

# Formal Structure in Muslim Ritual Buildings

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## Abstract

Formal structure sources in ritual buildings that hinged on culture, geography, climate and aboriginal traditional architecture are variable. Repeat became an integral part and symbol of religion with creation and consistency of formal structures in each ordinance. In the other word form in ritual buildings considered as a sacred term. Formal structure doesn't depend on geography, climate and habitat by creating such a cover and this manner continued forcedly. Each of the religions such as Hindu, Buddhist and Christian has similar formal structures in ritual buildings regardless of geographical placement. The Islamic ritual buildings accept a variable formal structure by the way. So the concept of form sanctity doesn't boil down in Islamic ritual buildings. Finding the roots of formal structure variation in Islamic ritual buildings is the object of current research. The methodology hinged on case study survey and takes the account of characteristic features of precedent mosques in variant geographic regions. Jameh Mosque of Isfahan, Shah-Jahan Jameh Mosque of Indian subcontinent and the Great mosque of Xi'an in China selected as case studies. Geographical and habitat variations are imminent. Therefore the solution is bringing characteristic features up to narrow theory down. This manner asserts that mosque forms picked their templates from geographical and habitat variations. Survey on formal structure roots at mentioned samples revealed that habitat of the same geographic region bring about these characteristics. Samples raised the profiles of space organizing, construction technology, decorating, color and build index. Habitat factor in each region has direct impact on formal structure of Islamic ritual buildings.

## Keywords

Formal structure of the mosque, Mosque of Isfahan, Shah Jahan Mosque in India, Mosque of Xi'an in China.

### Introduction

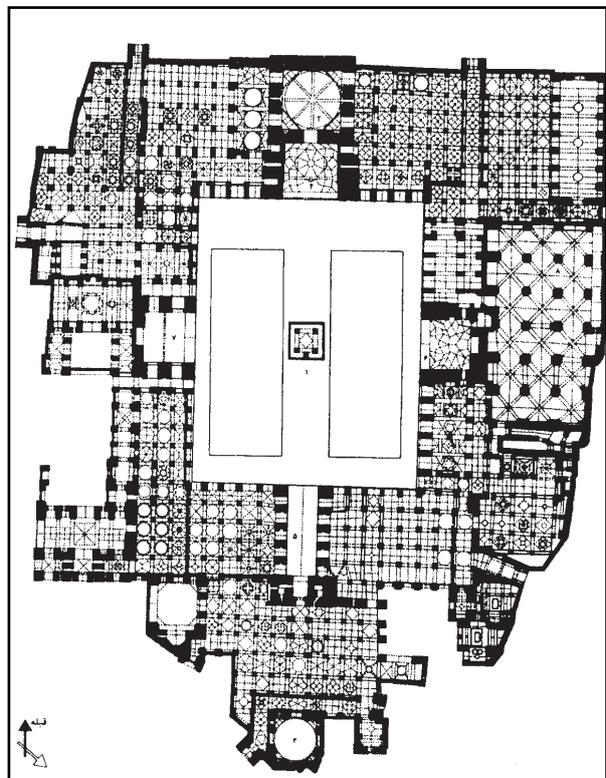
Ritual buildings considered sacred from ancient times to the present. Form of them always commemorated rituals and addressed as a sign. That's why the everlasting of human rituals perpetuated by their formal structure continuity. Form continuity of ritual buildings turned them to a ritual signs and attuned as integral parts. Therefore the formal structure of ritual buildings considered sacred. This perception of formal structure reflected clearly in continuity because the use of certain forms in each religion is part of it. In the other word practice a distinctive form or lack of employing it implies on compliance and non-compliance of a certain procedure. The named form which accepted a ritual aspect, postulated sacred on balance. The importance of this sacred form bounded out of geographical changes influence. Formal structure in architecture built around culture, habitat and climate and so on. But when faced with rituals, gives up and complies with imposed structure. Plenty examples of ritual buildings with a constant formal structure teemed in different religions and in varied and widespread geographies. For example in the vast geographical range of Hindu, Buddhist or Christian raised the profile of ritual buildings which coordinated with spectacular formal structure of each one. But formal structure of Muslim ritual buildings has a different explanation. Variation is the most important character in Islamic ritual building and superseded in other religions. Spring of this variation is the main question. It is assume that named variation rooted in habitat diversity. But the fact of circumstance needs a separate investigation. Asserting the quiddity of form variance and causes are the subject of this paper. Since variation and its roots must be prove principally. Mosques as supreme of Islamic ritual buildings bound up with temples of Hindu or Buddhist and churches of Christian. Selected samples in varied geographies with special culture, aboriginal architecture, climate and ... of the same habitat; pinned down to assert the theory. In this case non-similar formal structure and endemic patterning in Islamic ritual buildings came to heel. Jameh mosque of Isfahan from Iranian Plateau, Shah-Jahan Jameh Mosque of Indian subcontinent and the Great mosque of Xi'an in China selected as case studies. Formal structure roots and endemic characteristic of them pointed out by this research.

