

## Designing Multi-Theater Cinema by Parametric Method in Tehran

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### Abstract

Human beings have always been committed to various efforts throughout the history in order to transfer their beliefs and aspirations to others in different forms of expression. All arts are related to each other in different ways because the source of all manifests the beauty. Undoubtedly, cinema as one of the seven arts has been known as parts of the most important artistic and cultural activities from birth until now. The artistic effect of cinema born by the ages and it can be said that the accessibility of cinema and its closeness to public interest as its main reasons caused to be accepted more than at any time. The main goal of multi-theater cinema is to raise the cultural, artistic levels and to meet the people's material and spiritual needs and also to raise the level of social interactions. New and innovative method (Parametric method) that get creative ideas appeared in the creation of such structures is certainly needed to meet the goal, because architecture is a combination of technology and art and has the spatial and formic features as well as its aesthetic qualities at any time; today the world is full of variety and innovation. The goal of designing multi-theater cinema is to help develop the national cinema and attract more audiences. The reasons of establishing such a complex was not only the regional needs but due to its size and population, omits the severe lack of cultural and cinematic spaces and even it can be said that it may affect the entire city.

**Keywords:** cinema, parametric, multi-theater cinema, technology and art, social interactions

### Introduction

Human beings have always been committed to various efforts throughout the history in order to transfer their beliefs and aspirations to others in different forms of expression. Undoubtedly, so far, the importance of none of these attempts was valuable rather than the arts in introducing the human's nature and thought throughout the history, culture and civilization. All arts are related to each other in different ways because the source of all manifests the beauty. Popular architecture is based on the traditional styles and local architecture is arisen from popular architecture and like folk music or etc. in each region depends on its traditions and climatic condition. Targeting is one of the characteristics of a true scientific process and men's all activities and attempts would be fulfilled when all were correctly defined in order to achieve the goals. In an architecture project, the final goal is to get a proper idea and design so that it could connect and coordinate with their good context through positive potentials. Mental concepts and spatial qualities are among the issues to be addressed as the goals. Recognizing the audiences of the complex and reviewing the needs and also knowing the region climate can effect on making a proper policy in order to achieve an ideal and affecting design. An artistic work would be closer to success if it could show the Plato image of the item better. For this reason the purpose of some one's image is not absolute accordance but it means to display some basic or general characteristics of human.

Totally, it should be said arts means to show the fact in a work. What relationships are there between architecture physical space and non-physical space? What is parametric architecture? What is the music tending to architecture? What architectural features does multi-theater cinema have with

the approach of parametric architecture? What are the main components of the approach of parametric architecture? What architectural features does the process of designing have with the approach of parametric architecture? What is the position the approach of parametric architecture in the process of designing? The questions are among of the questions arisen in this case and continue till the lines are drawn and the building are built. Some efforts were done in this regard. According to the methodology architecture is labeled by specific trend and it is tried to consider certain architecture by the use of definite theme. This study does not aim to make architecture follow a specific algorithm and the formation of a volume based on an equation with different degree. It was tried to study the relationship between parametric architecture and Iranian pure architecture briefly using the fundamental definitions of the arts. Musicians play music, architects build, players form the space considered and artists display multi-dimensional in two aspects. The language of expression is different but they can be collected in one framework whose borders are not definite. It seems that using the principles and principles of parametric architecture the sense of aesthetics and dynamism of geometry can be induced. It seems that designing multi theater cinema through parametric method can attract more people than the past common methods.

### **Methodology**

It is obvious that each scientific research needs a methodology appropriate and efficient to achieve the final issue. Selecting an appropriate methodology and its continuousness throughout the process and the project way is among the strategic principals of a study. The way to deal with the problem of the study has a close and mutual relationship with the structure and nature of the study. In any studies, the researcher considering the issue researches in one or more methods and due to the variety of architecture, various seasons, and different research strategies, documentary and field methods were used. For example in most studies of the project which are identification of spaces and providing physical plans, documentary studies would be problem solving and finally analyzing the site would be useful. In current study it is tried to make some parts of architecture values clearer based on references and documents, the methods of construction, tools and structure of architecture.

