

The Adoption of Central Courtyard as a Traditional Archetype in Contemporary Architecture of Iran

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Abstract: Islamic-Iranian identity is one of the most controversial issues in contemporary architecture of Iran. The literature review of the research shows that Iranian contemporary architects pay much attention to traditional archetypes in order to meet a worthy architecture which has a meaningful connection to infinite history of ancient Iran in which eye-catching masterpieces can be seen easily. "Central courtyard" is one of the most important parts of Iranian traditional architecture. It plays a crucial role to unify architectural elements and log of spaces in traditional architecture of Iran. Therefore it considers as a key element in traditional architecture which can inspire contemporary architects. The main question of the research is: What is the role of central courtyard in traditional architecture of Iran? And what are the impacts of central courtyard-as a traditional archetype-in contemporary architecture of Iran? In order to answer these questions case study method and compound strategies have adopted for inference mechanism. Forty numbers of Iranian outstanding buildings have been selected as case studies and the role of central courtyard examines in these samples. The research results show that central courtyard has a lot to do with building function and its constructional technology.

Key words: Archetype • Central Courtyard • Contemporary Architecture of Iran • Islamic-Iranian identity

INTRODUCTION

Paying attention to the past and using archetypes of traditional architecture is not repetition of the past or non-responding to the needs of today, but can inspire contemporary artists and architects and be a readout of this type of architecture. Emergence of arts depends on a specific time and place but if a phenomenon is established as an art and is used during generations, it will consider a sustainable and borderless art; and this art will transfer to other places and times like cultural exchanges. Artists and architects of the past were not consciously seeking repetition of past, but they inspired by the past. So till half a century ago culture prevailing on the architecture of Iran necessitated that in new buildings like home, school and mosque must use archetypes in the field of technique, material, function, geometry and ornamentation [1]. In other words, the past architecture was like an eternal treasure of architectural features that each architect was

able to understand it due to his creativity, knowledge and practical experience and national culture was continuing. [2] One of the ancient patterns in Persian architecture is central courtyard, which has organized architectural space and made environmental quality and inspired architects in thousands years old of Persian architecture in various buildings. In continuation of this architectural culture, contemporary architects have expressed the archetype of central courtyard in their buildings. Understanding how to apply this archetype by contemporary architects is a step toward greater recognition of cultural features of Persian architecture.

Literature Review

Archetypes: In idea of Jung, archetypes are common and universal notions that they have been transferred generation to generation from remote past of human ancestors. Archetypes are universal images that exploring them is not only a way of understanding general patterns

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of human behavior, but a way of reading artistic and literary texts critically. These images are expressed in artist's works in various symbols in order to reach the borders of consciousness. Jung theory emphasizes on the role of culture in symbolic activation and organization of archetypal action that its source is the depth of conscious ego. Social class has a lot to do with architectural archetypes. [3] According to this theory, perhaps a same environmental experience provokes different archetypal reactions or vice versa, maybe various environmental factors underlying the same or similar archetypal reactions. Jung believes that taking images from collective unconscious to self-consciousness makes various archetypal images. It is famous that Jung said that "Archetypes are as many as life situations. Endless process of repetition has carved these experiences in our nature, though they are not filled with content and they are disclosed in the form of no-content shapes at first that only allow a certain type of perception and action" [4]. Introversion concept in Iranian architecture has been rooted in Iranian culture for centuries. There are some meaningful proverbs and idioms in Persian culture regarding to the role of traditional archetypes in building construction and design even in seismic consideration of architectural structural and non-structural components. [5] It can be said that central courtyard is archetype of Iranian architects in architectural design, in response to the concept of introversion. There are the concepts and the functions of courtyard in Persian architecture in continue.