### Hypothesis

Structure variation in Islamic ritual buildings (mosques) built on habitat variations.

### Iranian Plateau, Jameh Mosque of Isfahan

Jameh Mosque of Isfahan is the perfect sample of Iranian mosques with four contrasting porches (iwans) opening onto inner court (Miansarai). (Figs. 1) The first plan of mosque was in conformity with hypostyle seraglio (Bumoslemi) and built in 773. The excavations pinpointed its position too. Fundamental changes occurred in the architecture of mosque during 5th and 6th centuries of Islamic Calendar and made it to a four porches (iwans). Thus simple and continuous space of bedchambers and inner courts broke into porches and 2 domes. After this time having 4 porches became a fundamental characteristic of mosque building in Iran (Pirnia, 2003:144). The spaces of Jameh mosque



Figs.1. Jameh Mosque of Isfahan. Source: Pirnia, 2003: 179. Photo: Seyed Amir Mansouri, 2008.

surveyed individually and occasionally in combination with aboriginal architecture of pre-Islamic era to extrude the formal structure. The spatial elements of mosque such as inner court, hypostyle seraglio, porches, domes and campanile compared with endemic architecture form of Iran. The rooms also built around inner courts in Ilami houses of Shush region about 4 thousand years ago. The Hypostyle seraglios form of mosques inspired of the same pattern. It ranges from hypostyle chambers of TepeHasanlu (around 800-1000 years Before Christ) to perfect and glorious samples of Archæmenid halls. Taq-e Kisra from Sassanid era presumably is the most magnificent built porch. Also it is a distinctive pattern for porch formal structure in mosques. Although the porches that faced to inner courts appeared in Parthian buildings such as Mount Khaje and the most Sassanid constructions like Sarvestan Palace. The penthouses (chartaqi) with fire temple function such as Baze-hoor or Niasar penthouse scattered in most regions of Iran. The penthouse (chartaqi) became a pattern for dome formal structure in the architecture of Iran mosques. The campanile also survived as an ancient element of Iran architecture. Firuzabad tower is the specific example of campanile. These patterns individually or in combination with other elements formed formal structures of Iranian mosques.

### Indian subcontinent, Great Mosque of Delhi (Shah-Jahan Mosque)

Great Mosque of Delhi or Shah-Jahan is the perfect example of Indian mosques. This mosque commissioned by Shah-Jahan between 1644 and 1658. (Michel, 2001, 270) The mosque lied on a high platform that verged on Bazar and surrounded neighborhoods. The marked two-sided entries placed at three directions and the glorious steps geared access up. (Figs.2&3) The general view of seraglio and domes converted into three divisions. This building inspired of four-porch pattern especially in placement of marked entries. Shallow porticoes around the inner yard connected them. The removal of external walls of porticoes around inner court caused by standing on platform and verging on surrounded landscapes. Therefore a wide vision arranged around inner court and in the shelter of porticoes. Most of Indian mosques have inner courts and around them covered by shallow porticoes. In some mosques such as Great Mosque of Delhi, the external wall of porticoes omitted. Wide-spread view to take the advantage of surrounding

scenery geared up with regard on Indian mosques placement. Indian mosques have unique porch-like entries around inner courts. These two-sided entries faced to inner court and outside. Access to Indian mosque entries delegated to wide stairways. This characteristic with placing mosque on platform and distinctive entries come up to a sense of greatness. Stone decorations of mosques consist of verses lines of Quran, stories, lyrics, endowments or devotion letters. Stone lattices also include of shading, plant and geometric pictograms like flower, bush and arabesque. Formal structure in Indian Islamic ritual buildings must be surveyed on Indian temples. Indian temple prototypes built as caves on mounts. High altitude placement, slashing stairways and dividing space into 3 parts: inner, columns and head sculptures all in all are the charac-



