

FROM
ANATOLIA
TO
BOSNIA

Perspectives on
Pendentive Dome Mosque Architecture

Editors

**AHMAD SANUSI HASSAN
SPAHIĆ OMER**

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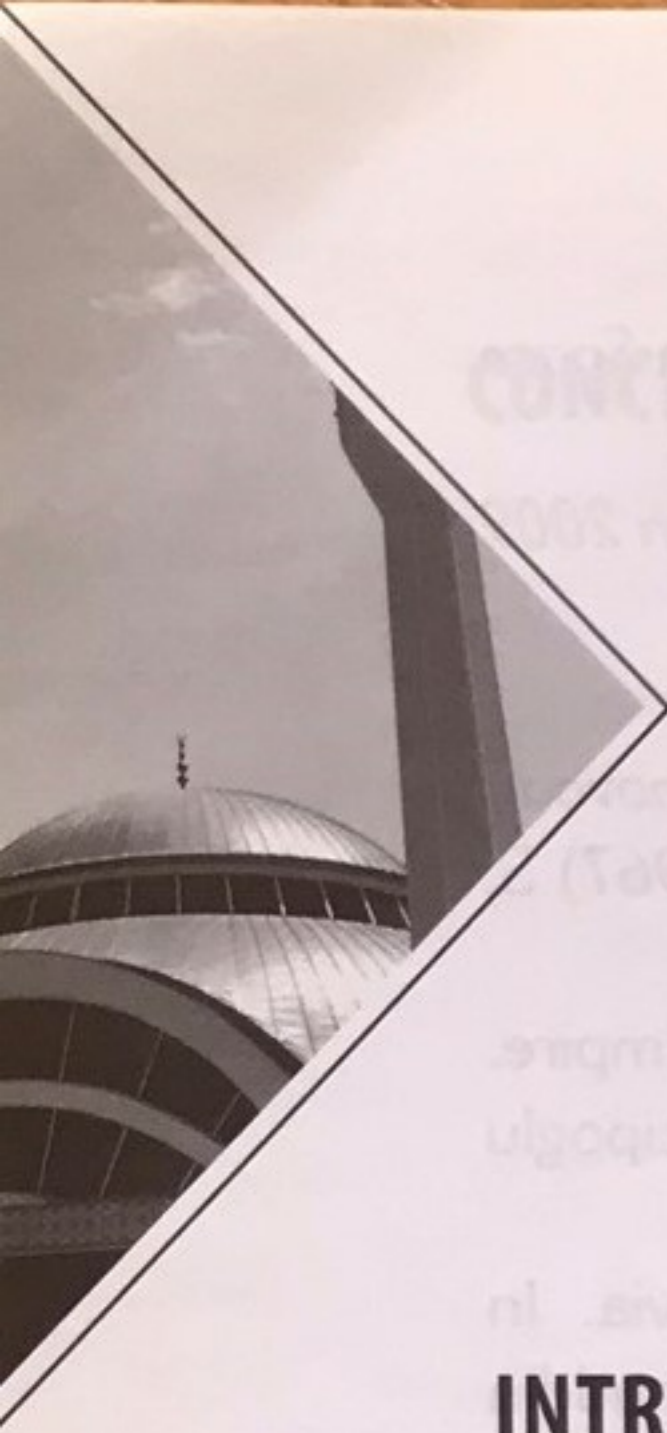
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NEW GENERIC FORMAL TYPOLOGY OF PENDENTIVE DOME MOSQUES ARCHITECTURE TOWARDS A NEW FUTURE

Murat Cetin

INTRODUCTION

Contemporary mosque architecture, which has emerged and developed under the protective shield of modernism seems to have mainly concentrated on the notion of abstraction. The very idea of abstraction in architecture, in fact, places more emphasis on the distillation of the essences, principles or intangibles than on the formal stylization of morphological characteristics of either the whole or the components of an edifice. Nonetheless, reduction of this complex and sophisticated process into simple visual stylization appears to be quite widespread since the messages conveyed through image-based medium are much easier to comprehend by a majority of readers.