Central Courtyard: Lexical root of word "Courtyard" is Caucasian and word "Curtis" that has a Caucasian root "Gherdh" with the meaning of "fencing off", has come in some medieval documents. There are some definitions such as "Closed area in the house and elsewhere, Apron, Apron of Sara, Vast and non-ceiling space that is surrounded by rooms" and "Open and non-ceiling space, Open space that is surrounding by construction in some sides" in traditional architecture glossary of Iran. Central courtyard as a pattern in Iranian architecture is the most important space in buildings with different land uses such as homes, worship places, palaces, schools and caravansaries etc. [6] Organizing different spaces according to the effective factors has been the most important function of courtyard in buildings design. Perhaps the most basic way of using courtyard is making a sign of possession. Courtyard, in addition to creating unity between elements, creates kind of conference relationship between them. Courtyard is adaptor of space elements with different functions and regulator of all

needed changes in internal communication of building.

Central Courtyard as an Archetype: Human personality (beliefs, convictions and culture in general) can put direct effect on the aesthetic sense (i.e. it acts as an intermediary). Jung believes that introverts vs. extroverts show reaction earlier In front of a little information, because introverts can perceive complexity faster and therefore they prefer some kind of architecture that order and balance is so dominant in it. Just like Iranian architecture that is introversion architecture. Because those who have stable and introverted personality demand a vision order. Some contemporary scholars believe that regular geometry of the central courtyard is an archetype in contrast with the organic geometry of ancient cities of Iran. "Shaping minor divisions of urban context has obeyed from organic order, while the empty cores within these components have been formed from regular forms in relation with the quadruplet directions. [7] The central courtyard that its edges is perpendicular to the solar quadruplet directions has created a regular tetragonal that its upper edge ends with the sky and the water is in its center. This space that can be symbol of centrality of universe shows time passes (Day, Season, Year, etc.). [8] On the other hand central courtyard has some ritual aspects of Iranian culture. Central courtyard is like the views of Sufism.

Central courtyard is in the meaning of paradise and with its quadrangle form and center (Pool and Water) is a symbol of perfection. So the most perfect central courtyard in traditional architecture of Iran that is a courtyard with four porches is symbol of a non-direction and static universe. But four porches in four directions are like quadruplet directions that look at this small universe. In eastern rituals people believed that when man pay attention to his ego, his other mental waves will be off and integrated thinking overcomes him that its result is intuition. Paying attention to centralism can be seen in the most primitive human handmade, such as Stonehenge.

History of Central Courtyard: Open space (Courtyards) in pre-Islamic and Islamic architecture has had significant importance so that the ritual and religious ceremonies happened in these spaces. Herodotus (*Herodotus* was an ancient Greek historian who was born in Halicarnassus, Caria (modern day *Bodrum, Turkey*) and lived in the 5th century BC. He has been called the "Father of History" since he was the first historian known to collect his materials systematically, test their accuracy to a certain extent and arrange them in a well-constructed and vivid narrative.) Also points out that Persians have been doing

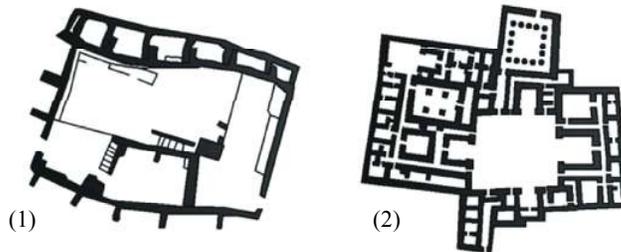


Fig. 1: Plan of a House in Tapeh Zagheh (by Authors)

Fig. 2: Assyria palace (by Authors)

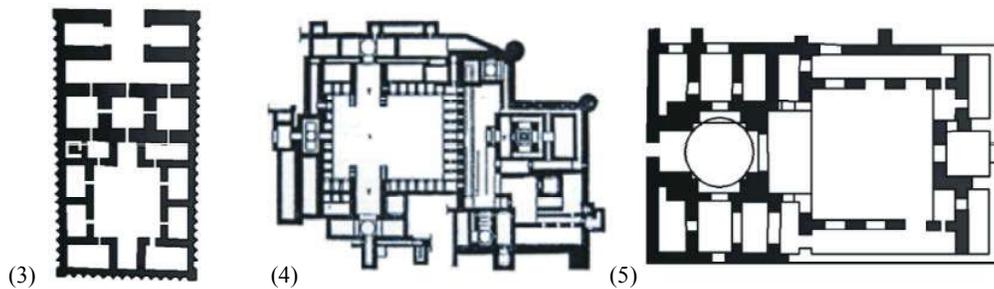


Fig. 3: Firouzabad Palace (by Authors)

