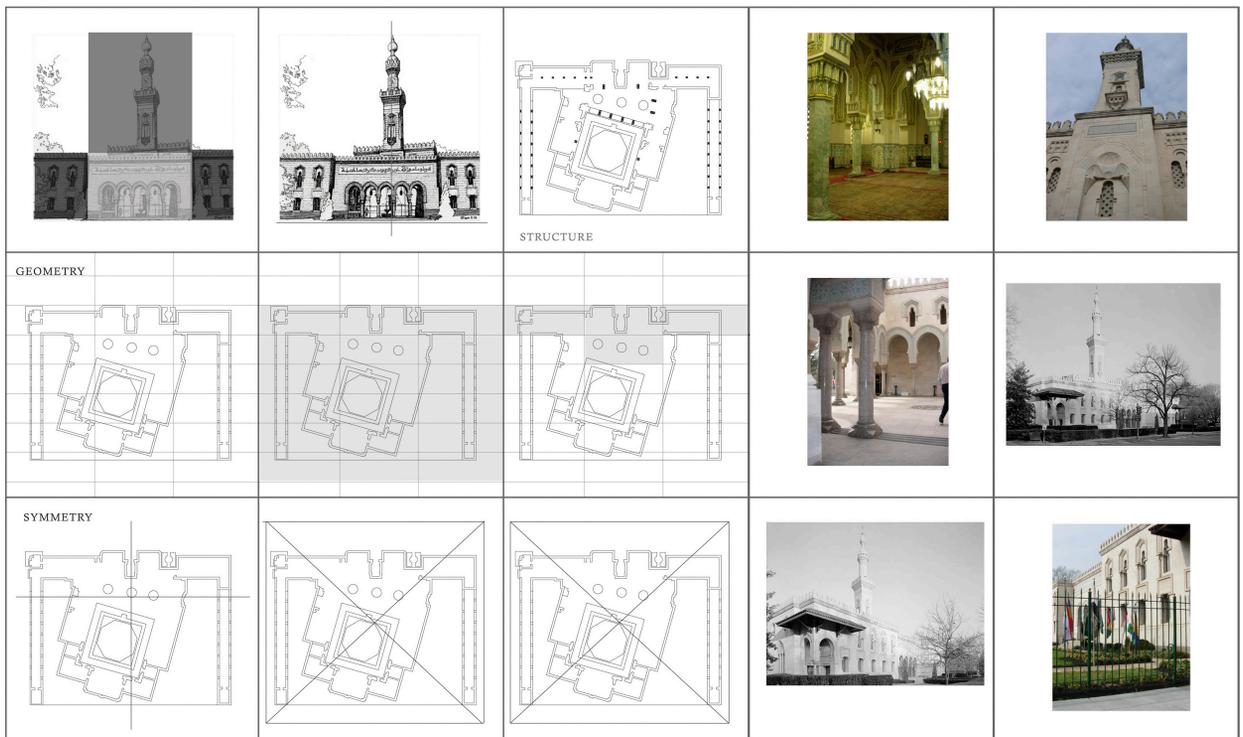
In this sense the idea of the autonomy of one part, i.e. tradition and modernity, is unthinkable; therefore one has only to assume that the incentive for the creation of the building became increasingly sensitive in the late twentieth century because the architect and the client community had already begun to determine the identity of the urban mosque by engaging in or supporting extensive building projects, which included several fresh interpretations of the esthetics of the building.

A further inquiry on the 'order' of the urban mosque faces a much more difficult task, since this aspect of religio-spatial configuration in light of urbanism, sustainability, and postmodernity has not been widely studied or examined. Our introductory remarks posit a dynamic relationship between meaning and the semiotic representation of an urban mosque. Our conclusion reasserts this dichotomy with an additional distinction. As an idea the term *urban mosque* relates to an urban landscape as a semiotic space; it also characterizes habit and custom in terms of cultural conventions, exegesis, and religious practice. Given this perspective, the architect is forced to always consider the legal relationship of these terms. Ultimately, the architect brings to this a 'commonsense' or intuitive-creative approach, which if critically acknowledged immanently draws into creation *per se* the essence and continuance of the divine creation itself.

Design Criteria for Mosques and Islamic Centers

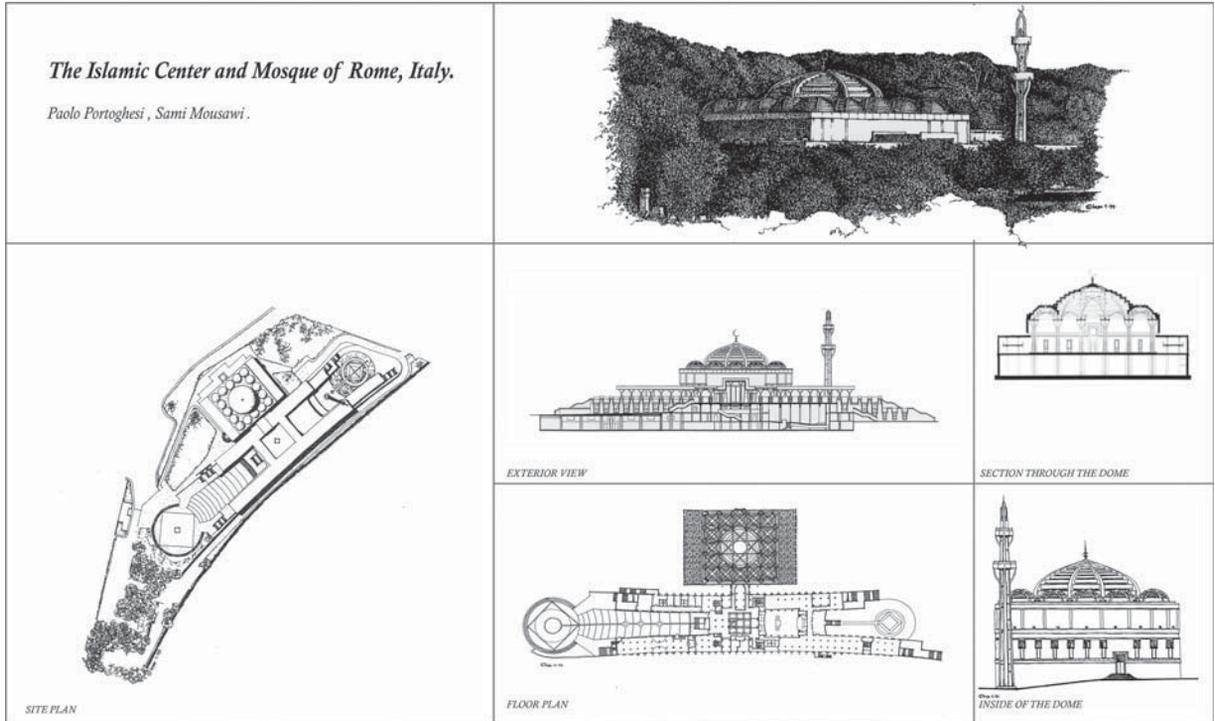


(a)

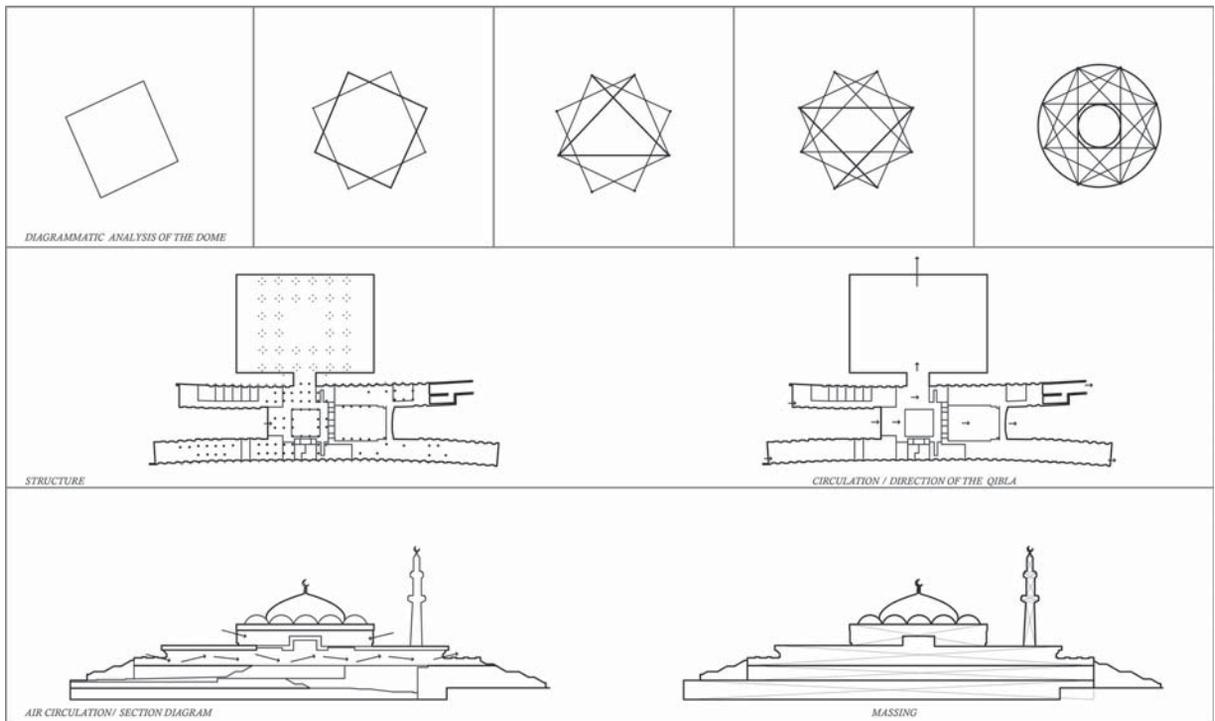


(b)

Figure 4.10 The Islamic Center, Washington DC: (a) formative concepts; (b) analytic and parti diagrams. (Site plan and graphic layout by Raheel Ahmad; photo © 2007 by Mark Susman – upper right corner; photos courtesy of the Library of Congress; drawings (plan and elevations) by Latif Abdulmalik)

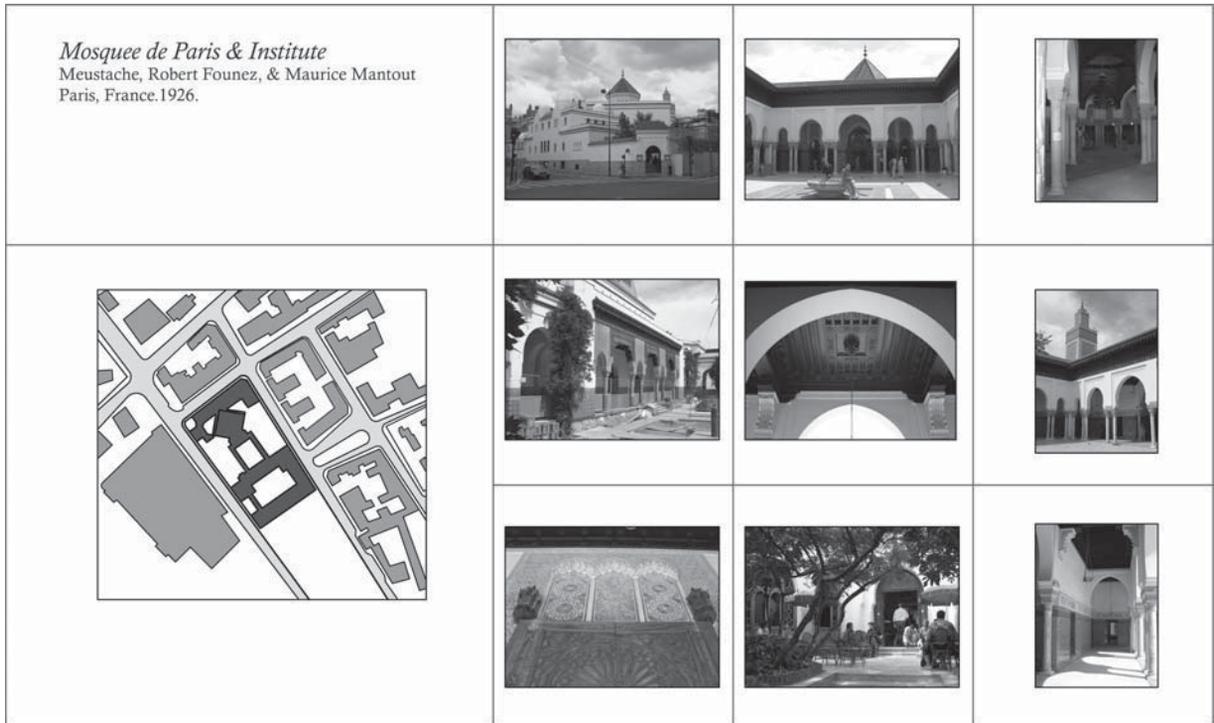


(a)