### **Digital or parametric architecture**

Architecture is generally three-dimensional in which we live. Terrains and dents are important both in music and the fields of visual arts. In architecture art, the architect needs four dimensions of length, width, height and time at the same time. Architecture is combination of science, arts, experience with a history of thousands years in the fields such as buildings (Khayatpoor Najib, 2013). Architecture means to present technical description of a system showing the structure of its components, the relationship between them and the principles governing on designing and developing them over the time. The best architecture should deal with constructive ratio and volumes. While historians would like moderation in this topic and separate it from the past, they are somewhat interested in perspectives helps develop and reduce the fundamental problems gradually. According to most of them, digital culture is rooted in a development less than some decades, less than from the time in which line was invented to the time of comprehensive computation. Most of them believe that with the advent of the society based on the information in 19th and 20th century, digital culture was appeared, a culture that many technological experts called it as the second industrial revolution. Now the question is “what is digital architecture?” Is application of the term correct for every design produced using computers or should the term be considered for the products take advantages of machines potentials for any goals more than drawing tools?

### **The effects of digital fields on the process of architecture design**

The digital analysis world has helped architecture since 1960s. At that time some projects such as Sydney Opera House was being designed and applying computerized facilities to model and implement it was necessary. Gradually and with the advent of such facilities and technologies into architecture field, architectural design was also changed and forms changed into volumes without any restrictions in their constructions. The first questions may be arisen are how would the projects be designed and implemented? Or what facilities would help to actualize the levels and freedom curves seen in the designs? Where would the computerized tools have roles in designing and constructing the buildings? In fact today computerized and digital tools have significant contribution in complicated architecture forms. The topic of applying computer in architecture is divided into two main sections: first section includes the use of a digital designing environment to enrich and the second section includes the use of digital facilities to implement it. However, the two sections are meant in a system and multi-dimensional view and thought should govern to adjust the relationship of the two sections. This system is called the society of designing system or digital construction. The goal of this system is briefly to design and produce the building using digital tools. Applying these digital tools reduces the possibility of human faults as well as providing the designers various facilities available in these environments. Correct digital modeling means to give computerized model using modeling software so that it is possible to load the situation of real world over it and extract the needed information to construct the building. Therefore, if there is a real model in digital environment time taking activities such as estimating the building can be loaded on it and assign to computer. The main goal of such software is to create the facilities to create concepts. Some of the software considered mostly on creating sketch and some other software are considered as the software designing concepts.

From the first group, the software of sketch book, sketch up, and plan design can be mentioned and from the second group the software of max, form-z can be mentioned. Also the software such as active render only has powerful rendering facilities. In general the software is easy and understandable and easy to work with.

The point that should be noticed about technology is that its key and vital role should not be engaged in technical obligation. Technology especially in architectural designs in which different factors such as social, economic, and cultural factors have great effects can be rarely justified as the only solution available. These changes were created from complicated long historical process than the present language of talking of designers with digital tools (Khayatpoor Najib, 2013).

### **Virtual reality**

Virtual reality was expressed in mid-1980. People ran into images seemed real while they were made by computers and not real. For the first time two words, virtual and reality, which are antonyms were next to each other in order to create a new sought of to be or not to be (Bani Masood, 2002). The space created in the computer screen is more real and even more interesting than the environment surrounding us. It can be seen that people are moving in space, changes the intensity of the light or even the thickness or height of the walls. Colors and materials of the walls can be changed or change them into old status. The facilities of the computers in a lot of fields especially architecture are really more than our performance in real world. The space which will be created along with displaying the architecture space and better perception creates a new way of thought and creation of architecture in an architect's mind. Each object in the virtual space can vary with one or more of the meaning and characteristics. Architecture of the virtual space is certainly a coded architecture but this identification is unlimited. The architect's responsibility in virtual space is to insert encoded codes which create meanings.

### **Highlights in design and digital architecture**

Computers add the architect's accuracy and scope in order to create a comprehensive and proper architecture. Computers should not be seen as accelerators. Generating a wide variety of ideas from computers together with accelerating the design process, in some ways adds the architectural work and demand more accurate work. That is why architects with powerful and dynamic minds will be tomorrow's leaders and pioneers in architecture, those who can keep up with the technological advances and show high-ability in analysis and selection. In digital architecture, more creation depends on nature and media facilities and the level of extensive relationship with the media (that includes vast group of designers, programmers and users) than the personal genius. In fact, the genius and creativity will be effective that works in harmony with the virtual space. In the digital design process the architecture work is created through interacting and exchanging ideas between the stages and the issues involved in the design, and not necessarily through competition in a linear way.