Fig. 4: Koohe Khajeh Temple in Sistan (by Authors)

Fig. 5: Plan of Rooni Fire Temple with a Courtyard and Veranda (by Authors)

their religious ceremonies in open spaces and high places; holy open spaces that Zoroastrians called them “Pavy”. It was a rectangular ground that they mark its four sides after reading a special prayer to remove spirit of devils and then be cleaned with holy water. According to *Diodorus Siculus* (*Diodorus Siculus* was a Greek historian who has visited Iran in 2nd century AD) Iranians houses were built around courtyards.

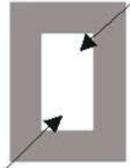
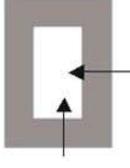
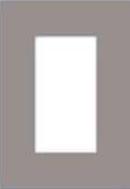
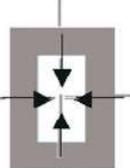
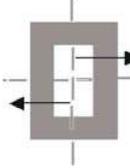
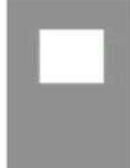
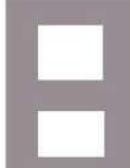
Buildings with courtyard in Iran have an antiquity about eight thousand years. Various buildings to reach perfect central courtyard shape have traversed about six thousand years and they had one or more usages in each historical periods of courtyard. Courtyard as an interface between several spaces has been explored in ancient houses of *Tapeh Zagheh* (*Tapeh Zagheh* is an early urban settlement located near *Qazvin*, Iran) belonging to the 6th millennium BC. Houses had consisted of two open (Courtyard) and closed parts or residential and non-residential spaces. Houses had had one or several courtyards. Parthians have used yard in shape of central courtyard in their architecture. Works left in *Koohe Khajeh* (*Koohe Khajeh* is an early urban settlement located near *Zabul*, Iran) in *Sistan*, *Hatra* and *Assyria* is confirming this theory.

Methodology and Research Process

Theoretical Framework: In general, in Iranian introverted architecture that this introversion is realized by central courtyard, can diagnose categories of how to entering the building from outside into the courtyard, access to space, form and scale of the central courtyard. For a better understanding of ways of using central courtyard in Iranian architecture, a table has been drawn with four subjects include: A. How to entering the building: Category of how to entering courtyard from outside, B. Building form: Category of common types of central courtyard form, C. Access to space: Category of how to access building mass from the yard and D. Yard scale: Category of buildings in terms of number of courtyard.

Research Questions: Identification of quality of central courtyard archetype manifestation in Iranian contemporary architects' works is the main goal of this research. The research questions are: 1-What is the role of central courtyard in traditional architecture of Iran? and 2-What are the impacts of central courtyard-as a traditional archetype-in contemporary architecture of Iran?

Table 1: Categorization of Central Courtyard (Source: Authors)

Factor	Type 1	Type 2	Type 3	Type 4
Entrance (A)			-	-
Form (B)				
Access (C)			-	-
Scale (D)				-

Research Methods and Methodology: In order to answer these questions case study method and compound strategies have adopted for inference mechanism. Forty numbers of Iranian outstanding buildings have been selected as case studies and the role of central courtyard examines in these samples. According to adopted methodology types of Iranian central courtyard can be categorized as follows. Among these forty works, ten prominent samples in different land uses were selected.

