

## Investigating the Interactions of Islamic Teaching affecting Airport Design

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### Abstract

The Shiite men consider themselves responsible to pay attention to principles and beliefs of Shiite faith adhering to them; hence, Iranian architecture is full of the spirit and nature of Shia so that it has been effective in both physical and sensational-spiritual dimensions. There has been less attention to designs based on the principles of Islamic-Iranian architecture in current communities. In contemporary architecture, some terms such as Muqarnas works, Nari arch, and Qubah (dome) are unfamiliar words. There are a few number of buildings in contemporary architecture of Iran in which both islamic and iranian principles are applied meanwhile responding to accurate functions and performances of today. The current common architecture in Iran has originated from western culture without paying attention to Iranian culture and traditions. Accordingly, it is essential to pay attention to design method of some places such as airport where numerous passengers are in every day. It is possible to introduce culture and indigenous and climatic components of the country to foreign passengers using Islamic-Iranian architecture components in designs giving an Islamic-Iranian face to cities and some important structures such as airport. In places such as airports that passengers should be there for at least one hour before the flight and sometimes there are delays in flights, using various solutions are required to reduce different mental and spiritual pressures. This study was conducted using analytical method and library method for data collection in order to examine factors affecting Islamic-Iranian architecture in designing an airport considering the Islamic-Iranian architecture components.

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## 1. Introduction

Airport is a collection of various establishments and equipment that have been installed to provide facilities for aerial transportations. As maritime transportation requires port, airport also resembles an aerial port that is essential for aerial transportation [1]. In places such as airports that passengers should be there for at least one hour before the flight and sometimes there are delays in flights, using various solutions are required to reduce different mental and spiritual pressures (studying increasing factors and solutions). Various factors can be used in the space of an airport to design a suitable and comfortable space without stress and mental tensions. Passengers expect the terminal full of convenient and attractive facilities and they be treated with a good behavior without any waste of time. Hence, the design of passenger terminal should be applied with beautiful architecture [2]. Iranian architecture has some specifications that are more important compared to architecture of other countries; some specifications such as suitable design, accurate calculations, the correct form of coverage, observing technical and scientific points in building, high porches, long columns, and various decorations that are simple but introducing magnificent architecture of Iran [3]. Climatic, ethnic, and cultural aspects of Iran have led to diversity in human structures in scope of housing and other buildings in Iran. Use of various materials, different styles, and numerous functions of a building that exists still in many of old houses are observed in Iran. It seems that accurate recognition of what is done in the past and identifying traditional principles and regulations of architecture and making them physical would pave the way to reach our objective. All of architects are responsible to take necessary steps referring to original references and precious cases. Principles of confidentiality, hierarchy, coordination and balance, connectedness to nature, geometry, etc. are those principles that have been forgotten today; so, it will be a solution if we recognize them and use them. In case of sayings about lack of identity of modern architecture of Iran, it is possible to consider its underlying problem as separations from past architecture besides westernization, lack of plan, lack of strong thoughts and lack of correct understanding of contemporary architectures [4]. This study was conducted to identify physical and spiritual factors that are required in an airport studying a part of Iranian-Islamic architecture components and analyzing possible effects of these components on design of airport in order to achieve an Iranian-Islamic architecture pattern in modern structures and spaces. Therefore, art origin is different in various viewpoints; if we consider architecture as building art then a definition of art can help us. In general, art begins from an inspiring source and then this inspiration will be embodied in a process named creativity (creation) and an artwork will be created. Undoubtedly, this creativity follows a specific objective or ideal [5]. Undoubtedly, Islamic architecture owes to Islamic-Iranian architecture or better saying Shiite architecture at a specific period. The role of persian architects in spreading of islam is not only mentioned in the shiite texts but also explicit in all major Islamic and non-islamic art history. Inspiration of many huge monuments of the islamic world e.x.Great Mosque of Mecca (Masjed Al-haram) from Shiite architecture art indicates the high depth of this scope in art of Islamic world. Many believe there are some intentions wanting to remove this subtle Shiite view from architecture of Islam world [6].