### **The role of computers in design**

Most people have a misconception of the computer and its role in the design and consider it as a car made up of electronic and mechanical components. While designing like many other mental activities, at the stage of data processing no physical activity is performed in the body. For this reason the ability of human mind performance and computers are due to their physical structure and the nerves and cells of the human brain are described as computer circuits. The physical nature of information processing by computer is different from the physical nature of information processing by the brain. Computers are physically a set of connectors and components without thinking that at the time of processing turn to the channels for the passage of the mathematical and logical instructions. For this reason there is a fundamental difference between the nature of computing and narrow-mouthed of a computer and holistic nature of human beings. Designers do not often use words and sentences to interact with each other but use other tools, such as sketches, drawings, diagrams, or even body movements. To make the design based on science and logic, not only the logical, systematic and methodical should be used but the nature of design which is not completely clear or definite should be considered as well as considering different ways in designing. The final goal of any designing project is to develop a new solution or process.

### **Algorithmic design**

Using algorithmic design and designing based on calculations is a concept often is confused with the concept of using computers and computerizing. Algorithmic design is a computational procedure, but computerizing is to process and save information in a computer. Of a general view, computerization is to digitize, automate, convert and translate into computer language. In contrast with algorithmic design science-based or design calculations is discovery and development of a vague, unknown and unclear process which is usually not defined. Due to the exploratory nature of the algorithmic design process, its purpose can be to compete and develop human intelligence and perception. Algorithmic design is associated with concepts such as logic, reasoning, induction, deduction, and exploration and guess. It also can be synonymous with concepts such as methodical solving problems, mental structure of problem solving process, perception and simulation solution of the problem and formulated intelligence. The role of computers in architectural design process at first were to make that human efforts in the design process repeatable and actually put the computer in place of human design. Later this role changed and some systems were created that plays the role of an intelligent designer assistance for human designer (Khabazi, 2013).

### **Parametric approach**

Now, the computer as a powerful computational tool have been in the service of human beings for years and do complicated works in various fields, instead of human. Computers have been used in the fields of medical, military, geographic, aviation, engineering, entertainment and every corner of the world of science and technology and provided us different facilities and tools so that today's world used them even in the most simple banking operations to controlling discovery spaceship and depends on them. Computers can perform a large volume of calculations and complex operations at a short time and help people to do the hard and complex work to provide greater comfort for their lives (Khabazi, 2013).

### **The history of parametric architecture**

In 1992, the paperless studio of Columbia University, as one of the largest efforts in the use of computers to design, was still seen as something imaginary. Since then the architects have been facing with advanced electronic equipment and applications. Architects like Greg Lynn, William Mitchell, Peter Eisenman or Frank Gehry, have confirmed new horizons arising from digital devices. The only thing that, when faced with technological innovations can be sure of is that the changes created by them are profound. This may be considered as something strong and radical and kind of transformation that has given rebirth to architecture as of Renaissance era.

### **The effects of parametric approach in contemporary architecture**

Contemporary architecture by moving away from philosophy and thought to the concept of the twentieth century has been interested in this trend and is integrating with new scientific fields. Modern architecture not from the passage of aesthetic of etymology theory but from opening its doors to students in all possible areas and integrating and connecting with it produces new creative options and flows. As this happened in others fields, architecture has great trend towards science and the tools and facilities of algorithmic architecture makes it possible and leads it. Preparing and producing architecture that takes advantage of new methods of design can simplify complex processes in designing algorithms (Khabazi, 2013).

### **Parametric architectural tools**

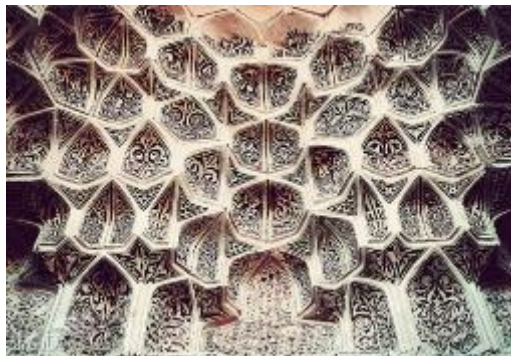
Each Art appears with their specific tools in different forms and uses the power of human feeling in different ways, one uses vision and hearing, and the other uses the two o out of every two ones together. The use of analytical tools to answer these questions that how architecture and rhythm are associated with each other? And what are their similarities and differences? Lead us to a way in which it can be seen that the creation of architecture comes from the same origin and passage and finally gets to the same destination as the creation of music depends. Perhaps for this reason, "Goethe" believed that "architecture is frozen music." When our voice is affected by living voice becomes naturally rhythmic and in our words when we get excited they become rhythmic which is similar to a song. Sometimes the rhythm invites to calmness and sometimes to a challenge.