Entrance: In general, in Iranian mosques can diagnose two main types of how to entering courtyard and can generalize them to other building with different functions. First type: Entrance to the courtyard is done from one of the courtyard corners. Some of the most prominent samples of this type are *Jame-Mosque* of *Esfahan* and *Ardestan*. In this type, at first there is entrance then vestibule and then often a corridor connected to one of surrounding verandas. Second type: Mosque entrance is in the rear of one, two or each three sub porches and some of the most prominent samples of this type are

Moshir-ol-Molk Mosque of *Shiraz* and *Imam Mosque* of *Esfahan*. In this type, after entrance and vestibule, we are exactly in the rear of one of sub porches.

Form: Central courtyard form surrounded by the building mass can be divided in five types. First type: Building mass surrounds around the courtyard with square or rectangle geometry. Samples of these yards are seen in the most of Iranian residential buildings, mosques and traditional schools. Second type: Central courtyard has three closed sides and one open side. Third type: Central courtyard has two closed sides. Forth type: Central courtyard shape is a polygon. Fifth type: Central courtyard actually is the remaining space of combining masses around themselves.

Access: According to how to access building mass from the central courtyard open space can understand two types. First type: Access to closed spaces occurs in line with the main axis (Central courtyard symmetry axis). Second type: Access to closed spaces occurs in places other than the main axes.



(6)

(7)

(8)

Fig. 6: Faculty of Business Management, Ground Floor Plan (Drawn by Authors)

Fig. 7: Faculty of Business Management, Central Courtyard (Photograph by Authors)

Fig. 8: Faculty of Business Management, Main Entrance (Photograph by Authors)

Scale: Samples of buildings with one courtyard or more have made possible functional, structural and spatial flexibility of traditional houses, whether in horizontal or vertical development. Division of courtyard into several courtyards in addition of creating flexibility in functions of house, provides the ability of division and integration of houses for longer periods of time. In this case, there are one-yarded and several-yarded types.

This categorization in terms of how to using central courtyard has been done in order to classify some of Iranian contemporary architects works and finally, a number has been dedicated to each buildings to be able to read this categorization in a table.

Analysis of Samples

Faculty of Business Management (University of Tehran), designed by *Hossein Amanat*, Tehran, 1980

Designer of this project announces that Islamic schools are the source of idea of using central courtyard in this work. Classrooms and administrative departments and library are gathered around this yard that has a transparent pool in its center. This building formally is organized by a central courtyard and its functions are gathered around it, so formally it belongs to the first type. Building entrance is located in line with its main axes, so it takes place in second type of entrances. Access building mass from inside the central courtyard is provided in line with main axes and it takes place in first type of access category. This courtyard is large scale and is categorized in first type in this part.

Behshahr Industrial Co., designed by *Nader Ardalan and Houshang Jahed*, Tehran, 1971:

This building has been built in a square-shaped ground with dimensions of 68 by 66 meters. Administrative spaces of this building have surrounded central courtyard in five floors. Walls of closed spaces have rung around a central courtyard regularly and symmetrically and open their eyes toward it;

that is a sign of bold and elegant usage of Iranian traditional architecture patterns in a building with a new function. Central courtyard creates an “independent world” in its heart; while linking to the city, it is independent. The main entrance of the building has located in the eastern of site and along symmetry axes of building.

Iran Center for Management Studies, designed by *Nader*

***Ardalan and Yahya Fiuzi*, Tehran, 1972-75:** The design of this school is reminiscent of Persian garden pattern. Passing the entrance and entering to the open space, person feels himself into an “enclosed courtyard”; and this issue has likened this small garden to a “central courtyard”. The most important feature of this design is usage of different design patterns and spatial organization simultaneously; the school design is fluctuating between two patterns of “building around the central courtyard” and “Persian Garden”. In level of spatial organization also can describe this design based on the patterns of “central courtyard with four porches” or “central courtyard with two porches” and even “garden with one porch and edifice”. This building formally takes place in first type between proposed types. Entrance in the east of the building in line with main axes is very similar to entrance of caravanserais and some traditional schools. Accesses are done from the yard to the classrooms and other parts. In terms of scale types, it is a large scale type.

Central Building of Cultural Heritage Organization of Iran, designed by *Hossein Amanat* (the first step) and *Mehdi Hojjat and Bagher A. Shirazi* (the second step), Tehran, 1978-87.