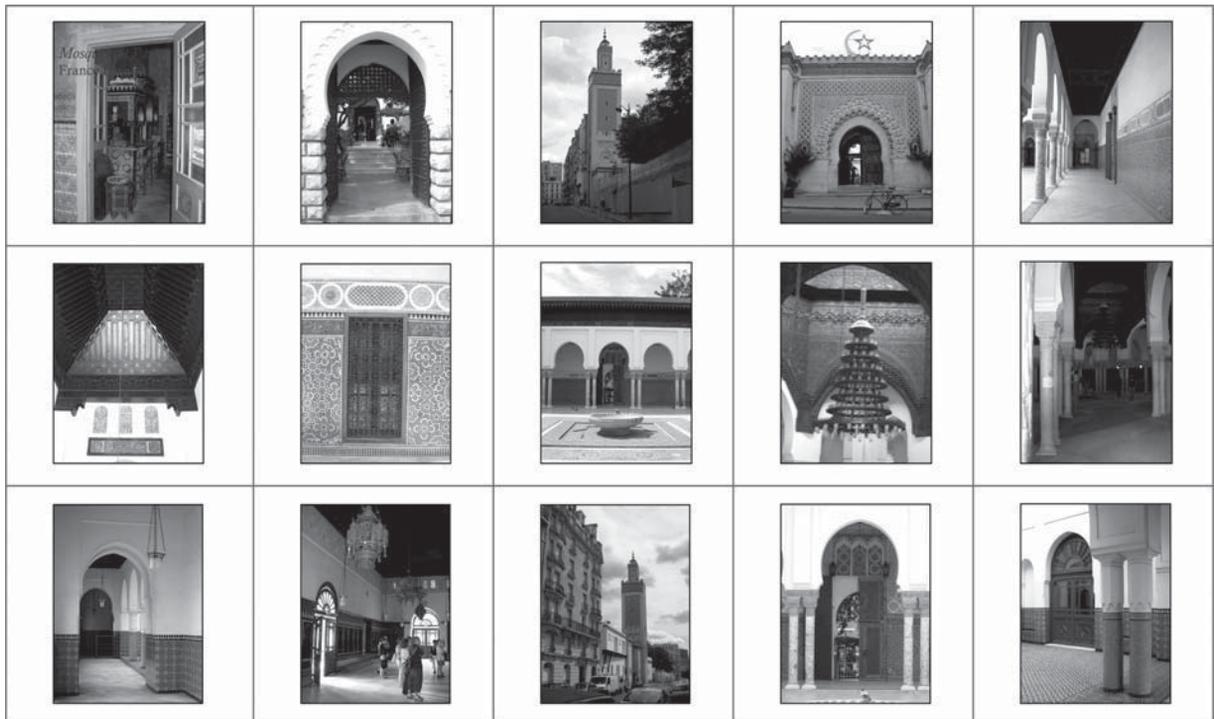


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Figure 4.11 The Islamic Center of Rome: (a) formative concepts; (b) analytic diagrams. (Graphics by Raheel Ahmad; drawings by Latif Abdulmalik)

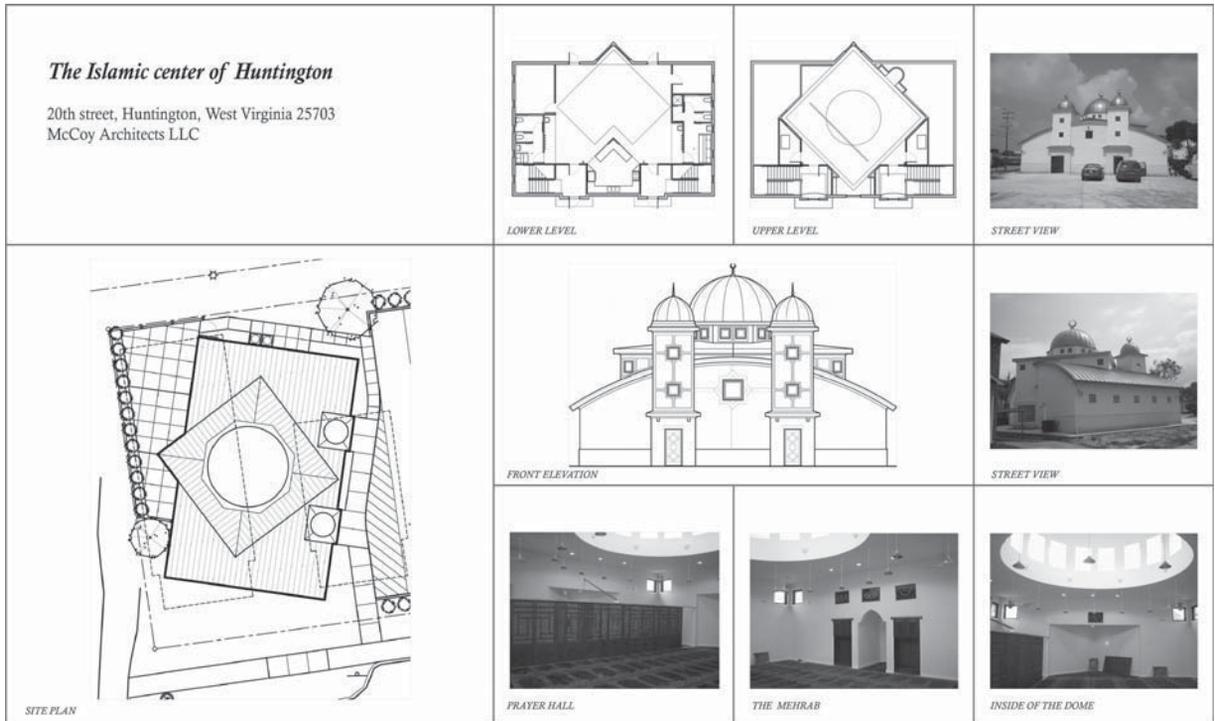


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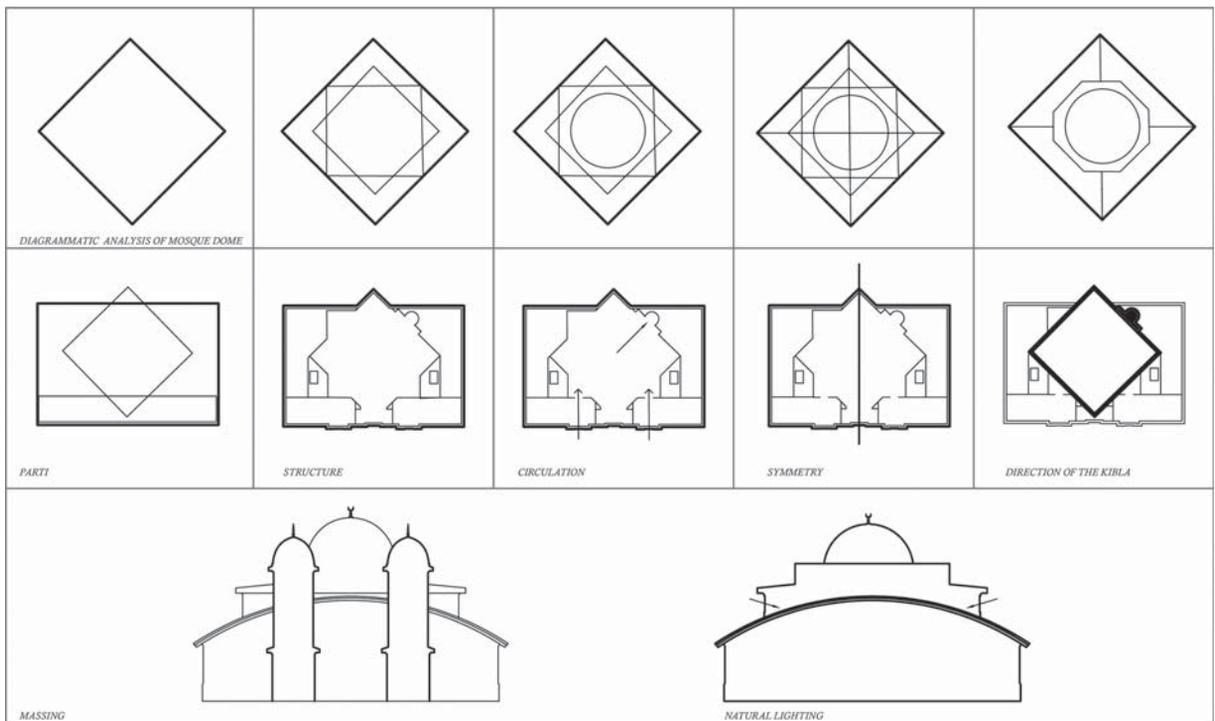


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Figure 4.12 The Islamic Center of Paris: (a) courtyard, public areas, extended façade; (b) interior and exterior details. (Site plans and graphics by Raheel Ahmad; photos by Catherine Galley)



