

## **The Principles of Traditional Design of Mosques**

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**Abstract:** This paper briefly explains the four major types seen in mosques architecture. The main characteristics of each type are identified. The research presents then the author's thoughts concerning current trends in mosques design. Some of the aspects the author regards as improper are highlighted. The paper concludes with a call to take a better care in dealing with our heritage and historic mosques.

### **Introduction**

The design of mosques belongs to the category of art and through its tangible forms, gives expression to the spiritual and ethnic genius of the community.

Although mosque architecture has developed various shapes and styles throughout history depending on time and place, its intrinsic design concept remained basically the same. This continuity was encouraged by specific canons and laws governing the principles of design which were established through the use of symbols and cosmic geometry. Thus, whatever the nature of variations resulting within the overall shape of the mosque it remained true to the immutable order governing the spirit of design upon which the building was conceived. The variations of mosques through history can be categorised into four groups.

### **Type of Mosques Through History**

There are four major types that we can identify and their major characteristics are briefly identified here.

#### **The Courtyard with Hypostyle Galleries**

This typifies the early mosques in Islam and is conceived by defining a plot of land through the erection of an outside wall and making a shaded area along the Qibla wall facing the direction of Makkah. This gesture of defining space and consecrating it to the name of Allah and to his worship is the basis upon which space is converted from the profane to the sacred. This act is significant on the individual scale by the spreading of the prayer rug before prayer. Thus, the prayer rug becomes the worshipping patch upon which the prayer is conducted. Furthermore, the importance of defining space in order for it to be sanctified is symbolically expressed and revealed in the Holy Quran when Allah Almighty orders the

prophet Moses to be unshod as he steps into the sacred valley of Tuwah. (Quran Sura 22, verse 12) This gesture of removing the shoes on entry to the sacred premises of the mosque has become a tradition, which is carried from the past to the present.

The development of the Courtyard Mosque has evolved into a serene and noble architecture as in the design of the Ibn Touloun Mosque in Cairo. The Mosque contains the main courtyard, which is essential in extending the space upwards allowing a heavenly breeze to expand within. The symbolic importance of the courtyard in capturing the natural order within the prayer area is enhanced by its useful function in providing extra space for Friday prayers. The horizontal direction towards Makkah al Mukarramah is emphasized by the extensive arcaded bays flanking the Qibla wall with its mehrab opening symbolically towards Makkah by means of its arched niche. Above the mehrab the flat roof is pierced by a wooden dome giving vertical direction and bringing light from above directly below to the mehrab. The prayer arcade is a repetition of the Qibla Mehrab reinstating this symbolic gateway towards Makkah for the repetitive rows of the (worshippers) Mussaleen. These arcaded colonades also enhanced and regulated the proper alignment of the prayer direction towards Makkah.

The prayer hall with its courtyard is surrounded on the three sides by an outer space (Zeyadah) defined by the inner wall of the mosque and the outer wall separating it from profane urban space. Within the Zeyadah exists the soaring Minaret.

### **The Madrassah or Iwan-type Mosque**

This type is characterized by the large Iwans extending in the four directions from the periphery of the square courtyard. The largest Iwan was established on the side towards the Qibla and was used daily for prayer whereas the remaining three Iwans were used for teaching sessions except for Friday prayers, where they would accommodate the increased number of worshippers. The school accommodation was contained within the remaining space between the adjacent Iwans. This type is best exemplified by the design of the Sultan Hassan Madrassah Mosque in Cairo. However, smaller types with mainly two Iwans existed as in the plan of the famous Qait Bey Mosque in Cairo.

This type of mosque was predominant as a district and community function and was not applicable to the larger (congregational) Friday mosque (Masjid Jammi). Thus the spatial character of this mosque derives its similarity to that of the central space within the traditional house which was referred to as the Q'aa. This space pattern emphasizes the central aspect of the courtyard as a unifying nodal point with the peripheral Iwan as an extension of the center towards the four cardinal directions, the courtyard itself providing the vertical direction towards heaven and the fountain by its reflection of the sky establishing the extension of the vertical axis. Thus, an ordered cosmology of space was established within the archetypal nature of the Iwan-type edifice.