The significance of the concept of double-space in mosque architecture, with specific reference to pendentive dome mosques, is argued throughout the various topics of this book. Thus, the notion of double-space emerges as one of the essential principles, if not the typical characteristics of mosque architecture. However, the contemporary mosque architecture not only displays the negligence of the notion of double-space but also tendency towards a unified space through the process of its abstraction from its conceptual sources (Figures 1 and 2). Therefore, this topic argues that contemporary mosque design should re-address the issue of modern abstraction and traditional double-space.

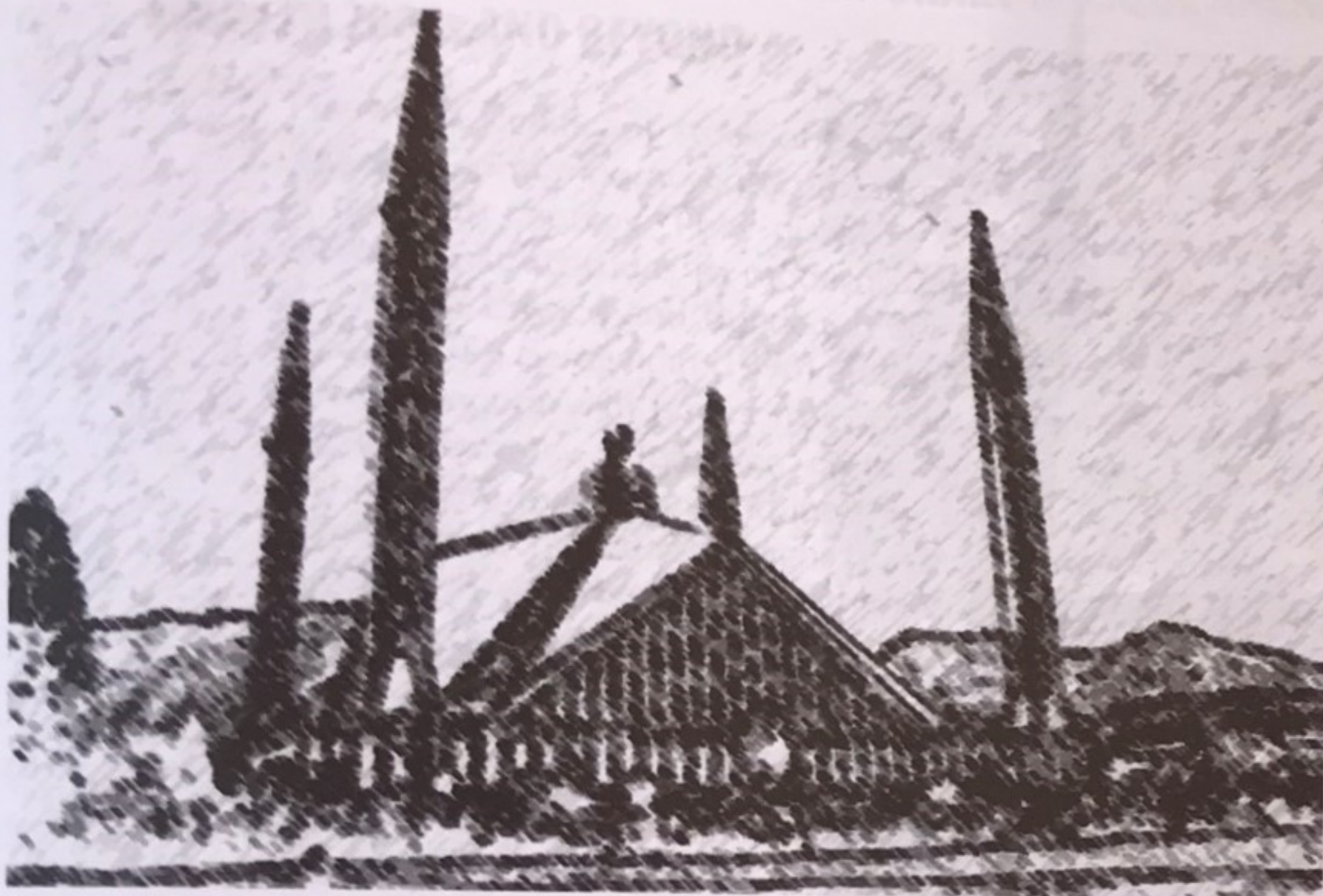


Figure 1.
King Faisal Mosque in
Islamabad

Along this purpose, this topic discusses the subject of contemporary mosque design as well as the reinterpretation of the notion of double-space over an unbuilt or hypothetical project. Having considered the role of mosque in life and in society, uniqueness and significance of its building typology as well as its mysticism, spirituality and symbolic value, mosque architecture deserves a special attention in the study and implementation of architecture. Nevertheless, particularly after having seen its evolution throughout history and a vast inventory of traditional and successful examples, the quality of the current practice do not reflect its status which was well-deserved. The state of the current mosque architecture represents some sort of dilemma with the ongoing vicious cycle that mosque architecture keeps repeating itself by referring to its climax up until the 16th century. The whole concept of mosque needs to be carried beyond the tight moulds in which it is tried to be shaped so as to ease the emergent congestion about the design of mosque.



Figure 2.

Vali Recep Yazicioglu

Mosque in Maglaj, Bosnia Herzegovina

Therefore, both the professionals and scholars should discuss the very idea of mosque and its associated archetypes in order to develop it into an elevated platform with an enriched content mainly by carrying this archetype with a contemporary language into future and opening it onto new horizons in a new era. Besides, not only the modernity itself should also be opened to discussion but also the role of building, architecture (and that of mosque in particular), in a new era should be rigorously questioned so that contemporary mosque architecture could be unleashed from the tight shackles of stereotypical stylization of ancient formal typologies as much as from its contemporary reductionism. Along this path, conceptual development of a new generic model, that is independent of place, is intended. Based on a concept competition, a project developed by the author is introduced, discussed and illustrated in this topic since it matches the theme of this section regarding the double-space of mosque architecture.

CRITICAL EVALUATION OF CONTEMPORARY MOSQUE ARCHITECTURE: FROM 1980s TO 2000s AND BEYOND