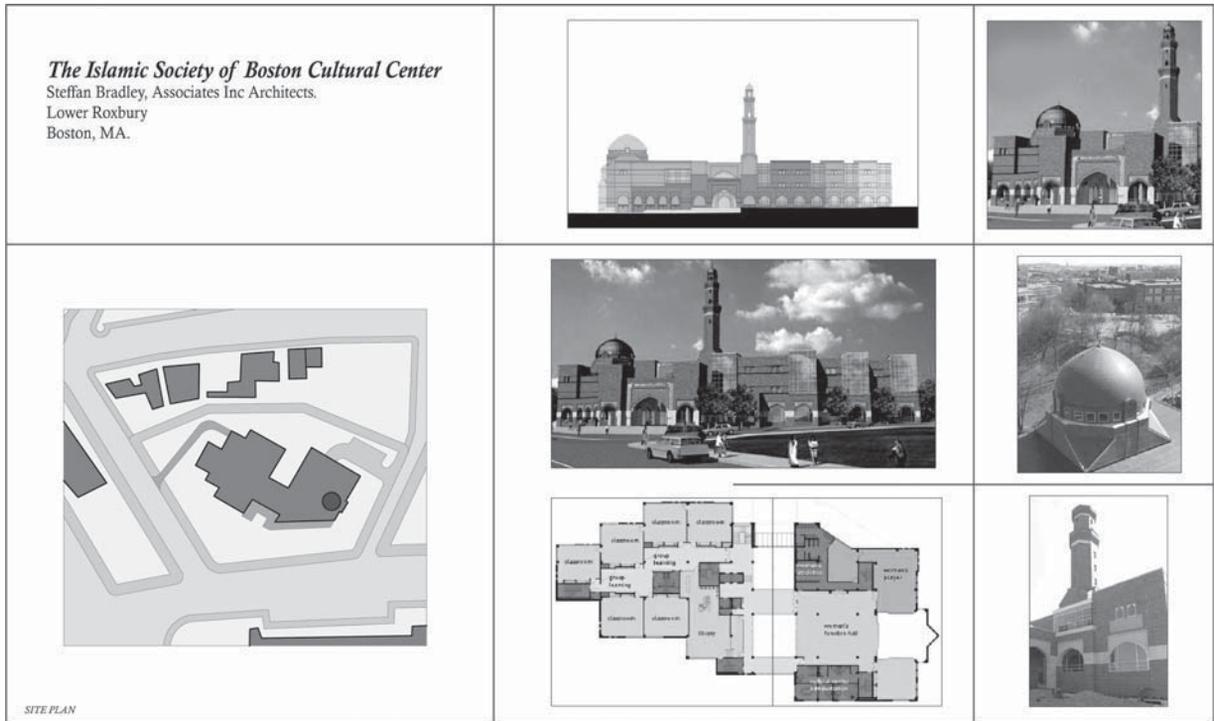
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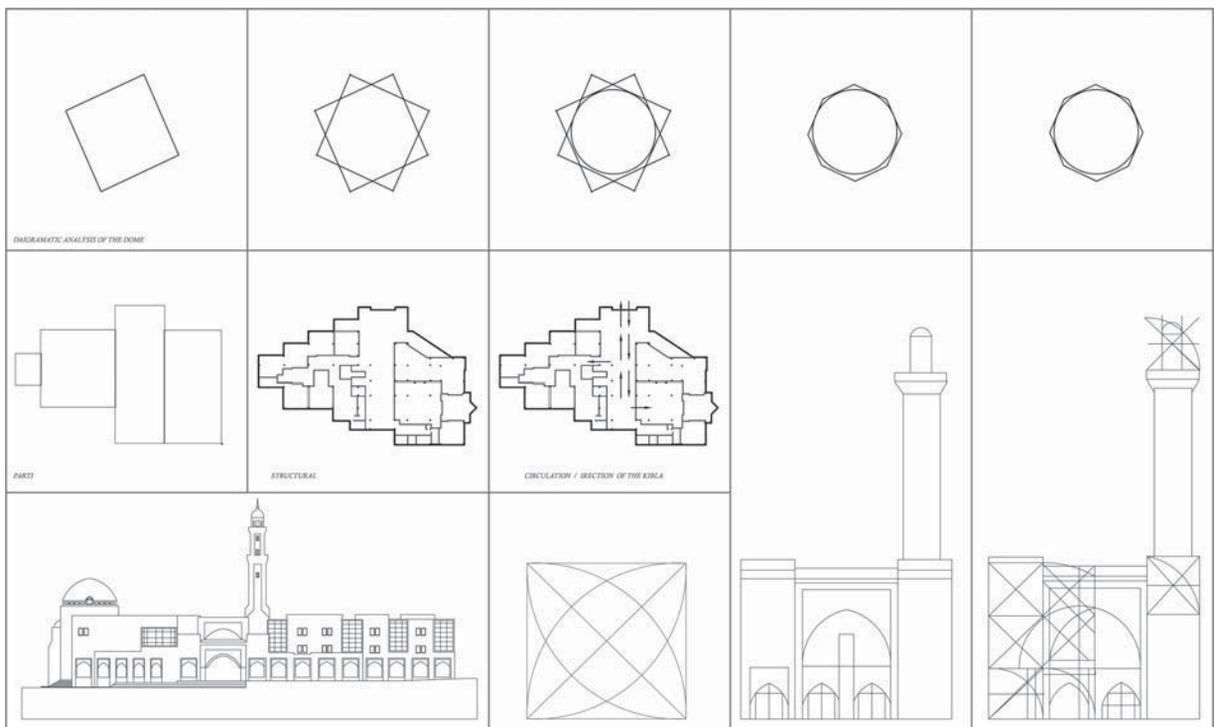
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Figure 4.13 The Islamic Center of Huntington: (a) formative concept; (b) analytic diagrams. (Graphics by Raheel Ahmad; designed by McCoy Architects LLC)

Design Criteria for Mosques and Islamic Centers

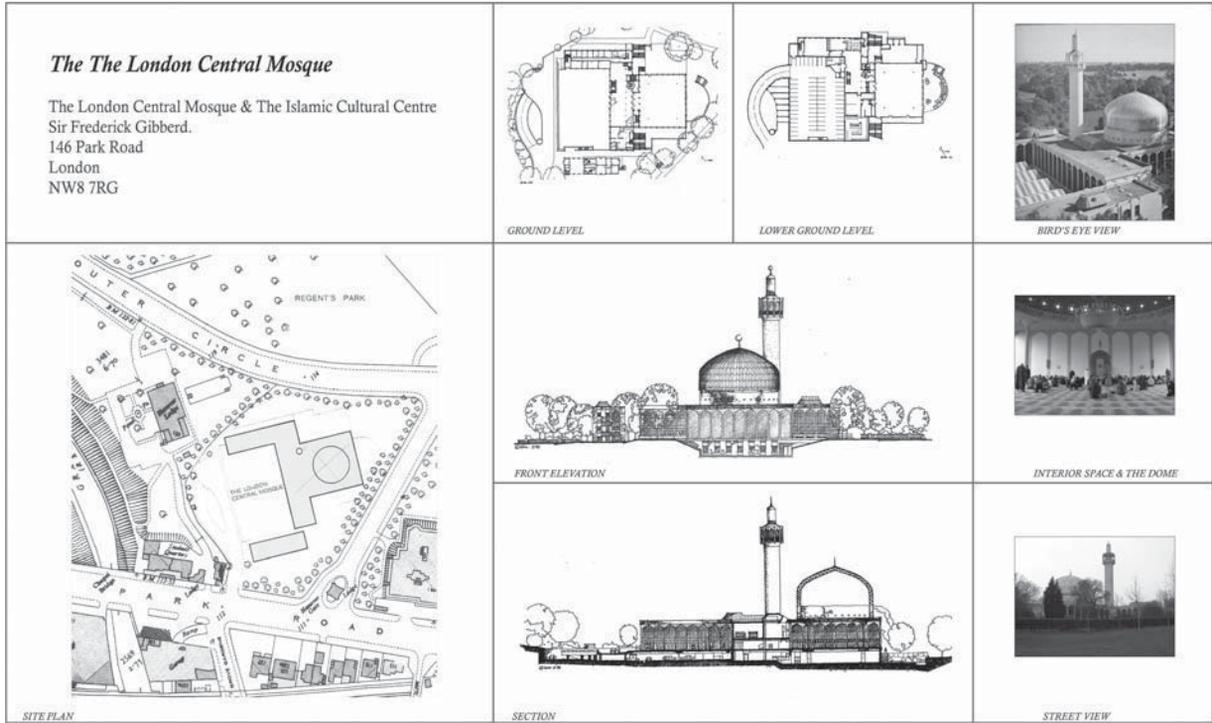


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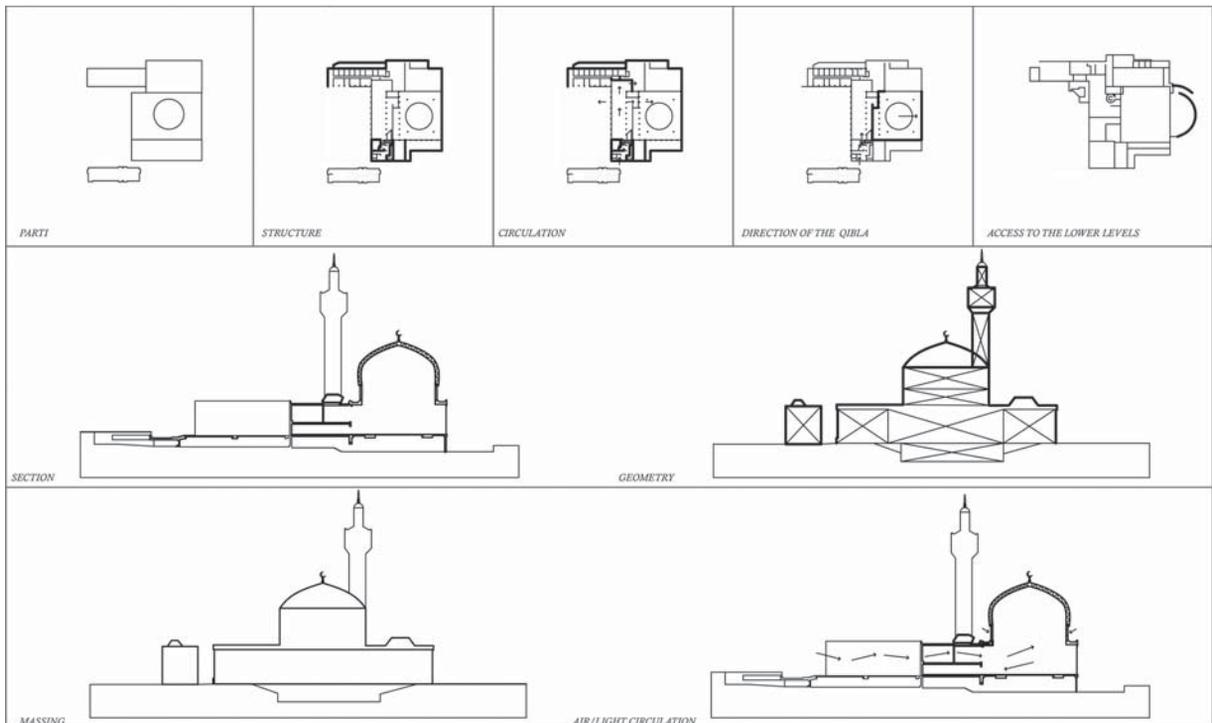


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Figure 4.14 The Islamic Center of Boston: (a) formative concept; (b) analytic diagrams. (Site plan and graphics by Raheel Ahmed; photos by Muhammad Abdus Salaam)



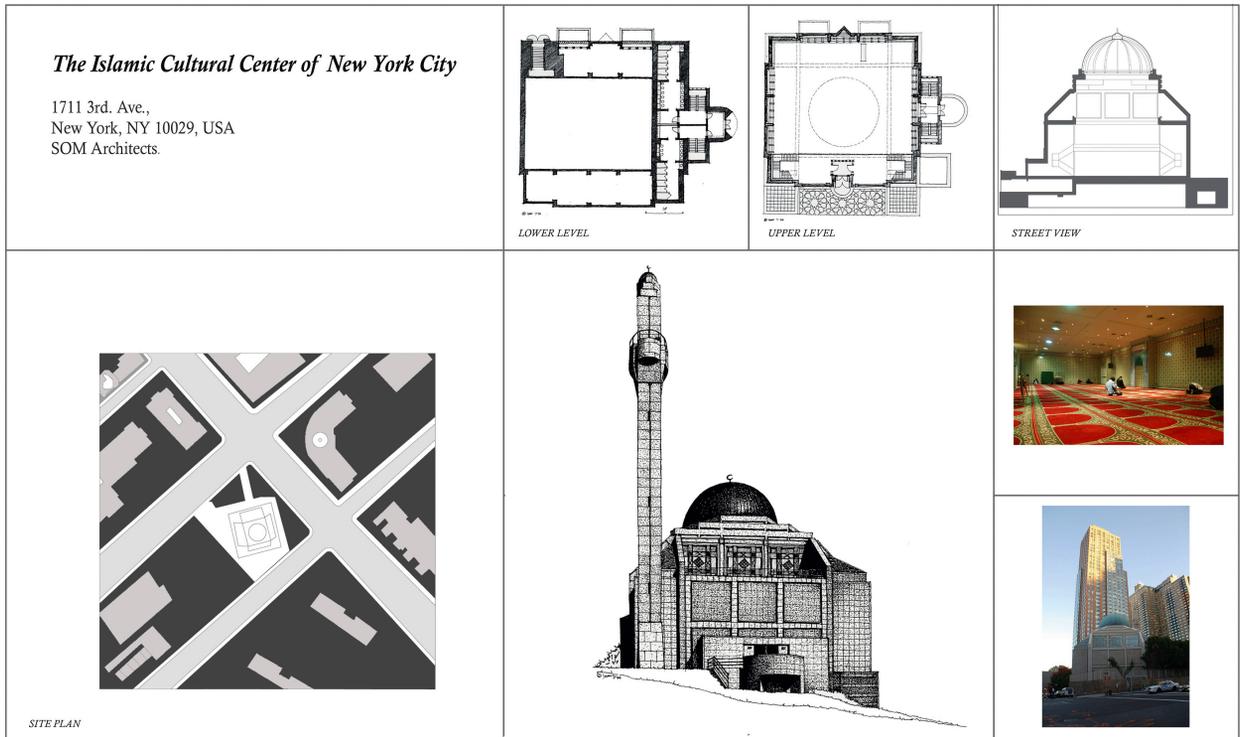
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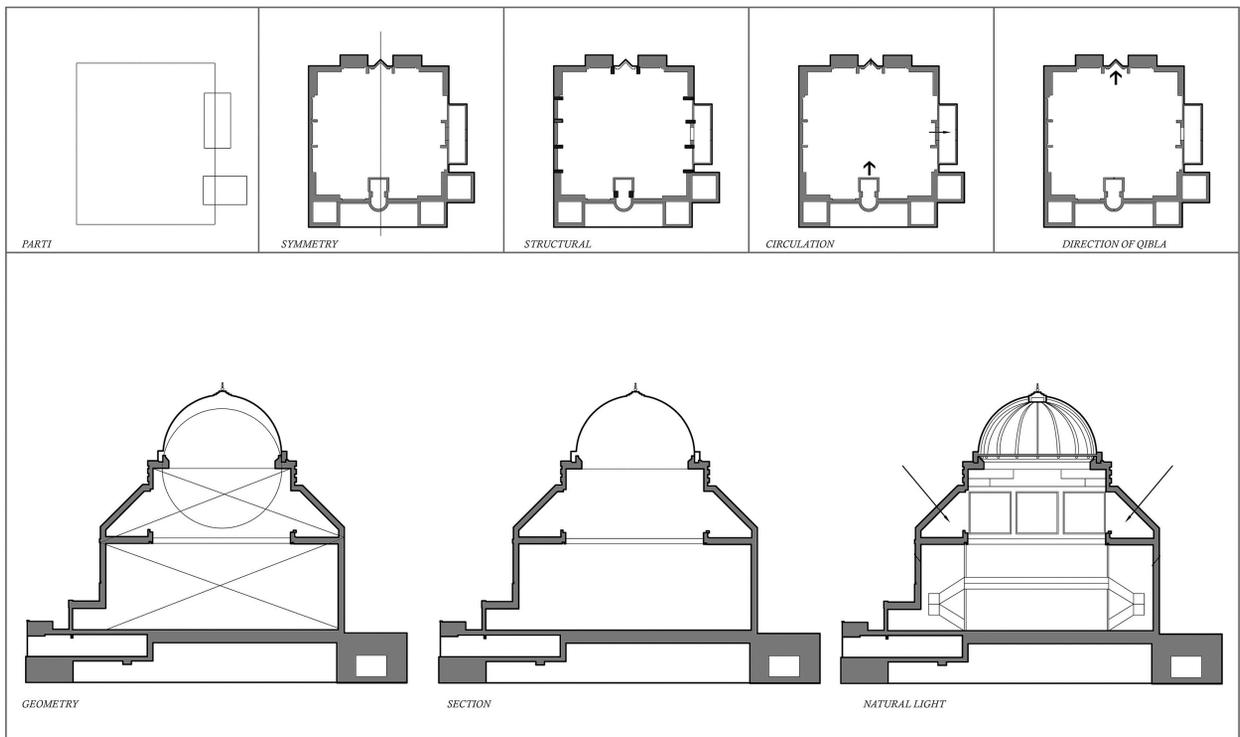
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Figure 4.15 The London Central Mosque, Regents Park: (a) formative concept; (b) analytic diagrams. (Graphics by Raheel Ahmad; drawings by Latif Abdulmalik; photos by Craig Anz)