Designer is going to create spaces having either features of an urban texture or unity, solidarity, clarity and readability. Not being bound to move in a fixed along, creating varied and dynamic spaces reaching numerous nodes in motion path and marginal spaces starting from nodes and turning points of design that they themselves



Fig. 9: Behshahr Industrial Co., First Floor Plan [9]
 Fig. 10: Behshahr Industrial Co., Central Courtyard, [9]
 Fig. 11: Behshahr Industrial Co., North-South Section [9]

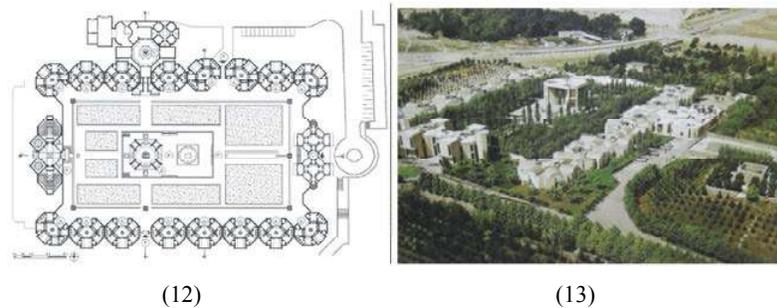


Fig. 12: Iran Center for Management Studies, Plan [9]
 Fig. 13: Iran Center for Management Studies, Perspective [9]

form new order are notes that design of this building has borrowed from organic discipline of urban context and traditional markets. Disciplining spaces around several yards in this building has created various spatial experiences. In terms of form, the fifth type indicates type of usage of yard. In terms of scale, small scale yards categorize in third type.

Musalla (Friday Prayer Mosque) of Tehran, Parviz Moayedahd, Tehran, 1988-Present: A *Musalla* literally means a place where prayer is performed or where congregations are held; In other words, any temporary place in which worshippers congregate to perform their prayers. It is also a place that has not been made an endowment or not yet intended to become a permanent Masjid. In many cases, it is a temporary place from which the community will transfer once they find a more suitable, convenient, or permanent location. This building has been designed in pattern of central courtyard in continuing tradition of building mosques in Iran and central courtyard is disciplining spaces and an inalienable part of the building.

Tehran Museum of Contemporary Art, designed by Kamran Diba, Tehran, 1967: The central courtyard of the museum has an irregular shape. Its strain is along north-south axis, i.e. perpendicular to museum entrance axis. Courtyard shape is result of dents and juts of galleries volume. A rectangular pool has also been made in its center that is in line with main axis. Establishment of courtyard among closed spaces reminds traditional buildings design in which courtyard is the base of the design and forms closed spaces around it. Surrounded walls of the courtyard have dents and juts and take different directions, as it seems that courtyard has shaped because of playfulness of the lateral volumes. In other words, the plan is geometrical although yard is symmetrical but it seems “low identity”, “happened” and “random”. It seems that courtyard is remaining space of galleries design.

Villa No. Two, designed by Pouya Khazaeli Parsa, Mazandaran, 2005: Usage of central courtyard archetype in residential buildings is the most one between different land uses seen clearly in traditional architecture from Iran.



(14)



(15)



(16)

Fig. 14: CHOI, Plan [9]

Fig. 15: CHOI, Southern Courtyard [9]

Fig. 16: CHOI, Entrance Courtyard [9]



(17)



(18)

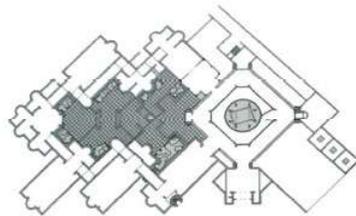


(19)

Fig. 17: *Musalla* of Tehran, Site Plan (Formal archives of *Musalla of Tehran*)

Fig. 18: *Musalla* of Tehran, Model (Formal archives of *Musalla of Tehran*)

Fig. 19: *Musalla* of Tehran, Central Courtyard (Photograph by Authors)



(20)



(21)

Fig. 20: Tehran Museum of Contemporary Art, Plan (Drawn by Authors)

Fig. 21: Tehran Museum of Contemporary Art, Central Courtyard [9]

But with modernism and afterward trends, this pattern was considered less or how to dealing with it appears in another ways. Meanwhile, works like Villa No. 2 in Mazandaran has used central courtyard archetype beside modern ideas and has created different spatial quality. Rectangular and pure volumes of the building are gathered around central courtyard.