There is a significant stock of examples to be able to critically discuss about in regard to contemporary interpretation of mosque architecture in the second half of the 20th century. They display a wide spectrum ranging from historicist or vernacularist attitudes to modernist approaches. Published works by Kahera et al. (2009), Erkocu and Bugdaci (2009), Frishman and Khan (2002), Holod and Khan (1997), Serageldin (1996) and many others give an account of various cases of contemporary mosques from diverse locations, cultures and periods within the last century. Moreover, current architectural media, particularly popular architectural magazines and internet sources illustrate and advertise the 'state-of-the-art' architectural designs of 'starchitects' or 'archistars' for contemporary mosques in various capitals of the world. These publications cover cases which can be grouped according to the time period in which they were designed and built.

The story of contemporary mosque architecture can be grouped into four episodes in regard to the approaches developed in successive phases of the evolution of architectural thinking. The first episode identifies the period extending from early 1950s when heroic ideals of modernism were applied onto the subject of mosque design until 1960s when the modernism was started to be challenged by regionalism. The second one covers the time span starting from the late 1960s to early 1980s when historicist stream of the post-modern thinking was adapted to mosque architecture. The third phase covers the period between 1980s and late 1990s until 2000 whereby an aura of pluralism could clearly be observed in the approaches. The last, and the current, episode seems to have been on stage since 2000 until present time dominated by 'fold and blob' architecture as well as 'fluid formal language' developed by the celebrity architects of our era.

Holod and Khan (1997: 7) focus on mosque as a building type because, in their view, the treatment of its formal and functional characteristics serve as a barometer of taste, identity and symbolic values of Muslim community. Indeed, despite the differences among the aforementioned cases and few exceptions with a higher degree of sophistication, majority of contemporary mosque designs show a uniform taste which is of a homogeneous identity that reflects common symbolic values among Muslim communities. During the late 20th century, multinational

economies, multicultural societies and concomitant global communications have brought expressions of common denominator in mosque design; a cross-cultural architectural idiom understood by many individuals, societies, institutions alike wherever Muslims constitute a significant presence. The resulting buildings are representations of Muslim communities in transition and raise the issue of cultural heterogeneity, assimilation and hybrid forms and meanings (Frishman and Khan, 2002). Thus, this homogeneous language of architectural design, which is probably an inevitable outcome of global economy and its cultural ramifications, certainly marks a paradigm-shift towards formal, or rather visible aspects of the sacred architecture of Islamic worship in an age of media-domination profoundly neglecting the very essence of the place of worship that is the space itself.