Design Criteria for Mosques and Islamic Centers

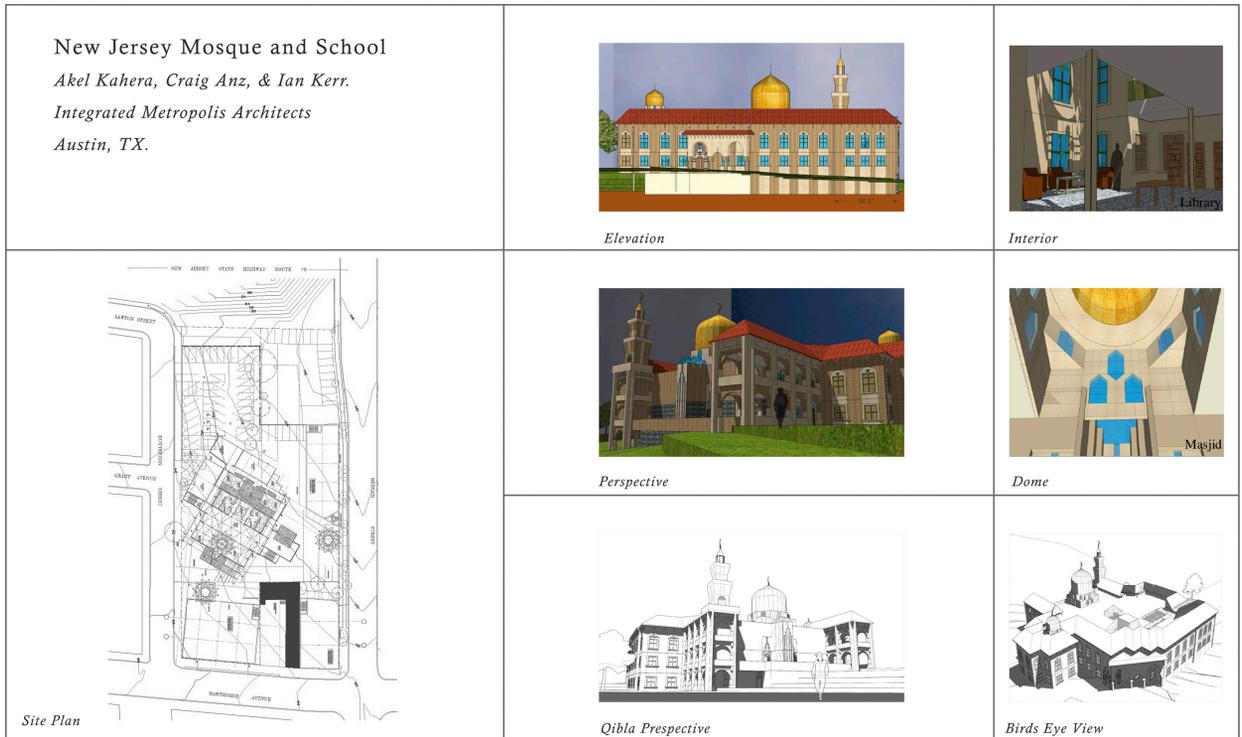


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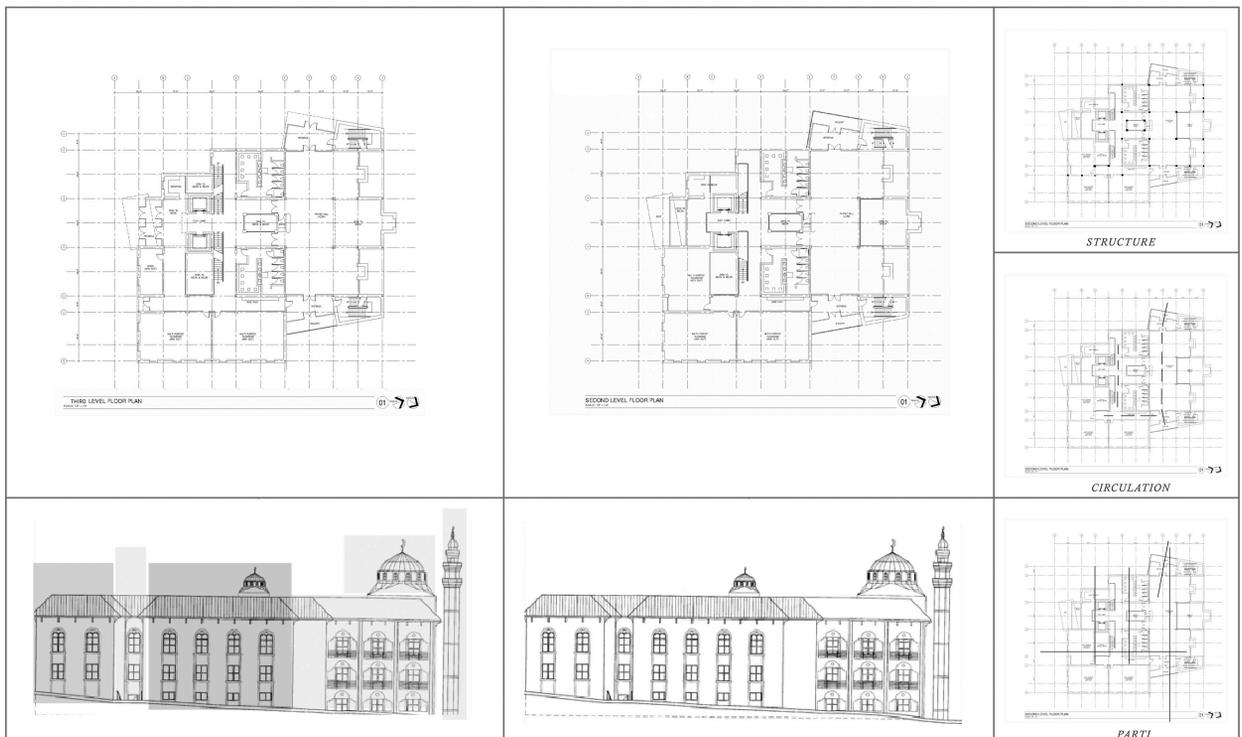


(b)

Figure 4.16 The Islamic Cultural Center of New York: (a) formative concept; (b) analytic diagrams. (Graphics by Raheel Ahmad; drawings by Latif Abdul Malik; photos by Zain Abdullah)



(a)



(b)

Figure 4.17 The Islamic Center of New Jersey: (a) formative concept; (b) analytic diagrams. (Graphics by Raheel Ahmad; design by Integrated Metropolis (Akel Kahera, Craig Anz, and Iain Kerr))

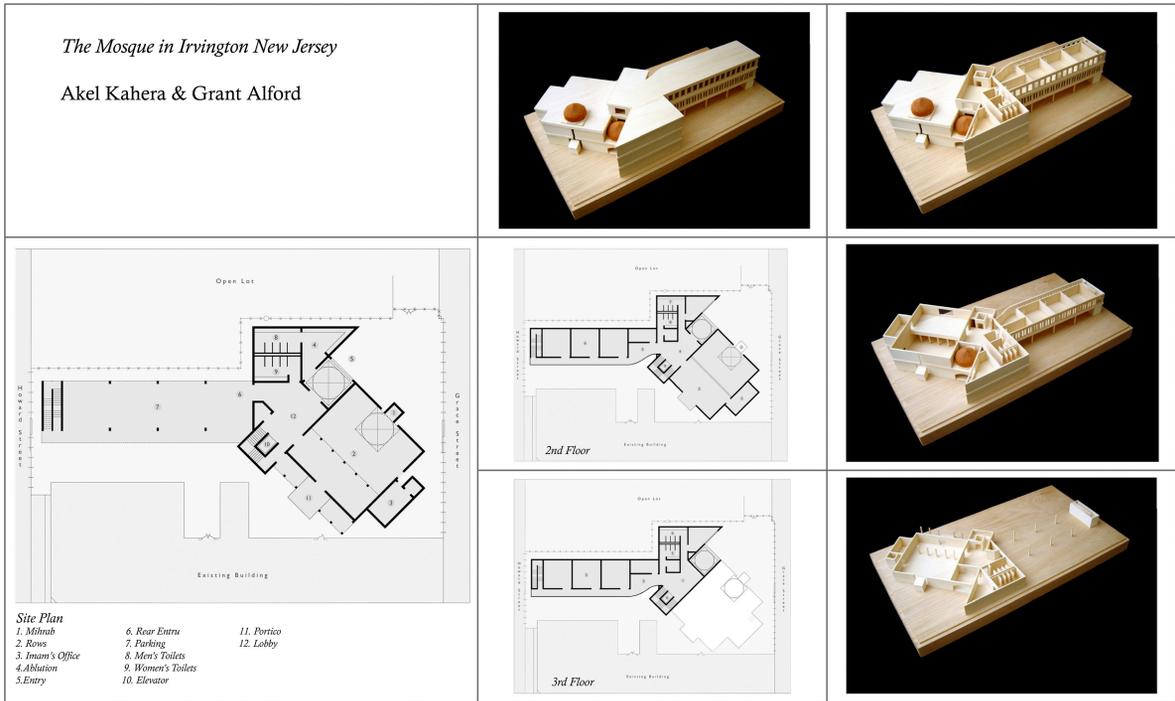


Figure 4.18 The Islamic Center, Irvington, New Jersey: formative concept. (Graphics by Raheel Ahmad; design by Akel Kahera and Grand Alford)