Fig.2. Seraglio that faced to Kebab, Great Mosque of Delhi (Shah-Jahan), photo: GhoranErfani, 2012

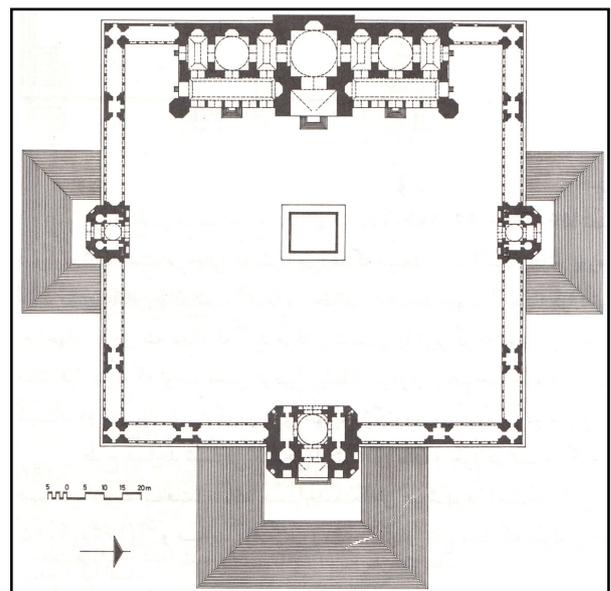


Fig.3. Great Mosque of Delhi plan (Delhi, Shah-Jahan-Abad, Jameh Mosque, the ground floor plan) Source: Koch, 1994: 119.

teristics of cave temples (Fig.4 -6). During the time, last Indian temples followed hard on cave temples heel and built on natural or synthetic platforms. Also wide stairways geared their access up. Distinctive entries are the other trait of them. The use of stone statues like human, animal and abstract is the obvious trait of Indian temples. Indian endemic architectural traits except use of statues make the basis of formal structure in Indian mosques.



Fig.4. Ternary divisions in one of Ajanta Caves, 2th century B.C., Photo: Ehsan Dizani, 2012.



Fig.5. Construction of temples on natural altitudes and Stairways creation, Ellora caves, between 6th and 10th centuries, Photo: Ehsan Dizani, 2012.

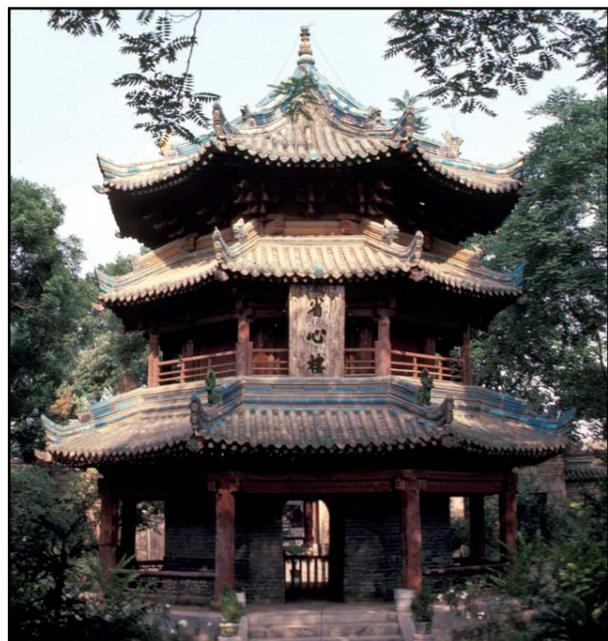
Fig.6. Platform placement, distinctive entry, statues and stone decorations in Ellora temple, Photo: Ehsan Dizani, 2012.