This shift needs to be overrated since it also signifies an imbalance within the dialectic of manifest (*Al-Zahir*) and hidden (*Al-Batin*) which constitutes one of the major sources of Islamic theology (Ardalan, 1983). The growing negligence of, particularly, the idea of double-space gradually accumulates and ultimately dissolves towards a unified space as an architectural target under the disguise of unity of faith. However, as discussed earlier in *Double-Space in Mosque Architecture through its Evolutionary Journey to Balkans* (see page 139), the intrinsic duality in faith necessitates the incorporation of double-space as a response to various aspects and dimensions of dichotomies that face the problem of mosque design. Having considered particularly the evolution of pendentive dome from its ideological sources ranging from Sufism to Middle Eastern pragmatism, from Shamanic traditions of Turcoman nomads (*yoruk*) to Indian sources, the interpretation of the architectonic component of dome in mosque design requires the discussion of the notion of double-space. Hammond (2005) further emphasizes the symbolic function of the dome as representation of heaven with references to the history European architecture.

According to Holod and Khan (1997: 12), newly developed language of 'global mosque' allows little movement away from the use of 'formulaic' dome and minaret. According to Grabar (2006), the early period in which Islamic art whose directions were shaped, was followed by a period of construction of ideologically charged meanings. These constructions were gradually turned into clichés as a manifestation of the shared culture of objects (Grabar, 2006). What is crucially missing in these clichés and formulas, however, is that the architectural component of 'dome' is deployed in contemporary mosque architecture merely

as a formal symbolic feature not as a spatial entity. Hence, dome, which plays a crucial role in anchoring the mainstream perception into the popular nostalgia for an authentic imagery as shared by the popular public taste, is then left devoid of its inseparable counterpart, that is to say space and its intrinsic dualities. Hence, elaboration of a new concept of a contemporary mosque and its architectural language requires more than expecting temporarily fashionable remedies of a few architectural superheroes like architectural works by Le Corbusier, father of early modern architecture.

REINTERPRETATION OF MOSQUE ARCHITECTURE, PENDENTIVE DOME AND ITS PRINCIPLES

Even if a universal language has to be created for mosque architecture in a new age, this endeavour could only be accomplished through critically and judiciously elaborating the intangible commonalities and shared principles that are lying within both the rich diversity of mosque architecture as well as the very first and basic examples or typologies of places of Islamic worship. In other words, a new and meaningful language of contemporary mosque design could possibly be achieved by means of exploiting the possibilities of spatial attributes instead of the easily consumable, salient visual or formal features and their stylization that only serves the recreation of a pseudo-iconography of mosque morphology or random reshuffling of mosque typology.

From a critical standpoint, contemporary architecture has hitherto delineated a universal image of mosque. However, based on historic models, there are several versions (Andalusian/Maghribi, Ottoman, Mamluk, Indo-Persian) of this new Islamic image created worldwide. Holod and Khan (1997: 10) assert that 'mosque, as a type, ubiquitous and at once very old and very new' is a culture-bound place of worship, representing local and regional architectural traditions as well as the trans-regional expression of contemporaneity which has acquired a pan-Islamic and worldwide character. Modernity as image and programme had already been embraced in 1920s by republican and statist Turkey and followed by various Middle Eastern countries after World War II (WWII).

The strictures of modernism and international style, challenged by 1960s, were replaced, in time, by the development of cultural and archaeological regionalism.

Along this process, the issues concerning the design of mosques appear to have centred on type of image, building as the locus of arts and crafts, harmonizing scale with visual and acoustical unity. Nonetheless, neither imagery nor unity is the quality which lies beneath the conceptual essence of the mosque. On the contrary, as discussed in 'Double-Space' in Mosque Architecture through its Evolution Journey to Balkans (see page 139), duality is the main drive shaping the spatial typology of mosque architecture.

As a matter of fact, the conceptual essence of a mosque is rooted not in the tangibles given above but in different aspects related to the provision of space for gathering of worshippers, allowing them to be purified through ablution and to be organized along lines facing the direction of Makkah. Thus, obligatory requirements of a mosque seem to be limited to orienting the *mihrab* in *qibla* wall, a prayer hall alongside it, a *mimbar* for *khutbah* on Friday prayers and facilities for ritual ablution (Holod and Khan, 1997: 13). Other elements such as dome and minaret seem to be optional particularly considering the developments in the construction techniques and communication technologies. In such a context, they only serve to offer an Islamic image, primarily shaped by travels and publications that help to propagate the orientalist visual culture on clientele.