Violence and happiness and disgust are expressed by different tune. Algorithmic architecture which started a new discourse in architecture by different digital facilities of designing in the areas of hardware and software used the gap in the theoretical space of architecture. This is where the parametric design software, digital fabrication methods, new tools for design and optimization, the modeling and manufacturing machines and growing equipment in the field of digital architecture not only have provided new methods in architectural design, but defines the theoretical and conceptual aspects of architecture, critical areas of architecture and its aesthetic qualities. For this reason, searching innovation in the architecture is formed in a new definition of the interaction of the space. When the post-modernist and aesthetic aspects of twentieth-century architectural innovation are not

the only ways in producing the innovation of architecture, algorithmic architecture takes advantages of their tools and capabilities to produce new creations appropriate with its time and location. But, what are the new areas of creativity (Khabazi, 2013)?

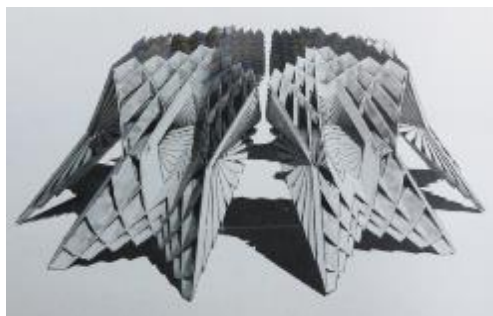
### **Parametric effect on the reconstruction of Islamic designs**

Time is an important concept in architecture and music. The concept of time is well understood in music and movement, weight and passing time are associated with the creation of time and a place. This concept of time in Iranian art causes weight, to have a time concept and repeating the weight samples manifests the thought that in paintings from Aslimies, Geometric patterns, flow and time available in architecture would be developed by repeating and sequence of the components of a work. Molana said “the shadow of walls and the roof of a place/ the architects’ shadow of thought”. The ratio occurs in buildings in two ways; sometimes we see the facades of buildings and sometimes we get inside the building and understand the interior sense of the building called environmental sense. Architecture creates material and spiritual spaces but music only spiritual space. In other words, music is time architecture and architecture is the music of a place. Accordingly among the Iranian buildings Masjid e Sheikh Lotfollah can be mentioned. Most experts in architecture also confirmed that the ratio, colors and light surrounded the human. The relationship of parametric architecture and Iranian arts in the traditional arts is one of the concepts that can be traced back to the other arts by the elements made it. One of the connection rings is painting whose intricacies are applicable with the two arts of architecture and music.



**Figure 1: Islamic designs**

Designing and implementation of the work follows an accurate geometry in three-dimensional coordinates. Mastery of geometry and a strong imagination are two important components in the design of work. Now programmers have designed procedures by following mathematics and geometric formulas that provides the possibility of easy, accurate and creative design (Zomorshidi, 1995)



**Figure 2: Islamic designs**

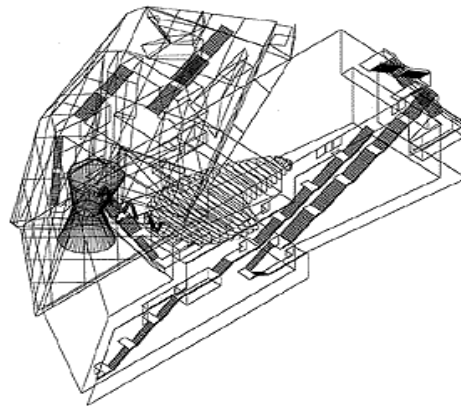
### **Introducing cinema performance**

Undoubtedly, cinema as one of the Seven Arts has been known among the most important cultural and artistic activities since the creation till now. In recording landscape and the play of light and playback it to architects, it gets so important that in all the schools of architecture this new possibility was used to acquaint the students with the space and photography became among the lessons in architecture schools. But when Loamier brothers succeed to display 24 sequent frames on the screen an art was arisen with exciting similarity with architecture. Films in contrast with pictures have time and motion and like architecture are made of the sequence of landscapes and events. The difference between architecture and films is that in architecture there is possibility to choose the angle of vision, speed, motion and even the sequence of the stages for the viewers but in films it was selected by the film maker therefore understanding architecture is lack of beginning and doing but films have beginning and finishing time. Cinema and architecture comprise the very most successful movie directors those who were architects or were interested in it.