### China, Great Mosque of Xi'an

The city of Xi'an was the ancient capital of China and Great Mosque of Xi'an (724 B.C. and 124 Islamic Calendar) is the most famous Islamic mosque in this country. This great and historical complex lied down in residential and Muslim settlement region. It is dating to Tang Dynasty based on actual notes. This legendry mosque developed and renovated during Song, Yuan, Ming and Qing Dynasties. This great mosque covered an area over 13000 sq. meters and beyond 6000 sq. meters of it stretched out by building. This quadrangular building divided to four courts from east to west (Fig.7&8); (The Guidebook of Xian Great Mosque). In a comparative analysis one of the historical temples of China named Confucius Temple in Nanjing City studied to correlate the pattern of Great Mosque of Xi'an with traditional building of China. Confucius Temple for the first time erected by Song Dynasty in 1034 B.C. (425 Islamic Calendar). The style of temple and surrounded buildings is based on the constructions of 1869 before Japanese attack to Nanjing and burning the temple in 1937. The current building rehabilitated based on original stone works of 1986. Temple also has 3 continuous courts (Fig.9&10). Comparative analysis of Confucius Temple and Great Mosque of Xi'an's forms pinpointed to a regular foursquare pattern in spatial organization. But mosque stretched from east to the west and faced to Kebablah. Architectural spaces of temple and mosque lied down as linear form on a

Fig.7. Xi'an Mosque Minaret, Source: www.archnet.org.



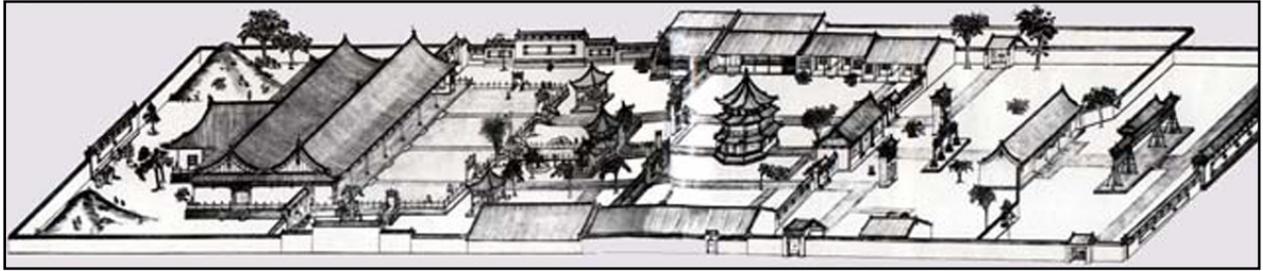


Fig.8. Great Mosque of Xi'an with eastern and western stretch, Source: www.archnet.org.

predefined axis. So it takes over an axial symmetry from entry gate to the terminal spot of space. The first gate of mosque is in prime court but the first entry of temple faced to arrival space. Creation of continuous courts kept pace with spatial composition of architectural spaces in temple and mosque. Main halls faced to courts in both. Lateral spaces of Great Mosque of Xi'an such as rust and drum tower compared to Confucius Temple, changed their functions and converted to minaret or monuments. Even exhibitions around courts in teaching temple of Confucius and manuscripts in Mosque contin-

ued this pattern. Architectural forms in buildings and their details such as gardening, memorial gates, entries and ... are similar too. Construction technology and used profiles are the same. Decorations as significant characters of Chinese architecture turned out in both. The main difference in architectural decorations is the presence of human idols and statues in Confucius Temple. These elements superseded in mosque. The particular difference of Great Mosque of Xi'an with named sample is full use of Islamic lines in Mosque decoration.



Fig.9. The third court of Confucius Temple, Nanjing, Hall of Great Perfection, Photo: Ehsan Dizani, 2010.



Fig.10. The second court of Confucius Temple, Nanjing, Photo: Ehsan Dizani, 2010.