Hence, the use of formulaic couple of 'dome and minaret' stands out as attempts to establish an artificial link with the past in our age. Therefore, the link, represented by the current imagery of the mosque typology, with the past is not a real but a deliberately manufactured myth which allowed a new expansion that can be called as pan-Islamic or post-Islamic architecture (Holod and Khan, 1997: 13). This expression draws on various sources such as abstraction of original meanings from particular units and elements, or assigning coined explanations and histories. Nevertheless, such an abstraction inevitably may harbour the potential threat of paving the way towards both a fictive past and a transformation that prevents the analysis of ties with its origins. Consequently, the contemporary viewer seems to have been cut off his links with the conceptual essence of the very idea of mosque by the passage of time and transition from pre- to post-industrial society (Holod and Khan, 1997: 13).

PROPOSAL FOR A NEW GENERIC TYPOLOGY OF PENDENTIVE DOME MOSQUE ARCHITECTURE

As a result of the critical analysis of both the current practice of contemporary mosque architecture and the reinterpretation of the conceptual essences of the typology of mosque, the qualities of **subtlety** and **modesty** stand out as prime characteristics for the future mosque design simply not only because tenets of the faith itself envisage such a low profile, but also because the archetype itself is already exhausted with over-exaggerated formal experiments. Thus, the design notions of 'absence' and 'minimalistic intervention' rather than a dominating formal existence on the surface of the earth seem to be appropriate as an attitude for developing a contemporary typology of mosque architecture. Along this purpose, a hypothetical project is developed as a new generic typology of pendentive dome mosque architecture. As discussed above, it is intended to address the issue of intrinsic dualities of faith and place of worship by this generic archetype. Basic and obligatory constituents are studied through an analysis of a diversity of precedents. Thus, precedents are re-evaluated under the light shed by the criteria of subtlety, simplicity, absence and integration with nature and humans.

Inspired by these divine, yet paradoxically earthly edifices, the project aimed to reconfigure the components of this typology. In other words, our fascination with the unreachably magnificent superstructures of these mosques, on the one hand, and the humble domes of local mosques gradually or unintentionally unified with nature and human touch, on the other, urged the author to explore the ways to transplant the local assets onto a contemporary generic typology. Thus, existing morphological language of mosque architecture and its rich vocabulary were judiciously purified by rereading basic tectonic and spatial principles under the light of current inputs that are conditioned by a series of factors such as social, economic, cultural, technological dynamics, etc. With the intentions of dematerialization and neutral expression of the building, light was put into focus as the only medium to be in between man and his God. Therefore, the mosque and its architectural elements are deliberately reduced to two major components: one tilted roof plane and one vertical (*qibla*) wall plane. Hence, the daylight is filtered through lattice works in between these planes and their perforations.

As a means of abstraction of the first place of worship in history, the *qibla* wall was rendered as the main feature into which *mihrab*, *mimbar* and *dikka* are embedded referring to its role at the Prophet Muhammad (pbuh)'s house. Geometrical theme was based on square in plan and triangle in third dimension to achieve a dynamic sense of cubical double-spaces. Hence, the concept of spherical dome, which only refers to a specific time, geography and technology in history, is replaced by a cubical form enhanced by a double-layer shell of lattice work with references to Islamic patterns.

Principle of duality of space is accomplished by this new cubical space that is raised along the spiritual vertical axis on top of the main prayer hall. Thus, a totally new comprehension of the roof structure or rather 'dome' is achieved by converting the roof to a flat yet tilted plane that is not only perforated in the middle to allow the extension of interior space to its double volume via the cubical shell, but also suspended on one end to liberate and accentuate the *qibla* wall as the focus of open sacred and connected to the ground on the other end to allow people utilizing the roof as a garden gradually elevated towards the sky.