Another main characteristic of the Iwan-type mosque is the way the plan was adapted to have its facades aligned with the existing street patterns while the interior space of the prayer Iwans with their central courtyard were directed towards Makkah. The reconciliation of different axis and alignments in relation to the fixed direction of Makkah produced some of the most ingenious architectural design solutions. A characteristic aspect of such solutions is that of the well-established bent entrance (Magaz), which enhanced the transition from the profane exterior into the sacred interior.

### **The Central Dome Type**

Domes were often used to span the arcades of the later hypostyle-type mosque previously mentioned. Such domes were carried upon spherical pendentives except for the dome directly above the Mehrab in which case the dome was carried through an octagonal drum pierced by windows which was then carried by squinches (half domes) on the four corners to the squared space below. In smaller mosques the Qibla dome would be flanked by two side vaults extending in Iwans while the vaulting arch opposite the Qibla wall would give access to the courtyard.

The predominant use of a huge dome within the prayer hall evolved in the colder climate of Anatolia where it replaced the heavenly space of the central courtyard. The monumental dome, with its uplifting the inspiring effect, simulates in a way the extensive open space which was previously effected by the courtyard. Thus, it was poetically referred to as the "Dome of Heaven" to which it symbolically represented the spatial order of the natural domain. It also expressed the complete cycle by which man has gradually departed from the external open space of nature to the internal closed space of human settlements. It also demonstrated the intrinsic need of man to re-create the divine order within his artifacts and to do so with inspired knowledge and dedicated labor.

The courtyard in this type of mosque became external and separated from the prayer hall acting as a transitional space between the exterior domain and that of the mosque.

Visually, the massive descent of the monumental dome was balanced by the up-soaring effect of the slender minarets ascending on the four extremities of the structure. The Suleimaniyah Mosque in Istanbul is an example of this type.

### **The Composite Type of Mosque**

This type retains the attributes of the three previous types, providing an integration between the main interiorised space, the exteriorised courtyard and the Iwan spaces. The axes of the central courtyard are extended by the four Iwans which, acting as gateways, open on to elaborate main domes. The dome over the mehrab is the highest and largest. It is extended on both sides of the Qibla wall by a multitude of smaller domes forming a series of arcaded spaces for prayer. The Zeyadah of the Central Courtyard-type mosque is re-interpreted within the composite mosque as a form of garden creating an island of peace for contemplation and the recital and reading Quran.

The minarets of this type of mosque have been interiorised by their being placed within the internal visual space of the main courtyard instead of appearing on the external facades such as with the previous types where it enhanced the street architecture by creating focal point within the urban vista. The absence of the minaret on the exterior and its placement within the interior space of the courtyard of the composite mosque is mainly due to the extensive use of covered streets and passage-ways-excluding the visual impact of the minaret from the pedestrian level.

The type can best be demonstrated by the Masjid-I-Shah in Isfahan, Iran. Other similar variations of composite types can be observed in the mosque architecture of India.

### Mosque Design Today

Changing conditions of climate, of urban patterns, of building materials and techniques, and of craftsmanship and labor, all linked with social changes and various cultural influences, have been integrated and adapted within the over-ruling influence of Islamic doctrines and its mode of life.

Until recently, these changes and variations have but enriched the culture of Islam and contributed to sustaining the environment in which it could grow and flourish. The culture was enriched by a variety of forms yet unified by a solidarity of spirit.

It is only recently that the alien culture born of the Industrial Revolution has managed to disrupt the continuity of the traditional environment of Muslim cultures by imposing the secular norms guiding Western culture and technology. By means of the material supremacy of technological progress introduced by the West the superior spiritual values and humane qualities inherent in traditional societies have been set aside by the overwhelming influence of the innovative modern environment.

The nature of certain elements often imposes upon them certain forms which, later on, become established in representing them. For example, hall in a mosque has been shaped into a rectangle aligning towards the Qibla wall, by the demand of worshippers. In the name of modernity and through the desire to make unwarranted innovations, many architects justify converting its rectangular shape into a circle or pentagon. Similarly, the long-standing tradition of having the Imam ascend the minbar from amongst the worshippers is being changed. Lately, the Imam is being forced to speak from a Shakespearean balcony, which is reached from "backstage" by means of a spiral staircase. These new minbar designs are being justified by some recent discovery that previous generations of devout Muslims regretfully allowed the traditional minbar design to penetrate the rows of prayers. It is sad but true to say that in modern times we have excelled in the arrogance of individual opinion-and again architecture is there to prove it.