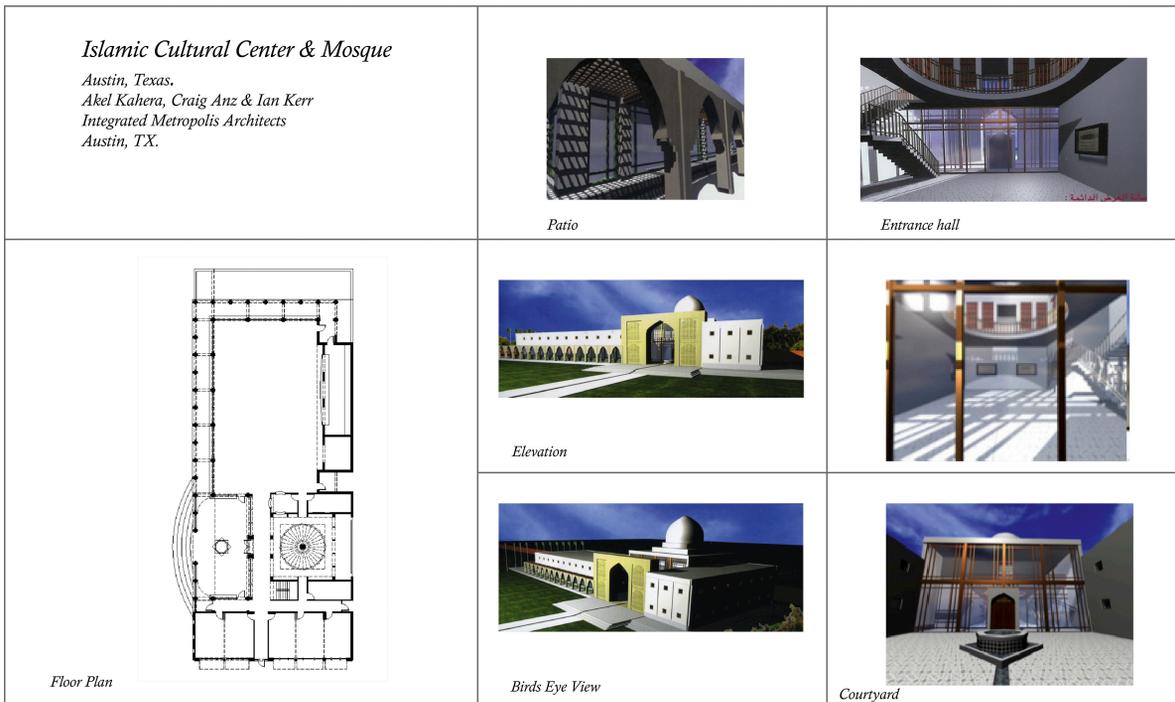
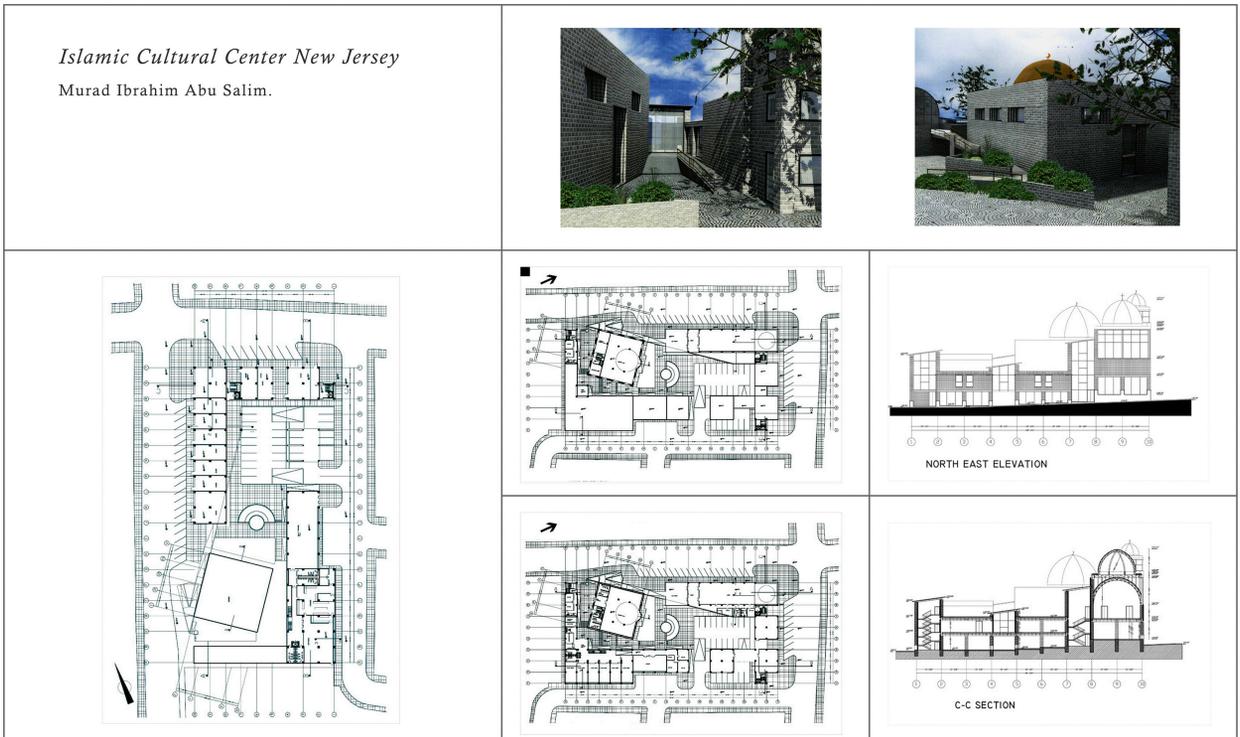
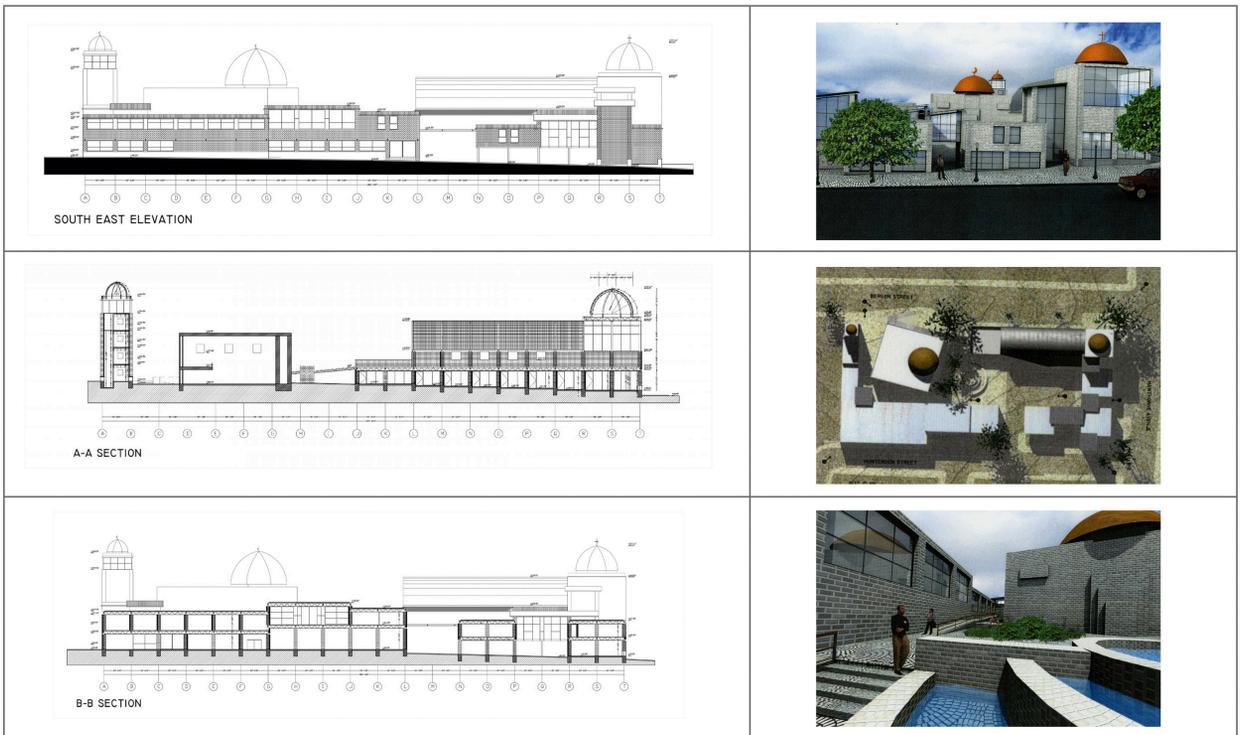


Figure 4.19 The Islamic Culural Center, Austin, Texas: formative concept. (Graphics by Raheel Ahmad; design by Integrated Metropolis (Akel Kahera, Craig Anz, and Iain Kerr))



(a)



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Figure 4.20 The Islamic Center of New Jersey: (a) formative concept; (b) analytic diagrams. (Graphics by Raheel Ahmad; design by Murad Abu Salim)

5

The architecture of women’s space

The foregrounding of the debate and the subject of space and gender makes three legitimate claims: first, to clarify the genesis of an architectural space and the suitability of such a space for congregational devotion; second, to describe the legal and liturgical requirements that are linked to a congregational space; finally, to give a few details about the mannerisms of collective worship. Because there is no agreed upon American and European mosque prototype, architects and their clients depend simply upon what can be called ‘cultural or regional models’; these models have thus far shaped the awareness of custom, culture, and habit among American and European Muslims.

This pride and ambition, with almost incantatory frequency, further compounds the issue of space, place, and gender, because cultural or regional models do often come from parts of the Muslim world where women are either segregated during the performance of prayer or have no access altogether to the mosque. In consequence, we can easily understand how customs, which are brought to America and

Europe via Diaspora, reinforce gender stereotypes. For example, the architect and the planning committee will likely ignore the principles of the ‘spatial Sunnah’ (Kahera, 2002a, b). In other words the spatial Sunnah takes into consideration the *modus operandi* of the Prophet’s mosque built at Madinah in the seventh century CE; overlooking this key consideration could result in design choices that have no spatial criteria or no analogy to the seminal mosque.