## 2. Literature Review

One of the aspects emphasized by Islam is respect for nature and benefiting from environmental abilities to create comfort for residents that is recognized equal to modern “sustainable architecture”. Considering the energy crisis, the necessity of studying on sustainable architecture through Islamic architecture philosophy (as a sustainable and persistent architecture) was understood and emphasized after determining Islamic architecture philosophy of Iran [7].

Islamic architecture is originated from Quran language indicating richness of Islam civilization benefiting from spirituality essence. In this case, belief in theism and trust in Islamic teachings is manifested in Islamic architecture as the aesthetics in Islam religion. Components remained from the time before the

advent of Islam indicates that when human recognized the art thousands years ago designed the districted animas in different colors on walls in order to show his realities and skills.

Great leader of Islamic Revolution tells the world Muslims based on his recognition of the situation and role of mosques, “If the shrine and kaaba and the mosque and altar are not the bastion of the soldiers of Allah and defenders of the shrine and the sanctity of the prophets, where is their shelter then?”[8].

Imam Khomeini states to reveal tricks of enemies and basic role of mosques in neutralizing their conspiracies, “They are afraid of mosques; I should take my responsibly and tell you. You! academic persons! Students! go to mosques! There is bunker and bunkers should be filled by you” [8].

In fact, art has been existed before language and literature in human life as a tool to make relationship. When civilization became apparent then a serious movement was created in providing existing skills that can be seen now in islamic and non-islamic countries that some of them go back to the seventh millennium BC. However, architecture and visual arts that was created by human on objects or buildings to show his art more attracted the attention of human to itself compared to other arts [9].

Architecture was an art indicated identity and culture in addition to colorful diversities so that architecture manifestation is well seen in pictures or carvings. Colorful and black and white carvings with old pictures could be seen in palaces constructed during umayyad era. Manuscripts, dishes, or furnishings that are precious because of their colorful diversities and type of their art indicate the relationship between human and art. Therefore, there should be a difference between architecture and architecture art, which are two distinguished concepts. In architecture, the meaning of construction is in favor of social task and service providing.

There have been various theories and discussions about the airport and its design using different factors, elements and regulations; there are also written books and papers in this context directly used by the authors. There are various factors affecting the spirit and mind of passenger which time is the first. The time that passengers should wait at airport; there would be sometimes various stresses and concerns such as aerophobia; hence, it is essential to design a waiting space that makes them calm morally and spiritually [10]. Architecture, mindedness, has been always a tool to show thoughts, attitude and beliefs of every nation. The footprint of principles and worldview rule of the culture of Iran can be well seen in traditional architecture of Iran [4]. Iranian architecture is one of the richest samples of native architecture with various prominent formic achievements in the world transiting from Islamic period to one of successful samples of conceptual architecture [11]. What has attracted the attention of researchers and orientalists at the first look to architecture of some buildings such as Imam Mosque of Isfahan, Sheikh Lotfollah Mosque, and other monuments in this era is their spatial miracle and motifs that have decorated the walls and doors of this architecture [12]. As Astyrln writes in his book “Isfahan as a paradise”, “total encryption of the message of these monuments is subjected to discovery of motifs that have decorated the vast surface of tiles; are these just decorations or convey some messages like symbols? If these levels are seen as mirrors, they will show another world” [13].

### 3. Physical plan of airport project

A good plan for terminal requires a suitable combination in which, various details are arranged in a way that is adapted with natural behavior and services of each of requirements and the category of activities and works that are correlated in terms of functioning [2]. Following table indicates categorizing of spaces existing at the airport and airport site.