The process of design for this new generic typology can be summarized as follows: the process starts with the definition of an area (sufficient for the intended capacity of users) through simple enclosure elements. These elements are firstly the *qibla* wall aligned perpendicularly to Makkah direction of the selected area; and secondly service spaces in the form of repetitive units on both sides of the *qibla* wall. Following the physical definition of the area, its floor surface is lifted to create a second layer of roof above the selected area. Then, the new lifted roof layer, which is tilted down towards the ground, is fenestrated to allow public entry into the area defined underneath. Finally, the central space of the area is pushed upwards for creating a spiritual axis towards the 'heavens of sky' resulting in double-space that also serves as the source of divine-light providing the transcendental connection of worshippers.

The sacred space of worship is created simply by the inversion of the current concept of a dominating building mass into a concept of unobtrusive planes detached from each other for the mere purpose of minimizing the intervention into the earth. Here, moreover, the structural principles of ancient precedents reversed in accordance with current building technologies. In other words, the structure is based on tensile rather than compressive forces on which former

typologies were based. Here, the tilted plane is carried by steel cables and posts on both sides, allowing the *qibla* wall to be detached and to stand independently. Such a light, minimal and sustainable construction further enhances the intended expression about the building by giving a feeling of weightlessness. Such an approach also complies with the initial ideas of absence and minimal intervention onto the earth.

The sloped plane with its earth-covered roof also performs as a natural insulator. Additionally, the perforation, through which the cubical dome projects, allows heated air to be released from the top pulling the cool air underneath. The fenestrations of the lattice work allow the wind to enter the space for continuous natural ventilation. Moreover, the *qibla* wall may be designed as thermal mass. It also accommodates solar and photovoltaic panels which enable the new mosque typology to be environmentally friendly and sustainable in terms of minimizing the energy use and consumption.

Furthermore, it is intended to address the issues of gendered space through this new typology. Considering the changing circumstances and status of women in Muslim society, the female sections of these worship spaces had to be tackled differently in a new generic typology heading into the future. However, this issue had to be handled very carefully without violating the basic principle of separation of genders yet also without going into the territories of gender discrimination particularly in the 21st century.

Along this purpose, ladies section (*kadinlar mahfili*) is elevated on a mezzanine level that is reached by ramp-ways from both directions, and is relocated from the back of the mosque, which is usually the case in precedents, to the front part of the prayer hall close to the *qibla* wall utilizing the height provided by the tilted ceiling plane so as to create the double-space. In that way, the symbolic position of women in society is elevated and upgraded without creating practical problems in regard to the comfortable contemplation during the worshipping or without violating the well-established religious practices and conventions of gender separation in a place of worship.

In summary many of the projects simply consist of firstly, a floor for a prayer hall transparent on all sides allowing a continuity with surrounding; secondly, a *qibla* wall which embodies basic components of the mosque; thirdly, a tilted ceiling,

which is not only a protective plane over the prayer hall but also a continuation of the surrounding earth surface; and finally a double-space extending towards the sky (Figures 3, 4 and 5). Such a generic archetype is intended to refer back to first places of worship that harbours the bare essentials of original mosques that consisted of a shaded area and a wall showing the sacred direction. The final outcome aims to reach an aura of dignity, an expression of silence as well as a revelation of humility. In this context, a roof that is leaning towards its users, allowing them not only to reach but also to touch itself constitutes the basis of the architectonic design. On the other hand, the cubical central space (which is the essential feature in creation of double-space in this typology) constitutes the heart of the architectural design since it strips the building into its bare essentials; that is to say a filter of light, which provides the communication of worshippers with their divine creator.

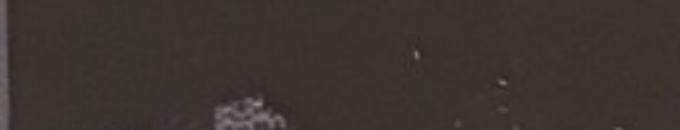
CONCLUSION

This new generic type questions various dichotomies that exclude people from one end of the bipolar scales of all phenomena. In other words, it dissolves the very idea of mosque as an edifice by deconstructing the separations of inside-outside, above-below, sacred-daily, natural-artificial. Consequently, although the genuine essence of the idea of a sacred space of worship of Islam are retained, a new type of both space and physical object, that are not only ecological, humane, friendly, scaled down both to earth and to individual human being, but also allowing them to touch, use, sense and feel the building and its meaning, is proposed via this hypothetical project.