Another aspect of the problem that the architect will face in the design of a mosque is the configuration of women’s space, because there are a variety of viewpoints that exist and because there is no legally accepted consensus or an ‘ideal’ spatial configuration for female congregants. Some women prefer segregated spaces because they are accustomed to such an arrangement; a second group regard spatial segregation as a form of discomfort, repression, and bias because it does not allow for fuller participation in the congregation, and because it violates the Qur’anic injunction that men and women are equal; a third group favors a partition or

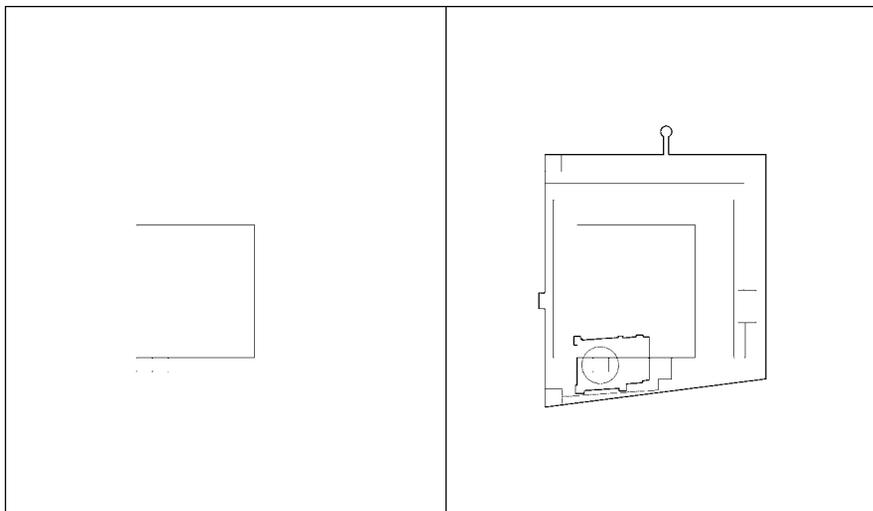


Figure 5.0 Evolution of the Prophet’s Mosque (circa 622–662 CE). (Drawing by Latif Abdulmalik; graphics by Raheel Ahmad)

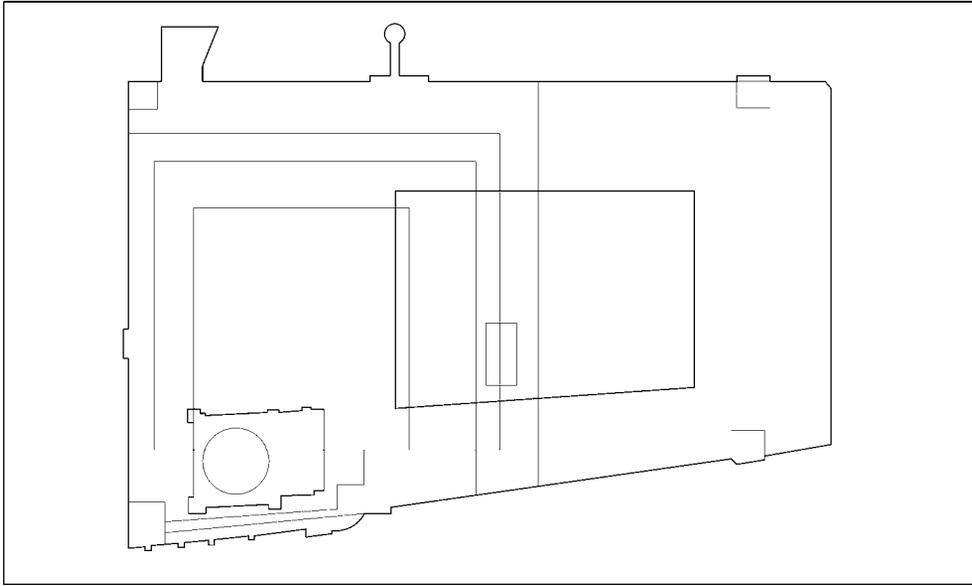


Figure 5.1 Composite plan of the Prophet's Mosque. (Drawing courtesy of Latif Abdulmalik; graphics by Raheel Ahmad)

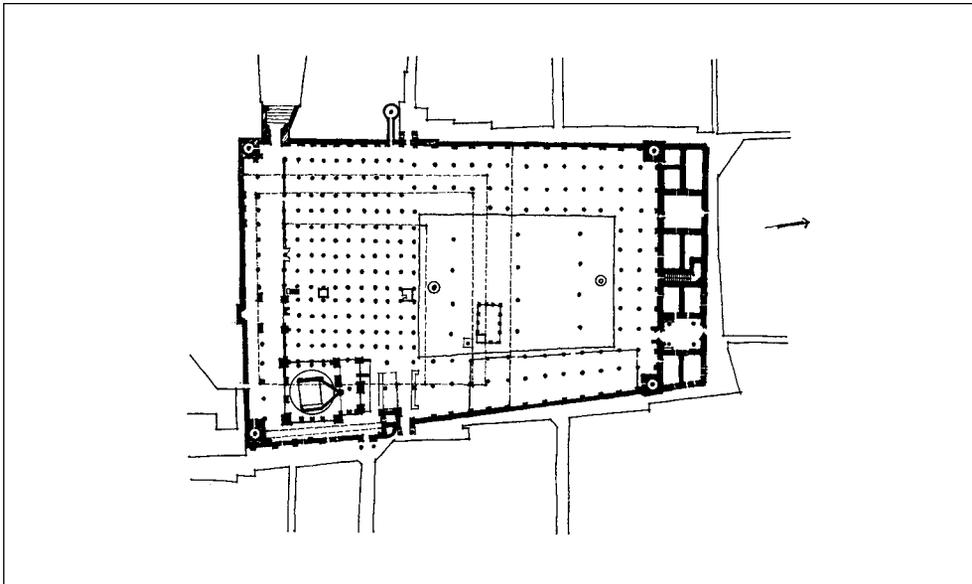


Figure 5.2 Composite plan of the Prophet's Mosque. (Drawing courtesy of Latif Abdulmalik; graphics by Raheel Ahmad)

a screen that has built-in flexibility. An example of this latter type has been adopted in the Islamic Center of Greater Toledo, Ohio, where men and women pray adjacent to each other in the prayer hall separated by a short, removable screen.

Above all, the potential for a spatial model that strikes a balance where male and female congregants enjoy the status of equity

in devotion begs a key question: Is a logically designed *musalla* not possible? Muslim pragmatists argue that both liberals and conservatives simply read too much or too little into religious texts, which allows clever activists, professors, building committee members, and others to invent 'new' meanings that are not trustworthy. Perhaps the most extreme position to invent 'new'

meanings is the recent decision by a female professor to lead the congregation Friday prayer, a role traditionally designated for a male *imam*. This case, although unusual, highlights an attempt to fudge the issue. In an effort to clarify the problem of space, place, and gender there are a plethora of opinions, which further add to the dichotomy between indigenous Islam and immigrant Islam. So far little research has been done on the subject of space and gender in relation to the architectural configuration of the North American and European mosque. The aim here is to thrash out this subject and to further consider the norms of Islamic law (*Shari'ah*), congregational worship, and Diaspora. In a 2001 survey, 90 per cent of American mosque communities stated that they followed the *Sunnah* in a strict manner; however, only 15 per cent of the congregation for Friday prayer were female and 7 per cent children versus 78 per cent male attendees (Bagby et al., 2001). In the same survey 66 per cent of women attendees performed the prayer behind a curtain, partition or in another room, while 34 per cent did not (Bagby et al., 2001).

Finally, women are infrequently consulted when a community decides to construct a new mosque, therefore they have no involvement in the design or planning process; ironically, there are more than enough qualified Muslim women architects and engineers in America and Europe.

The discussion here treats the dogmatism attached to the debate, and three primary considerations. First, Diaspora – by virtue of linguistic, ethnic, cultural, and religious affiliations – reveals how the conjuncture of two different worldviews, tradition and modernity, have impacted the practice of Islam in the West. Tradition and modernity may also refer to diverse conservative, puritanical, moderate, feminist and liberal practices,

and interpretations of the *Shari'ah* and so the call for consensus (*ijma*) on the question of gender exacerbates the problem.

Take, for example, the application of *ijtihad* or independent reasoning as a way of examining place, time, and difference; in part the ultimate aim of *ijtihad* is to subsume differences within the confines of the pre-established legal structure of the *Shari'ah*. In general, the immigrant Muslim community considers the *Shari'ah* a starting point in any disagreement. On the other hand, *ijtihad* is historically complex; in the West only a handful of immigrant and indigenous scholars are qualified to exercise *ijtihad*. Although *ijtihad* is often conceived as way to resolve a stalemate, it also illustrates how Muslims in a modern western environment can adapt without deviating from conventional religious dogma and practice; more accurately *ijtihad* reinforces the public interest (*maslaha*) and the religious rights of an individual or a community.

Second, the overwhelming dependency on patriarchal power and knowledge as a substitute for scholarship sustains a number of prejudices. In the interest of power, patriarchy reinforces unqualified cultural customs and intractable beliefs that aspire to be pure or absolute while remaining ignorant of women's rights. Take, for instance, how uncomfortable makeshift prayer spaces – anterooms, leftover hallways, basements, and balconies – make some women feel. Encouraging others to remove or modify this type of spatial arrangement often translates into intolerance on the part of individual congregants who disagree. In brief, indiscreet spaces make it difficult for women to observe the prayer leader (*imam*) or pay attention to the talk (*khutba*); moreover, the problem is further exacerbated because women are told that this mode of worship is implicitly sanctioned by religious doctrine.

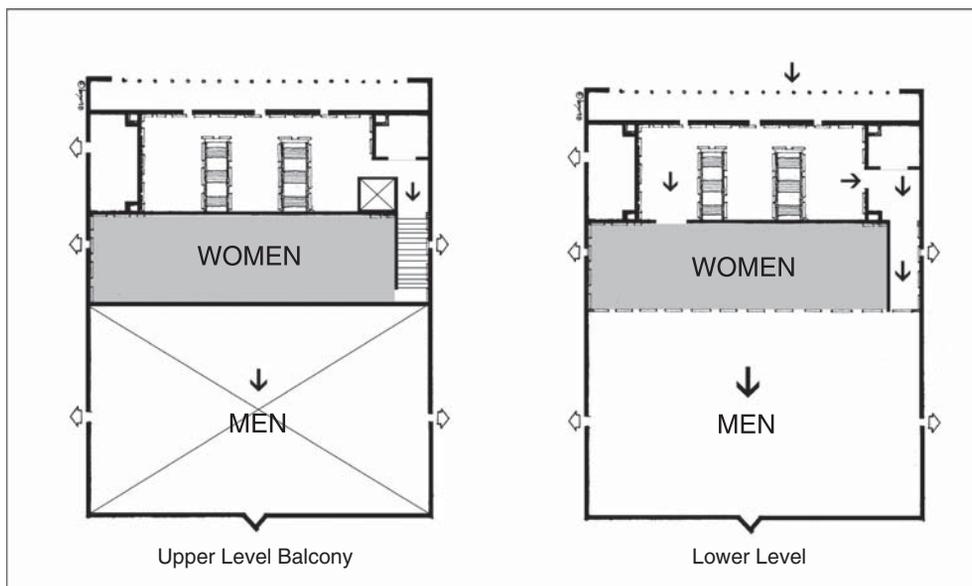


Figure 5.3 Two configurations of women's space. (Drawing by Raheel Ahmad)

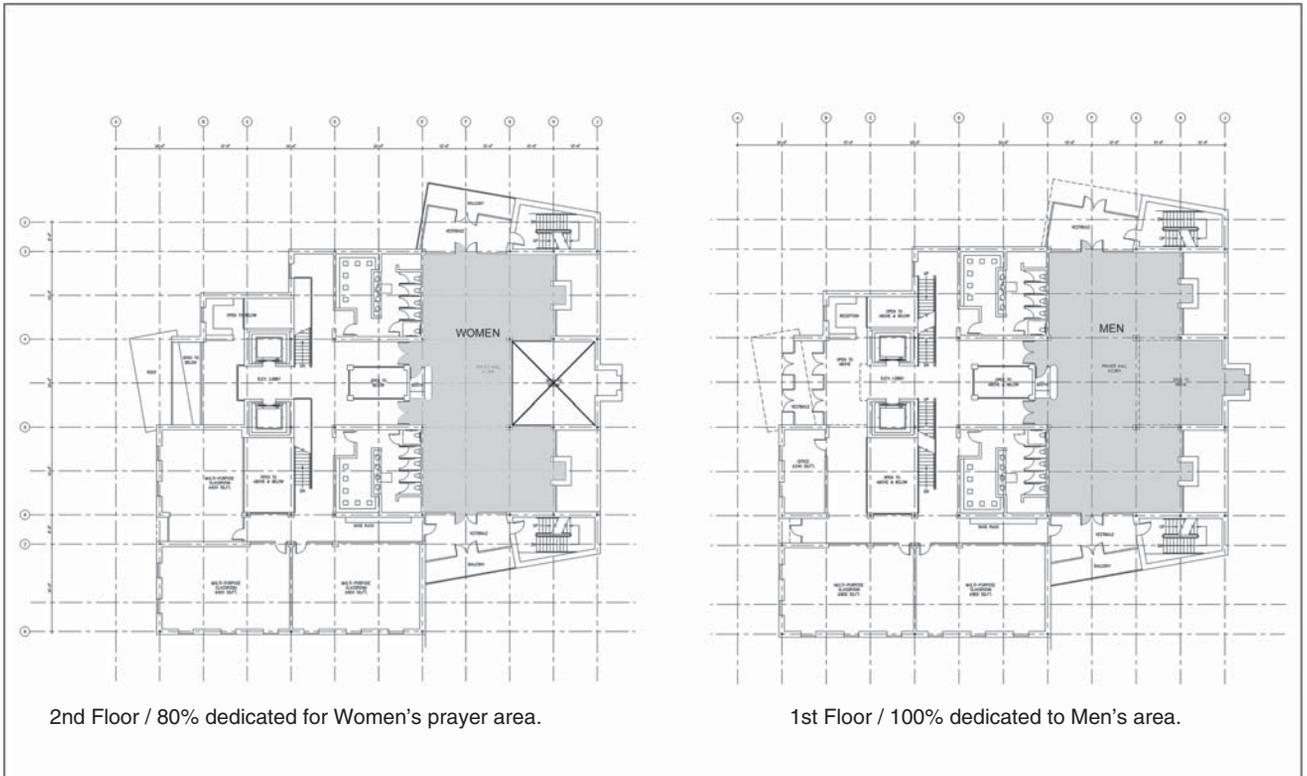


Figure 5.4 Configurations of the women's and men's spaces. (Design by Integrated Metropolis (Akel Kahera, Craig Anz, and Iain Kerr); graphics by Raheel Ahmad)

Exegesis, when set against cultural norms, has proven to be troublesome, because of undue emphasis of a narrow interpretation – this attitude has resulted in the segregation of women. The ‘manufactured’ absence of women from mosques is an unnatural condition but because custom is often stronger than law, a number of adverse customs do exist. To overcome this dilemma when a mosque is planned women must play a serious role in the decision-making process and participate in that process from beginning to end. We can speak of the difficulty of finding an appropriate design language for women's space in a mosque; however, overcoming this challenge is problematic. But because architectural space is a cultural construction, a relationship exists between spatial appropriations and the notion of the esthetic whole, spatial appropriations can also be a means to marginalize people of any gender or race. It has been claimed that the treatment of women is a result of custom and culture – what does this mean? Because objections can be raised about this argument we offer some explanation of the legal framework of the debate.