Farshchian Art and Cultural Complex, designed by Farhad Ahmadi, Farzin Toolaeian and Jalal Asadi Eskandar, Isfahan, 1989-2005: *Isfahan* international cultural center was designed and built between years 1989 and 2005. Design in terms of geometry is very symmetric. A mass of material in the center of the building, first takes the sky down to its bottom like an eddy,



Fig. 24: Farshchian Art and Cultural Complex, Ground Floor Plan (by Authors)
 Fig. 25 and 26: Farshchian Art and Cultural Complex, Central Courtyard (by Authors)

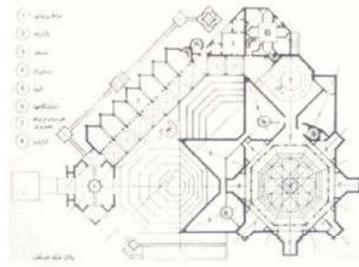


Fig. 27: Niavaran Cultural Center, First Floor Plan [9]
 Fig. 28: Niavaran Cultural Center, Central Courtyard (by M.R. Amini)

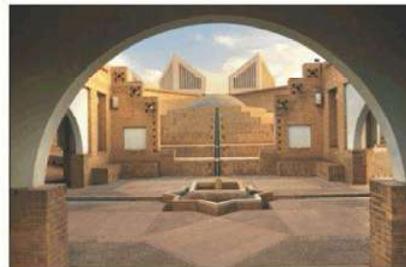
while from the other side has been pulled toward the sky by rising successive vibrations like a stair. Four towers in four corners of the building among central courtyards in galleries show squaring corners (guardian angels) that are archetypal. In fact, project consists of two parts of the interior and exterior. Exterior part consists of performance and presentation of works and goods. Interior parts are formed in three levels around three central courtyards that each one has its specific identity and consist of information, management and educational spaces. Starting point and primary idea of design is architect's image from rear perspective of *Khajoo* Bridge (or *Pole Khajoo* is arguably the finest bridge in the province of Isfahan, Iran. It was built by the Persian Safavid king, Shah Abbas II around 1650 C.E., on the foundations of an older bridge) during Safavid's great celebrations. In fact, in first step, it is tried to reconstruct main elements of organization of celebration space by using waterscape, bridge and lateral veranda abstractly. Using central waterscape shows a virtual image of building main volume in addition of

announcing presence of *Zayandehrud* River nearby. Waterscape takes the longitudinal symmetry axis to the third dimension and meanwhile invite viewer to watch the building and takes him into it. Entrance is located in line with main axis of building but because of presence of water in the center of the courtyard, access to the building is done beside veranda around the courtyard. Courtyard in small scale plays role of the entrance space. Access to the building from the courtyard occurs in line with main axis of it.

Niavaran Cultural Center, designed by Kamran Diba, Tehran, 1970-78: *Niavaran* complex has formed in an old garden with an aqueduct and consists of two independent buildings, including "Farah Pahlavi's office building" in north of the site and "*Niavaran* Cultural Center" in south of it. In a general image, *Niavaran* Cultural Center building has a U-shaped volume and has formed from volumes surrounded a square courtyard. The central courtyard of the Cultural Center has gardens, trees,



(29)



(30)

Fig. 29: Dezful Cultural Center, Plan [10]

Fig. 30: Dezful Cultural Center, Central Courtyard (by M.F. Khodarahmi)

water and of course almost wide floor of concrete mosaics. Hence, the central courtyard that all its constitutive pieces face it, seems an independent creature. Courtyard is a square that dents and juts of surrounding volumes occupy it. In addition, this courtyard is a fluid creature passes under the library spaces and joins the open area in south-west. These occupations and fluidizations show yard like a “happened” open space among some closed volumes; the same quality felt in all the Cultural Center and reminds the principles of modern architecture.