The question of ornament has been often quite problematic and difficult to explain. In theory a building can exist without ornaments, as intended by the "purists" of modern architecture who believe that any superfluous decorations are unbecoming to a building. This might be acceptable if the ornament in consideration was not integral but of an imposed nature applied superficially to the building. However, if we consider the matter more closely we will realize that patterns tend to arise from the use of manufacture of raw materials. For example, the use of tiles for floors will produce a checkerboard, honeycombed or herring-bone pattern. Again, with the roofing of a building, the wooden joists and beams will create a marked pattern and walls of bricks and stone will give us an initial pattern through the sub-division of their joints. Textiles will also give patterns and textures. Similarly, patterns will evolve in doors, screen and window production. In fact patterns are the crystallization of beauty. If we see nature as beautiful it is in a sense because we are seeing it as a pattern. Even the mighty creation of the planets, when seen as a pattern, becomes an ornament to the observer, expanding his heart due to its beauty.

"Do they not look at the sky above them? How we made it and adorned it. And there are no flaws in it?" (Sura 50 verse 6).

Thus ornamentation and pattern in building do enlighten architectural space and should be an integral function of form. Islamic architecture has genuinely fulfilled that role. It is crucial to mention here that the unique aspect of the Quranic revelation has enabled calligraphy to evolve into an elaborate and elevated art form, making Islamic architecture

unique in the way the written word was applied and integrated with the flowing geometric shapes and floral patterns to adorn almost every element of the mosque.

### Conclusive Remarks

It is hoped that contemporary mosque design will express the quality and beauty that accompanied the buildings former times and to integrate itself within the glory of the past, offering a legacy to our future generations. Let us not be deceived by the contingencies of our times. If it is beyond our architects to improve upon the mastery of our ancestors, let us then discard our vain arrogance and demonstrate our humility by preserving and perpetuating the majesty of our heritage.

### مبادئ التصميم التقليدي للمساجد

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**ملخص البحث:** تستعرض هذه الورقة، بشكل مختصر، الأنواع الرئيسية الأربعة في عمارة المساجد و تبرز الخصائص المميزة لكل نوع على حدى. ثم يعرض المؤلف أفكاره فيما يتعلق بالتصميمات الحالية للمساجد و يبرز بعض الأمور التي يراها غير مناسبة و التي تشاهد الآن في المساجد المقامة حديثا. تخلص هذه الورقة إلى الدعوة إلى الحفاظ على التراث المعماري الإسلامي و الاهتمام به أكثر.

In a hadith Abu Zarr'ah Ghifari (r.a) related, "I asked the Messenger of Allah what was the first house of worship on earth and he replied it was Al Masjid Al Haram (the Makkah). I asked "when built?" He said, "The Masjid Al Haram". I asked, "what was the time between the construction of two houses". He said, "30 years". The Prophet (SAWS) continued "that the center earth is a circle of worship, wherever a Muslim happens to be and when the prayer time is due, that place is his Masjid".

In tune to the verse above, it has been reported the Prophet Adam (peace be on him) was the first man to build the House of Allah at Makkah to be the direction for humanity. It is also reported that Ka'aba is at the spot vertical to the House of Allah to Heaven known as Baitul Ma'mur.

As time passed the children of Adam deviated far way from the straight path of Allah. As a remedy for this, Prophet Noah (peace be on him) spent one hundred and fifty years in an effort to bring humanity back to the straight path with little success. He finally pleaded with Allah to aid the world of the people who denied that "And Noah (Noah) said: My Lord! Leave not one of the disbelievers on the earth". (Al-Qur'an:72: 27). Allah answered Noah's plea and ordered him and the few believers to assemble to the famous Ark. Allah sent the Flood to destroy the entire world, taking with it site of the House of Allah at Makkah.

When Allah decided to fulfill His divine promise to Prophet Ibrahim (peace be on him) in the story we all know well. He ordered him to sacrifice part of his family in the barren land of Makkah (the City of Paran) through the trials of Ibrahim and the champion of