This brief overview examines the contestation of women's prayer space in the mosque; the debate is endowed with a history dating back to the seventh century CE Madinah community. To situate the debate, several statements in the Qur'an preserve the identity of the *masjid*. For instance, the Qur'an states: ‘The places of worship (*masajid*) belong to God’ (Q. 72:18). This verse is one of several that protects the sanctity of the mosque, and implicitly

it safeguards the edifice from the possibility of excluding a male or female worshipper; however, this statement must be further qualified. In practical terms *masjid al-Haram*, the grand mosque at Makkah, exemplifies the long-standing history of integrated worship (Q. 22:26) and pilgrimage rites (*haji* and *umrah*). It follows from the foregoing remarks that later commentators must have made singular assumptions regarding the segregation of women based on a small number of *hadith* reports. For this reason the subjugated knowledge – or dominant forms of knowledge that emerge within a social order – takes a variety of positions about the treatment of women's space and congregational worship; such positions were further reinforced by widespread patriarchal attitudes.

Over time a number of legal and theological interpretive claims among scholars of the four major Sunni schools of law, and meta-literary disputes, have emerged to form an opinion about a woman's right of entry to a mosque. In part this was an attempt to rework history, transposing modalities of historical time and pre-existing space to adjudicate among conflicting legal opinions about what shapes the concept of communal worship.

The ultimate justification for such an inquiry still appears to be driven by the nature of interpretation, preferred social attitudes, and the tendency to consign *hadith* traditions to ‘norms’ and ‘standards’. We are therefore confronted with unlimited points of view about the concept of time and space, normative judgments, the value of collective worship, and the rules that govern



Figure 5.5 Women during the *Eid* prayer, Austin, Texas. (Photo © 1998 by Akel Kahera)



Figure 5.6 Women performing the prayer, Fayetteville, Georgia. (Photo © 2008 by Amirah A. Kahera)

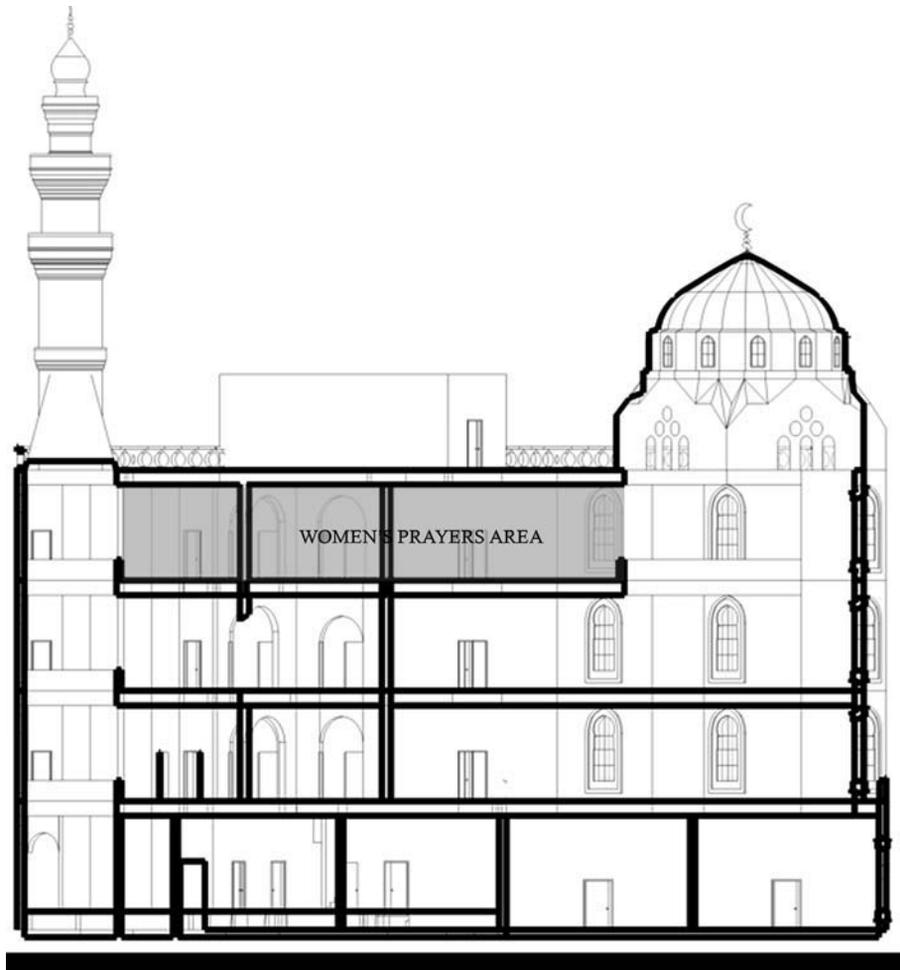


Figure 5.7 Building section showing the women's balcony. (Design by Akel Kahera)

places of public gathering within a culture. In this case the *hadith* concerning women's right of entry to the mosque has dominated the debate, which has also influenced the formation of certain types of permanent and thematic architecture.

Three descriptive markers – cultural, social norms, and religious practice – further characterize the institution of congregational worship and in many crucial respects give reason to dispute various statements about the physical component of women's prayer

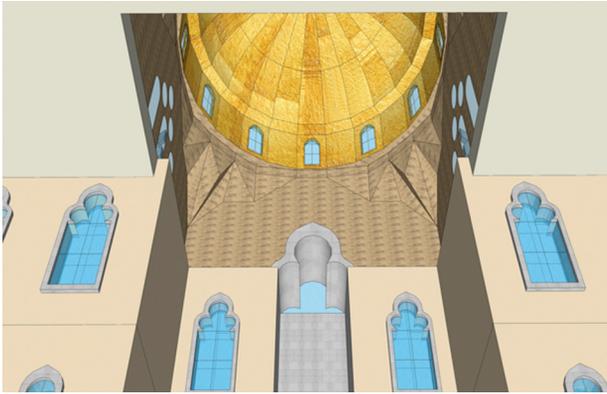


Figure 5.8 Dome above the women's balcony. (Design by Akel Kahera)

space. Firstly, religious practice defines the etiquette of women and men who share the same right of entry to the mosque, for the performance of the *salawat al-khamsah* or five conventional daily prayers, the *jummah* or Friday prayer, and the *Eid* or feast prayers. Secondly, while both premodern and present-day commentators point to the merits of public worship without gender distinction, scholarly discourses and legal consensus differ due to the interpretation of the *hadith*. In summary, the view that supports the merits of public worship that includes women is derived in part from the following *hadith*: '... the congregational prayer is twenty-seven times greater [than that of the prayer offered alone]' (Bukhari 11:621).

Besides relying on the overwhelming consensus of a majority of Sunni and Shi'ite jurists today, jurists who are consistently pragmatic would support the merits of public worship because it is intended to undercut individual distinctions regarding positions of race, class, gender, or social status. It is also intended to return human piety to the center stage of belief within the Muslim community.

An opposing view depreciates the status of women's place in public worship and this opinion is based on an exceedingly narrow understanding of Ayesha's *hadith*: 'Had Allah's Apostle known what the women were doing, he would have forbidden them from going to the mosque ...' (Bukhari 12:828).

The minority of jurists who have leaned heavily toward the treatment of a probable inference in Ayesha's *hadith*, rather than what the Prophet had actually sanctioned in making this interpretive claim, take the *hadith* as a starting point. Nevertheless

the inference operates in two different modes; fortunately we can resolve this paradox by employing the distinction between an inference and a fact, but ultimately the *hadith* reveals the uncertainty of the problem that may have seemed to encourage a vast collection of intractable opinions that do not appear to include or demonstrate wholehearted reasoning.

In the first mode, Ayesha's *hadith* reflects her own belief and sensibility, which points to an independent evaluation of past and present way of life in Madinah society. It would appear that by relying on Ayesha's *hadith* the opinions of early jurists of the four major Sunni schools of law (Maliki, Hanafi, Shafi'i, and Hanbali) believed it wholly appropriate to promote the opinion that a woman's prayer in her domicile was preferable. In the second mode, the same system of transcribing what was once perceived as an unrestricted public space, i.e. the seminal mosque, was later transformed in the legal vocabulary by means of descriptions that privilege some *hadith* reports and juristic statements at the expense of others. This mode of reasoning needs further query because it claims 'truth' has the power to promote various forms of control in connection with public

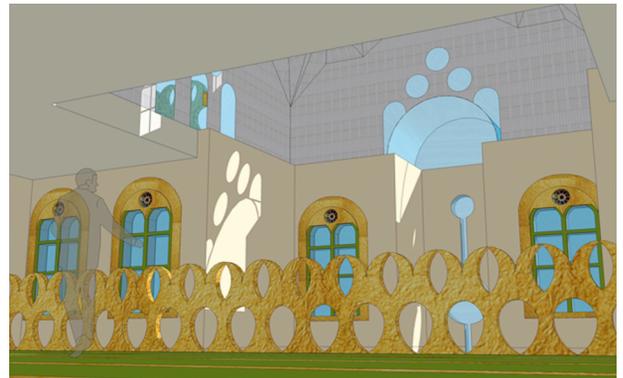


Figure 5.9 Women's balcony design detail. (Design by Akel Kahera)



Figure 5.10 Women's lounge adjacent to the women's balcony. (Design by Akel Kahera)



Figure 5.11 Women during the *Eid* prayer, Atlanta, Georgia. (Photo © 2008 by Amirah Kahera)

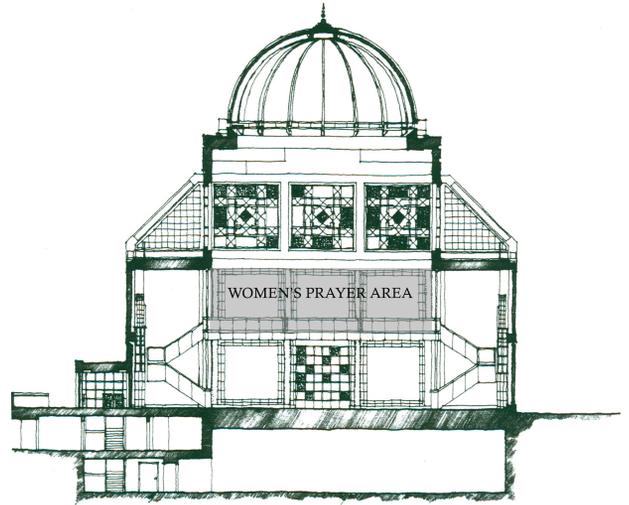


Figure 5.12 Women's balcony, Islamic Cultural Center of New York. (Drawing by Latif Abdulmalik)