Dezful Cultural Center, designed by Farhad Ahmadi, Dezful, 1987: Structure of this design is based on a spiral path started with moving water from a square courtyard and achieving to an octagon yard in the depth of the earth by a rotation inside a transparent inverted cone, in order to depict story of crossing man from the world to the paradise by this amphibology. Plan of the building has been obtained from processing an arabesque in three dimensions and four flying wind towers around this paradise courtyard amplify kind of looking to the sky.

DISCUSSION

Coding and Categorizing Courtyards: After analyzing the buildings and determining the features of using central courtyard archetype in each of them, a code was awarded to each one come in following table. Placing these buildings together in this table and coding them allows comparing them with each other and determining approach of using central courtyard archetype in each building.

Qualitative Description of Quantitative Data: After categorizing and analyzing the buildings by use of table, way of manifestation of this Iranian architecture archetype (central courtyard) in contemporary architects’ works is determined. Some of these architects in continuation of traditionalism and imitation of past architecture have followed usage of patterns of this kind of architecture with the same style and method. Some others have used the necessary courage and have involved their individual creativity but still have maintained its original form.

Table 2: Analysis of buildings of contemporary architecture of Iran (by Authors)

No.	Work	Designer	Year	Code
1	Faculty of Business Management	<i>H. Amanat</i>	1980	A2B1C1D1
2	<i>Behshahr</i> Industrial Co.	<i>N. Ardalan, H. Jahed</i>	1971	A2B1C1D1
3	Iran Center for Management Studies	<i>N. Ardalan, Y. Fiuzi</i>	1972-75	A2B1C2D1
4	Central Building of CHOI	<i>H. Amanat, M. Hojjat, B.A. Shirazi</i>	1978-87	B5D3
5	<i>Musalla</i> of Tehran	<i>P. Moayed Ahd</i>	1988-Present	C1D3
6	Tehran Museum of Contemporary Art	<i>K. Diba</i>	1967	A2B5D1
7	Villa No. Two	<i>P. Khazayeli</i>	2005	B1C2D1
8	<i>Farshchian</i> Art and Cultural Complex	<i>F. Ahmadi, F. Toolanian, J. Asadi</i>	1989-2005	A2C1D2
9	<i>Niavaran</i> Cultural Center	<i>K. Diba</i>	1970-78	B2C2D1
10	<i>Dezful</i> Cultural Center	<i>F. Ahmadi</i>	1987	A1B4C2D3

In other side, there are late architects that they have combined the principles of the modern architecture with the past architecture patterns and have created another type of architecture. Finally, this result is achieved that in the most buildings using central courtyard pattern is for disciplining and unifying them.

CONCLUSION

Relationship of central courtyard and land use: It is seen among case studies that central courtyard pattern has been used more widely in spaces that have more cultural and educational aspects between various land uses. Cultural spaces such as academies considered new and modern usages against educational spaces related to central courtyard pattern from ancient, have found a special compatibility with it, so that the most of these buildings such as Khavaran Cultural Center have been designed in central courtyard manner. Perhaps the reason of this issue is that central courtyard has been merged with Persian culture and architecture.

Relationship of central courtyard and construction technology: The most of the buildings that they have formed in a manner of central courtyard, in terms of type of materials and construction technology are more traditional and brick as cladding materials has been used in the most of them. Construction system whether concrete as a modern material or brick as a traditional material has been covered.

By analyzing and studying cases, this result is achieved that Iranian contemporary architects pay attention to central courtyard like the past and wherever contemporary architects has used this ancient Iranian architecture pattern the quality of design has improved. Attention to this issue and exact recognition of this Iranian architecture archetype helps contemporary architects to achieve an architecture befitting the culture and Iranian identity.

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