Table 1. Categorizing spaces existing at the airport and airport site [2]

spaces existing at the airport	first part	departure area	<p>It contains a set of parts considered for take-off and landing as well as ground movement of planes. The movement environment consists of runways, planes routes, and stop spaces</p> <p>It consists of buildings, and devices to accept planes and their components. It can be stated that these equipment changes an airport to a commercial airport. In other words, flight field or area is a complex to accept planes and this complex can just have required technical equipment to facilitate planes traffic. Technical equipment may not exist under any circumstances. If this equipment is completed with commercial equipment called final equipment, flight field will become a airport.</p> <p>it is essential to anticipate the area around the flight field in a way that it is possible for planes to take-off or land under acceptable safety conditions. This point is called open space around the airport.</p> <p>Collection of buildings, equipment and establishments that have been banned with physical boundaries or safety control stations are separated from lands privacy and levels related to plane use. This complex provides services to urban passengers and planes from stop places.</p> <p>the collection of lands, privacies, establishments and equipment are directly and physically in relation with services related to take-off and landing of plane with banned boundary separating safety control stations and ground sector.</p>
	second part	airport equipment	
	third part	aerial space of airport	
Airport site categorization	first part	ground sector	
	second part	aerial sector	

Following table indicates categorizing of different type of terminal patterns at surface and height:

Table 3. Categorizing terminal patterns at height [2]

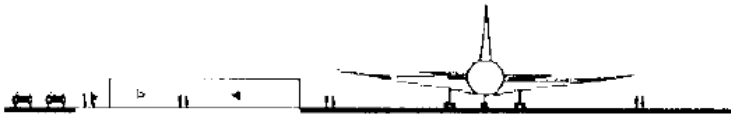
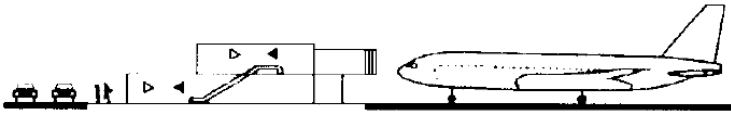
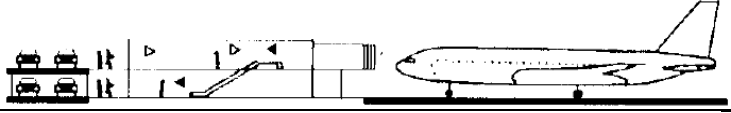
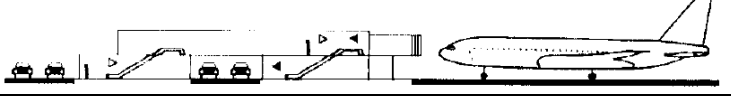
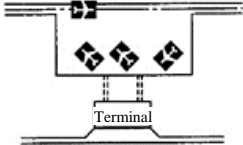
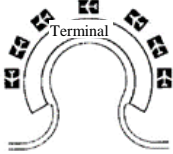
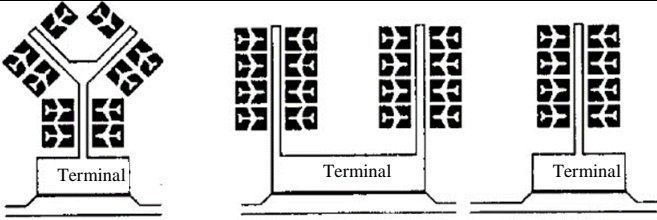
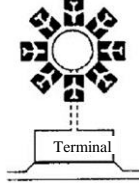


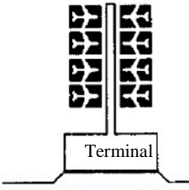
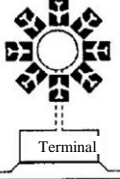
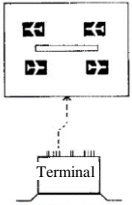

types of terminal patterns at height	Models	Form
	one-story terminal	
	one and half-story terminal	
	two-story terminal	
	two-story terminal and specific mode	

Table 2. Categorizing terminal patterns in surface [2]

Models	form
simple model	
linear model and its types	  
pier model (finger)	  
satellite model	
terminal far away the station	
unitary model	