"Concept Design Competition on Mosque Architecture"

DESIGN PRINCIPLES

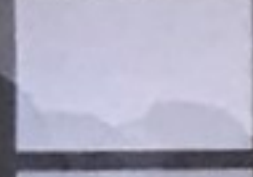
CONCEPT
ECOLOGICAL PRINCIPLES



LIGHT - SHADOW



INTERIOR PERSPECTIVES



GENERIC MODEL

VIEW FROM COURTYARD

QIBLA WALL PERSPECTIVE

Figure 3.
Proposed contemporary
pendentive dome mosque:
Board 1

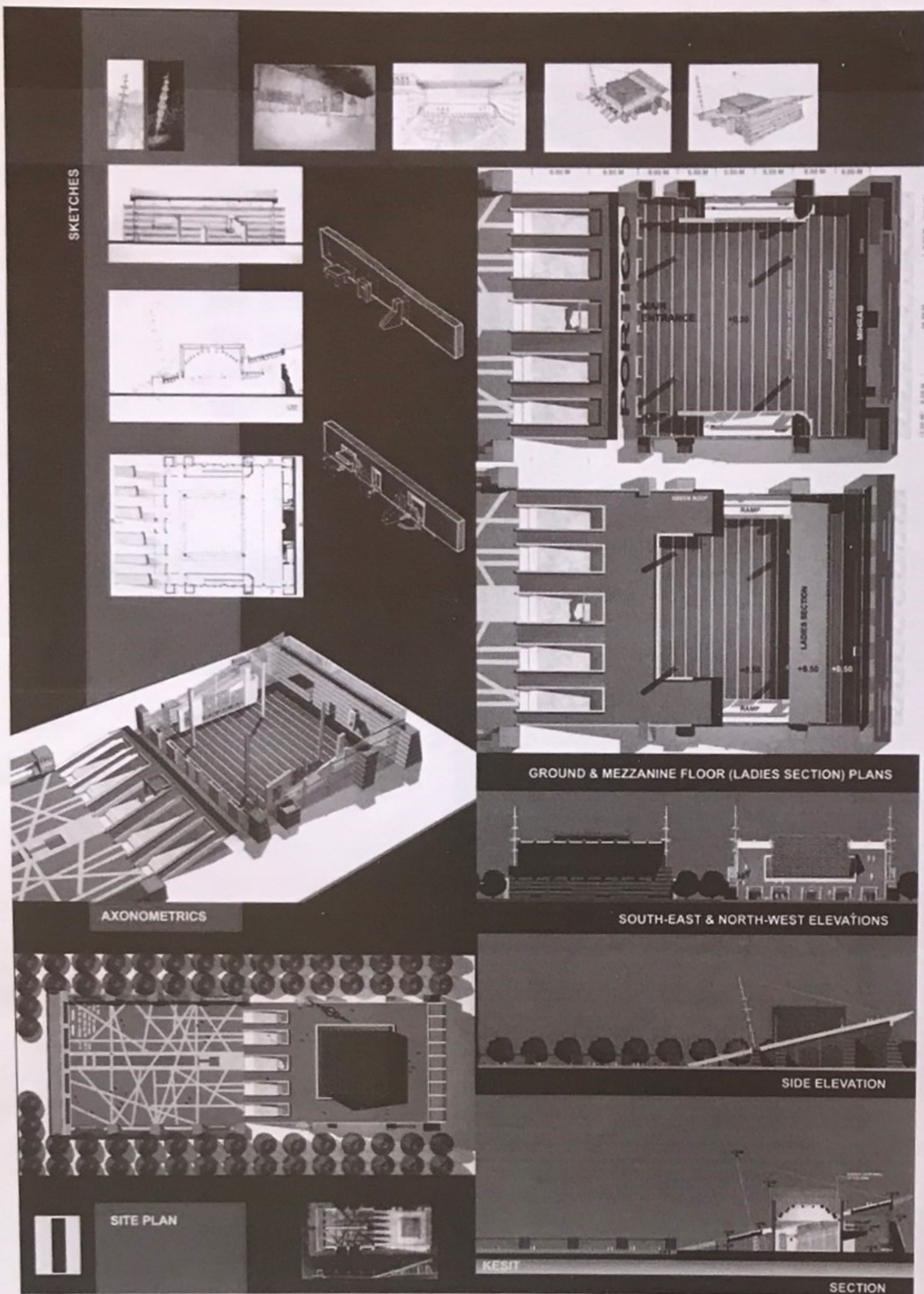


Figure 4.
Proposed contemporary
pendentive dome mosque:
Board 2

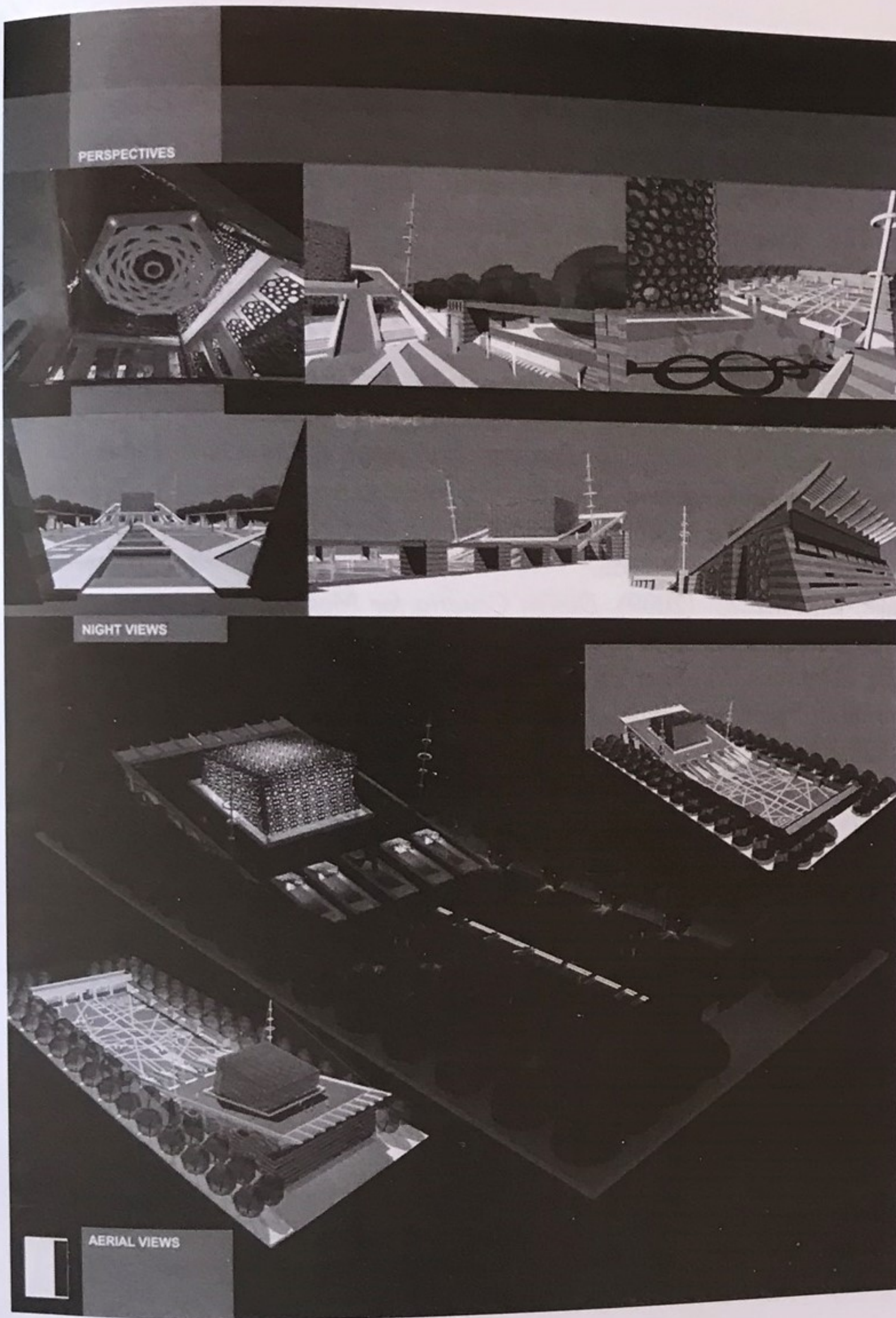


Figure 5.
Proposed contemporary
pendentive dome mosque:
Board 3

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