About his love of cinema, Nicholas Ray has repeatedly said that this love was come up by spending a few months in the horizontal range in western Talizin. After the death of Wright's a note was found among his papers he had written if it is going to make a film about the story of his life he wishes John Huston to make the film (Khoshbakht, 2009). Cinema in which imagination is boundless can be an important tool for the revolution of the architecture. Cinema can criticize the architecture and artificial environment and reveal the hidden beauty and ugliness. The beauty of many films owes this point. Filmmakers are able to influence the viewer's perception and with the architectural environment make the films as viewers' wishes. Cinema and architecture have something else in common. These days both of them are interested in advanced technology.

### **Mellat multi-theater cinema**

Mellat multi-theater cinema was designed and implemented in a wide land with an area of 6000 square meter in region 3 at southwest corner of Mellat Park in Tehran. This complex due to the establishment in the park area benefits from all the advantages of the area. According to previous studies about parks in Tehran, Mellat Park is considered as a park with urban function and is identified with wide scope of influence. Moreover in the context of the specialized educational and research functions it may have specific functions in the area of urban influence. Therefore, this project not only meets the needs of a region due to its size and population with severe shortages of cultural and cinematic but its scope of influence affects the entire city. The complex area is limited to the area of park from North and East and to Niayesh highway from and to the area of Enghelb sport complex from.



**Figure 3: UFA Cinema Perspective**

The project with a foundation of 15000 square meter includes 4 movie theaters with the capacity of 280 people and a small theater with a capacity of 30 people As well as exhibition spaces, restaurants and coffee shops, book stores and cultural products and needed services and office space is capable to hold a population of about 2,500 people at peak hours. Organizing the spaces of the project due to the form of the land and the possibility to create two theaters on the ground and two more theaters is in a way that it can introduce an idea of space with plan and structure of the project and can be combined with the beautiful nature surrounding it.

### **UFA Cinema complex**

This cinema was opened in Dresden, Germany in 1998. It was located in Peraga St. which is among shopping centers and full of customers. This multipurpose complex removed the border between the space of cinema and architecture. This complex has recreational spaces, including discos, bars and 5 movie theaters and commercial spaces on the first level. Since this cinema is located in Dresden, Germany and it was impossible for the writer to visit it closely, as a result, describing and critiquing the movie is presented based on two papers of Wolfgang Kiel and Wolfgang Bachmann has been published in the journal of architect (4).



**Figure 4: UFA Cinema Perspective**

Cinema architects were less able to coordinate themselves with video capabilities at breaking time and space to narrate extremely diverse stories. UFA building belonging to Cope Himelbow in 1993-98 is the only building of cinema in recent years which has managed to deconstruct the space and express vague architecture of the film. Sharp and shadow jagged angles on theater walls express the psychological spaces of expressionist films and German attempts to combine architecture with the movement of sense and uncertainty through their expressive way is considered as movie media. Although in movie theaters there was a form of architecture in which the main part of the hall rotates around the stage and the facilities were located in the back and front of it. Therefore, the content of the architecture moved towards locating on a central axis inside volumes with penetrable walls and surprisingly the UFA miraculous forms were made in this way. Theaters were arranged in three floors inside hard concrete columns on one side of the building while the public space and corridors seems dramatically covered with broken glass are oblique on the other side of the building. By covering a large part of the building by the glass, architects were able to crash a volume of great multimedia multiplexing and reduced its negative impact on the city landscape.



Instead of locating a wide and integrated block on narrow surface that could eliminate a significant part of the city view, Himelbow Cope has created a visual volume in order to define and create the character of public space. In a joint approach with the Rotterdam movie theater belonging to Coen van Velson, the building of UFA also rotates around a public space so that it could coordinate itself with the network of complicated urban designs.