Islamic-Iranian architecture

In original Islamic-Iranian architecture, we can see the importance of “need” to create “from” in design and the art of Iranian architects. Forms that sometimes exhibit a unique creativity and technology indicate the ability of Iranian architects (such as Tafreshi Rad, Riazi, Golsefid). Iran’s architecture consists of some variables including the principle of beneficiality, avoiding inanity, purposefulness, symbolic work and transparency, prioritization, hierarchy, and perfectionism obtained from logical reasoning; Iranian architecture has used the mentioned variables to remind some cultural values and principles of Islam such as theism, having goal and prosperity, social correlation, personal identity, respect and dignity, avoiding profusion and futility, and reminding valuable concepts to space users [14]. Some principles have been applied in traditional architecture of Iran that is rooted in his attitude toward the world; paying attention to bases is equal to paying attention to principles. Understanding a principle means understanding the concept of that principle that directs the human society civilization and art based on a common culture, opinion and literacy [15].

Figure 1. Suggested trend for Islamic-Iranian architecture design



Reference: studying principles of Islamic-Iranian architecture form past until now

Therefore, in original Islamic-Iranian architecture design first the space was created (to meet needs of residents) the form, while in modern Iranian architecture space and need are created based on the space and architects create a work as a monument creator; this work has a short life depending on the technology. However, in original Islamic-Iranian architecture, architects created a space or monument using creative designs (e.x. Tafreshirad, Riazi, Golsefid).

Table 4. Space samples in original Islamic-Iranian architecture

need	solution	space
privacy maintenance	creating hierarchies	Keryas, Hashti, Takhtgah
	view failure in paths	Dalan (corridor)
	porous openings	Orsi
	room situation	summer room
	space cooler	windcatcher
controlling summer heat	creating shadow on the roof	canopy concave
	creating shadow in open space	porch
controlling winter cold	room situation	winter room
	space heater	fireplace and sitting room

Following diagram indicates conceptual model to provide Islamic-Iranian architecture that can be used to design airport with Islamic-Iranian architecture components.

Religious arts, in particular the Islamic mosque discussed in this paper, have a feature in common that is their symbolic aspect because in all of these arts the world is a shadow of reality and excellent status [16].

Following table indicates some of Islamic-Iranian architecture components and their effects on design space. It has been tried to give some suggestions in order to use these components in airport design to introduce airport project as a model of Islamic-Iranian architecture.

Figure 2. Conceptual model of Islamic-Iranian culture training architecture to use in airport project