### Conclusion

The comparative analysis tracked on formal structures of case studies and under the banner of aboriginal architecture to nail down the conclusion. Results pinpointed in table below. Formal structure spatial elements of Jameh mosque in Isfahan compared with some pre-Islamic buildings. The inner court as a template bounded with ancient Ilami buildings and carried over on next circuits. Also hypostyle seraglio inspired from columns of Persian halls. The space of porch extruded independently from Parthian era and the porch that faced to inner court existed at the same period. The form of domes traced of fire temples but their direction lied over Kebab. The campanile also existed as an ancient element of Persian architecture. Construction technologies and used profiles at the beginning of Islamic era were similar with aboriginal architecture but boosted by significant developments in future. So formal structure in Jame Mosque of Isfahan takes endemic patterns of pre-Islamic architecture on the board. The extruded traits of Indian temple form in Great Mosque of Delhi consist of ternary divisions, placement on a platform, use the stairways to induce glory and take the advantage of stone decorations. Similar characteristics with primitive mosques also include of seraglio faced to Kebab, entry to inner court and the central position of mosque. And the

adopted feature from Persian architecture covers the four porch pattern. This pattern raised in this mosque like distinctive two-sided entries around the inner court. So the formal structure in this mosque takes pattern from Indian temples and other Islamic civilization’s architecture. Pattern of Great Mosque of Xi’an in comparison with primitive mosques is more functional. Eastern-Western direction and presence of Islamic lines in decorations of Xi’an Great Mosque are the most important patterns gained by primitive mosques. The pattern of this mosque highlighted some features in comparison with temples. These features consist of similar plan composition, axial layout of spaces, similar hierarchical access, similar colors-profiles and construction technology, use of natural and synthetic elements and similar traditional decorations. Human idols and statues removal is the main difference of mosque with temple. Comparative analysis of Xi’an Great Mosque with primitive mosque and temples of China pointed to derivation of architectural form from traditional Chinese temples. The effect of other mosques limited to direction to Kelbah, Islamic lines and change the function of traditional spaces. So it seems that architectural formal structure of Xi’an Great Mosque took from aboriginal architecture of China. Shapes in ritual buildings of pre-Islamic religions have a self-righteous significance but from Islamic view point pre-Islamic shapes weren’t repeat if they had intrinsic significance. Then Islam doesn’t stock sanity up into shapes and gave liberty to followers for selecting the shape of ritual buildings such as mosques. Therefore the followers of new religion (Islam) picked pre-familiar sacred and native shapes up. For example in Iran Plateau shapes like hypostyle halls, penthouses (chartaqi) and porches singled out. In cases such as spatial constitution, placement on platform and use stairs in temples of India they took pattern from 3-part forms. Architectural pattern of China mosques also followed similar combinations. Plan, axial placements of spaces, natural and artificial elements of pre-Islamic temples in China come up to this conclusion. But self-righteous significance in other religions couldn’t pave the way for more changes in ritual buildings regard to interest of followers or their habitats. So in different points built similar shapes for their ritual buildings such as churches, Buddhist and Hindu temples.

Table1. Comparative analysis of form pattern’s origin between case studies. Source: author.

Explanations	China	Indian subcontinent	Iranian Plateau	Case studies
				Formal structure traits
Direction to Kelbah.	1	1	1	Spatial organization pattern
	1	1	1	Construction technology pattern
Human, animal and abstractidols removal, Islamic lines embedment and use of combinational images with endemic origin	3	3	3	Decoration pattern
	1	1	1	Color pattern
	1	1	1	Profile pattern
1 -Endemic formal structure2 -non-endemic formal structure3 -endemic and non-endemic combinational formal structure				

**Result**

The formal structure of ritual buildings in most religions persuaded to a symbol for them. This imposed form repeated in other geographies and habitats. But geographical and habitat factors impressed formal structure of mosques. Form reorganized during time as a sign of current habitat. In the other hand Islam hasn’t limited shape outline. That’s why people of each region gone to familiar memories to create new endemic ritual buildings. Comparative analysis of sample mosques in different habitats showed that color, profile, spatial organization and construction technology patterns affected directly by aboriginal formal structure. But decoration pattern accompanied with human, animal and abstract idols removal to keep Islamic rulings. These features superseded by Islamic lines and combinational images with endemic and Islamic origin (see Table1). Therefore formal structure in Islamic ritual buildings kept pace with habitat and varies by habitat diversities.

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