### **The geographical location of Tehran**

The geographical location of Tehran as the capital of Iran was raised to a metropolitan in which providing facilities in the field of public transportation and other urban issues including air pollution, green space, etc. are the challenges for the city officials. Today's Tehran located between Karaj River in West and Jajrood River in East, and Alborz mountains to Tochal in North (about 3000 meters height) and Shahriyar and Varamin in South, in terms of anatomic land has two mountainous and plain regions. From the mountains, sediments, big and small stones move in the bed of the rivers toward Tehran. From the foothills of the Alborz Mountains to the south of Rey City there are numerous small and large hills and rivers and floods that put Tehran in ups and downs. Sometimes an area formed on a hill can be seen and sometimes its buildings in downs are seen like a moat.

### **Conclusion**

Undoubtedly, cinema as one of the seven arts has been known as parts of the most important artistic and cultural activities from birth until now. The artistic effect of cinema born by the ages and it can be said that the accessibility of cinema and its closeness to public interest as its main reasons caused to be accepted more than at any time. The main goal of multi-theater cinema is to raise the cultural, artistic levels and to meet the people's material and spiritual needs and also to raise the level of social interactions. Social and cultural spaces and centers and services in the urban environment are gathering place and integrating implementation of needs and physical activities for the continuation of social life in the urban community. Undoubtedly cinema complex is one of the cultural and social centers. The exact understanding of functional aspects can be achieved in order to provide a suitable context to accept such centers so that by relying on aesthetic elements and using architecture language, proper to attract the audience can be done. The goal of designing multi-theater cinema is to help develop the national cinema and attract more audiences. In the studies on the region of 22 in Tehran located near the artificial lake of Persian Gulf, with respect to the components of urban planning, it is known as a place with the urban performance and with a very broad scope of influence. The reasons to establish such a multi theater cinema was not only the regional need but due to its wideness and population meets the lack of cultural and cinematic spaces and even it can be said its scope of influence may affect the entire city.

### **References**

- Alizadeh, H. (2005). *The order of Tar and Setar, high school*, Tehran: Mahoor Publications.
- Anoin, S. (2011). *The 20 buildings that every architects should know* (Trans: M. Habibi and H.Mohammad Rasuli), Tehran: Pashutan Publication.
- Bani Masood, A. (2002). *The lesson of contemporary architecture*, Azad University of Qazvin.
- Binesh, T. (2003). *In the brief history of Iranian music* (Trans: Q. Forozesh), Fourth Edition. Tehran.
- Ching, F. Mark, D. K., Jarzombek, M. & Vikramaditya. P. (2007). *A Global History of Architecture* ' New Jersey 'Wiley.
- Forogh, M., Sami, A., Damadi, M., Khadivjam, H., & Barkeshli, M. (2001). *Iranian music Tehran: Mashal e Azadi Publications*.

- Gidivan, Z. (1976). *Space, Time and Architecture: the growth of a new tradition* (Trans: M. Mazini). Tehran: Elmi Farhangi Publications.
- Hananeh, M.(2010). *The lost steps*. Tehran: Soroush Publications.
- Hojat, E. (2009). *Architectural practice*, Tehran: Tehran University Press.
- Hoker, K. (2000). *The history of architecture*. Tehran: Lotus Publications.
- Javadi, Gh. (2001). *Iranian music from the beginning to today*, Tehran: Hamshahri Publications.
- Khabazi, Z. (2013). *Algorithmicarchitecture paradigm* .
- Khaleghi, R. (2007). *Reviewing Iranian music*, Tehran: Rahrovan e Poyesh Publication. Second Edition.
- Khoshbakht, E. (2009). *Celluloid architecture*, Tehran: Herfe Honarmand Publication.
- Mashhon, H. (1994). *History of Iranian music*, Tehran: Rokh Publications.
- Pikon, A. (2013). *Translation: Digital culture in architecture* (M. Khayatpoor).
- Sepanta, S. (2009). *Iran's Music prospect* - Tehran: Mahoor Publications.
- Tahmasbi, T. (2001). *Music in Literature*, Tehran: naghsh e Jahan Publications.
- Vein, A. (2005). *Architecture and critical thought*. (Trans: A. Anjomshoa), Tehran: the Academy of Arts Publications.
- Zomorshidi, H. (1995). *Mosque Iranian architecture*, Tehran: Keyhan Publication.