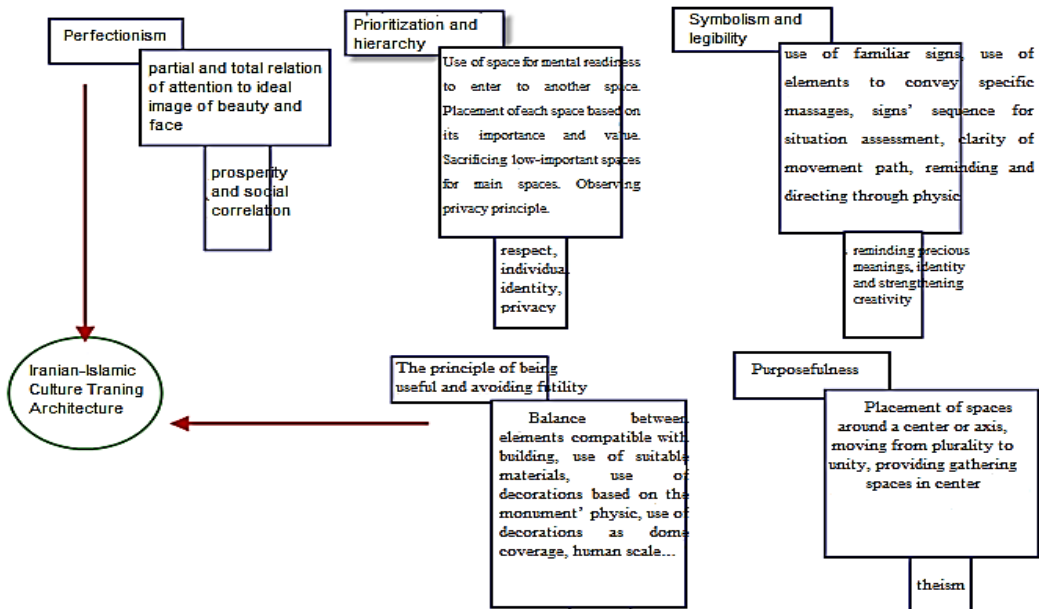




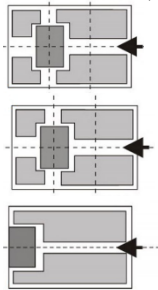







Table 5. Conceptual model to present Islamic-Iranian culture training architecture

Elements used in design	Name	Effects on design of airport space	Suggestion
Day lighting through roof	(the Broujerdis' house) 	preventing from direct radiation to some spaces [17]	it can be used in daylighting of large central spaces
Hashti (vestibule)	(interior design and traditional architecture of Iran during history) 	creating pause, a space for waiting, partition and failure of light intensity [17]	it can be placed after building entrance partitioning airport spaces
Pair elements (symmetry)	(Domiri Ganji, M., 2014) 	Creating glory and greatness for large buildings [17]	it is possible to use this feature in plane halls.
Tile	(Karami, M, 2011) 	beauty and thermal insulation and building reinforcement	it can be used in airport guide boards and entrance
Iranian garden	(pattern of Iranian gardens, 2014) 	creating order and fitness in green space [18]	use of persian garden in landscapes around the airport building



Arabesque pattern	(Fallahfar, S., Painting and color history in Iran architecture) 	Repetitive and harmonic motions of arabesque patterns of human recurrence to unity	these patterns can be used in halls' walls of airport
Orsi (sash)	(Orsi windows in Iranian architecture, 2014) 	beauty in facade, reducing radiation intensity	in facade of airport building
use of fountain	secret of water supply in Fin garden of Kashan, Iran [19] 	it is soulful and symbolizes purity and brightness	can be used in external and internal space of airport such as waiting room
Muqarnas	(history of Muqarnas during Safavid+picture, 2014) 	light effect	in roof and entrance of airport
Polished floors and walls	(Doomiri Ganji, 2014) 	light attraction and reflection	in floor of corridors and walls

- The objective and intent of contractors and architects are in conflict. Islamic architecture is used by divine intention and relation with absolute light.
- In Islamic architecture, curved lines (Qubah (dome), Mihrab, Minarah, etc.) are seen and figural representation is avoided; in exchange, Quran verses are used in monuments [12].
- Light combination in Islamic architecture is in a way that the building is full of light (using mirrors) manifesting the Absolute Light of God.
- The applied colors in Islamic architecture are happy colors, in particular blue and green.
- The space of Islamic architecture has been created in a way that stimulates person to pray the God making human calm. In fact, the space is full of positive and divine energies in Islamic architecture [20][21].

#### 4. Conclusion

One of the main important viewpoints and objectives of original Islamic-Iranian architects is valuing the nature of human needs so that this viewpoint led to creation of a suitable space that meet human needs of residents based on their religion, culture and climate of residence.

They designed the space and form according to residents' needs and finally the constructed building not only could meet residents' needs but also have innovative and considerable forms indicating the art and creativity of Iranian architects. Moreover, construction technology of these monuments is considerable in attention to modern buildings. Obviously, the goal of architects is to meet mental and spiritual needs of residents and users. Therefore, efflorescence point of architecture in Islamic Iran is where it provides the needs of the muslim iranian and a change in architects' approach is required. It means that the approach of "need, space, and form" should be replaced with "form, space, and architecture".

There are numerous effective factors in Iranian-Islamic architecture. Considering these factors can help us make Iranian architecture closer to this pattern of architecture.

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