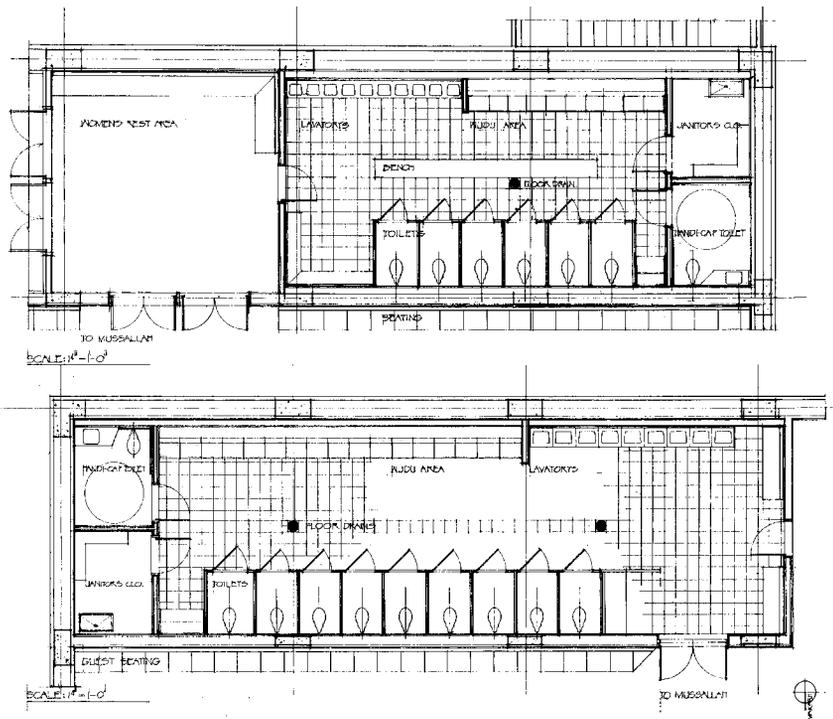


Figure 5.13 Men and women's ablution plan. (Drawing by Latif Abdulmalik)

space and collective worship. Whereas Ayesha's *hadith* does not seem to suggest that women should be less devout than men in the performance of public worship, the ensuing views of later jurists literally excluded women from the practice of congregational worship. Likewise we might allude to the greater risk

under which collective worship has religious value, which can be inferred from the etymology of the word *masjid*.

By all accounts the mention of the word *masjid* in the Qur'an does not attribute a hermeneutical status to male or female worshipper, although the principle of gender equity is implicit in

making the congregational prayer compulsory for women at an earlier time on Friday, and separate from men's prayer (Darsh, 1979). Mahmoud Shaltout, the *mufti* of al-Azhar, issued a *fatwa* against the ridiculous decree. Shaltout's *fatwa* reads as follows:

There is no special jum'ah for Muslim women and no differentiation in time and place in this prayer between male and female. The consensus of opinion of all the Muslims past and present is that there should be no special prayer for women. But they can pray – if they wish to attend the jummah – with men in one jamaat behind the same imam with the same khutbah in the same place ...

(Darsh, 1979)

As Shaltout's *fatwa* has noted, normative types of worship existed in the time of the Prophet, occurring most memorably in the seminal mosque built at Madinah, Arabia in 622 CE. In the Madinah community, the Prophet permitted women to enter the mosque. Evidence of this can be found from many sources where we come across the following *hadith*: 'Do not prohibit the female servants of Allah from entering Allah's mosques' (Bukhari 13:23). Women also attended congregational worship even at night (and the dawn prayer): 'If your women ask permission to go to the mosque at night, allow them' (Bukhari 12:824). The *hadith* speaks to the overriding cultural and historical stereotypes and the complexity of gender discrimination itself that has displaced women from congregational worship by discouraging their presence.

Women were patrons and sponsors of mosque construction this historical fact may be briefly illustrated by citing a number

of examples. In the city of Fez (Fas) two sisters, Maryam and Fatima al-Fahari, were the benefactors of the two principal congregational mosques, *al-Qarawiyyin* and *al-Andalus*. In the *kadinlar saltanati* period, sixteenth and seventeenth century, Ottoman women were active sponsors of architectural works and mosques, which is a statement of power and influence.

An inspiring charter for the role of the mosque (*qingzhen nusi*, abbreviated as *nusi*) is a women's mosque in China. As a transcendent concept the Hui Muslim or *Huijiaotu* have taken jurisdiction of religious practice and self-understanding that is mentored by a female teacher and religious leader (*nu ahong*). In acknowledging the role of the *nu ahong*, she presides over a *nusi*, where instruction is given about religious praxis, spiritual meanings, and where women pray collectively in the *nusi* under the guidance of their own *nu ahong*. While the *nu ahong* is experimentally unfamiliar to other parts of the Muslim world and the West, she defines a resistance to an anomaly (Jaschok and Jingjun, 2000).

Muslim women elsewhere acknowledge the feeling of isolation embodied in the impractical reasoning why they are relegated to a basement or an anteroom. This treatment is combated in some recent projects to reposition a space for women, or in a divided area behind or adjacent to the men's rows, or within a separate room. In more affluent structures such as the Islamic Center of New York, new approaches to planning and design reject previous assumptions about a 'woman's place' in the mosque; the elevated balcony above the men does not comply with conventional solutions, in fact it suggests the extent to which 'spatial stereotypes' can be broken down.

Glossary

<i>adhan</i>	The call to prayer.
<i>ahkam</i> (pl. <i>hukum</i>)	Laws, values, ordinances.
Allah	Arabic for (God) the Creator of the Universe, the sole deity that Muslims must worship.
<i>aql</i>	Intellect, rationality, reason.
<i>basmala</i>	The statement at the beginning of each sura of the Qur'an (except sura 9), 'In the Name of Allah the Merciful, the Compassionate', also used by Muslims as an invocation.
<i>din</i>	A dogma or religious system, used in the Qur'an to refer to specific beliefs and practices.
<i>du'a</i>	Informal supplication.
<i>fatwa</i>	An authoritative legal opinion contrived by a <i>mufti</i> who is a jurist qualified to make legal decisions in matters affecting the <i>ummah</i> (community of believers).
<i>fiqh</i>	Jurisprudence, the science of Islamic law, which falls under the purview of the jurists or <i>fuqaha</i> (sing. <i>faqih</i>).
<i>hadith</i>	A tradition, saying, narrative, or written report of actions attributed to the Prophet Muhammad, being the source of material for the <i>sunnah</i> – regarded as a source of Islamic law.
<i>hajj</i>	The Pilgrimage to Makkah performed during the twelfth month of the Islamic lunar calendar – one of the five pillars of Islam.
<i>halal</i>	That which is beneficial or not forbidden by Islamic law.
<i>Hanafi madhhab</i>	A <i>sunni</i> canonical school of law, which gets its eponym from the founder of the school, Abu Hanifah (d. 147/767).
<i>Hanbali madhhab</i>	A <i>sunni</i> canonical school of law, which gets its eponym from the founder of the school, Ibn Hanbal (d. 241/855).
<i>haram</i>	Acts which are forbidden by Islamic Law.
<i>ijma</i>	Consensus.
<i>ijtihad</i>	Literally exertion and technically the effort a jurist makes in order to deduce the law which is not self-evident from its sources.
<i>iktilaf</i>	Juristic disagreement.
<i>ilm</i>	Religious science, knowledge.

Design Criteria for Mosques and Islamic Centers

<i>imam</i>	A prayer leader who is designated to lead any of the formal prayers; in America, a director of the <i>masjid</i> or Islamic Center.
<i>Islam</i>	Submission to divine will or purpose.
<i>Ja'fari madhhab</i>	The primary Shi'i canonical school of law.
<i>jami</i>	Literally what brings together; congregational mosque where the Friday prayer is performed.
<i>Ka'ba</i>	The sacred black cube-shaped structure located in the mosque at Makkah. Abraham and Ismail rebuilt the Ka'ba after Adam as a symbol of monotheism.
<i>khatib</i>	The speaker who delivers the <i>khutba</i> (exhortation) at the time of congregational worship on Fridays.
<i>khatt</i>	Arabic calligraphy using one or more of the six major styles: <i>Kufic, Naskh, Diwan, Thuluth, Riqah, Maghribi</i> , etc.
<i>madhhab</i> (pl. <i>madhahib</i>)	A juristic or theological school.
<i>madrasa</i>	A school for teaching religious as well as secular subjects.
<i>Maliki madhhab</i>	A <i>sunni</i> canonical school of law, which gets its eponym from the founder of the school, Imam Malik (d. 179/795).
<i>markaz al-Islami</i>	Islamic Center, a building complex that consists of a mosque, classrooms, book store, cultural center, library, religious center, and ancillary facilities – for example, Islamic Cultural Centers of New York and Washington DC.
<i>masjid</i>	Mosque – a place of congregational gathering, education, and religious activities.
<i>maslahah</i>	Consideration of public interest.
<i>mihrab</i>	The prayer-niche indicating the direction of Makkah.
<i>minaret</i>	An elevated tower integrated in the architecture of a mosque, in earlier times, from where the call to prayer was pronounced. Today a public address system is used.
<i>minbar</i> (also pronounced <i>mimbar</i>)	A rostrum or platform of three or more steps upon which the <i>khatib</i> stands to deliver the exhortation on Fridays.
<i>mujtahid</i>	A mufti who is qualified to practice independent reasoning or <i>ijtihad</i> .
<i>musalla</i>	A designated <i>extra muros</i> prayer space or area that is not a formal <i>masjid</i> ; in America it is sometimes used to designate the prayer area in an Islamic Center.
<i>Muslim</i>	One who submits to the will of Allah, one who accepts, professes, and practices Islam.
<i>orientalist</i>	Basically those who study the orient, specifically those who study the Islamic World.
<i>qadi</i>	A judge who makes decisions on the basis of the <i>shari'ah</i> .
<i>qibla</i>	The direction of the Ka'ba and Makkah; all worshippers must face Makkah during the ritual performance of prayer. All mosques have a <i>mihrab</i> , which indicates the direction of Makkah.
<i>qiyas</i>	Juridical analogy; analogical reasoning.
<i>al-Qu'ran</i>	The Sacred Text of Islam, literally translated as 'recitation' or 'reading'.
<i>Rak'a</i>	The cycles of postures of prayer (<i>salat</i>), i.e. standing, bowing, prostration, sitting.

<i>riwaq</i>	Hypostyle hall with regular spaced columns and arches.
<i>salat al-juma</i>	The Friday congregational prayer.
<i>Shafi'i madhhab</i>	A <i>sunni</i> canonical school of law, which gets its eponym from the founder of the school, Imam Shafi'i (d. 204/819).
<i>shahada</i>	The Declaration of Faith: 'There is no God except Allah and Muhammad is the Prophet of Allah' – one of the five pillars of Islam.
<i>shari'ah</i>	The religious law derived from four sources of law in Sunni Islam (<i>Qur'an</i> , <i>sunnah</i> , <i>qiyas</i> , and <i>ijma</i>).
<i>shirk</i>	Polytheism – the opposite of monotheism.
<i>store front masjid</i>	A small mosque or <i>musalla</i> which can accommodate a small local or neighborhood gathering.
<i>sujud</i>	Derived from the Arabic verb <i>sa-ja-da</i> = to prostrate; hence the noun ' <i>masjid</i> ', often translated as mosque.
<i>tafsir</i> (also <i>ta'wil</i>)	Exegesis, interpretation, commentary of the Qur'an concerning matters of grammar, clarifying textual allegorical meaning, including the study of philology, lexicography, etc.
<i>tauhid</i>	The Islamic principle of monotheism, which acknowledges Allah as the sole creator of the Universe.
<i>ulama</i> (sing. <i>alim</i>)	Jurist, doctors of law, and Qur'anic sciences, including specialist in theology, <i>hadith</i> , and other categories of scholarship.
<i>urf</i>	Custom, habit, and agreement.
<i>Wudu</i>	Ablutions performed by a worshipper before performing the prayer.

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