



Architectural Principles in Designs of Khavaran Multifunctional Cultural Sports Complex in Tabriz City, Iran

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ABSTRACT

In terms of the spatial environment, cultural exchanges and social interactions were done in some places, such as mosques, neighborhood centers, bazaars, and the whole city. And society culture developed and grew through a slow but cohesive trend. However, this trend experienced a change due to increasing population number and urbanization growth, as well as expansion of communication sciences and techniques and changing urbanization and residence methods in recent years. The urban spaces and characteristics, however, did not grow optimally at the scale of new residences through this expansion and new urbanization. Therefore, it was common to face distortions, biases, and shortcomings in the community. Because there are many distinguished and special historical places and ancestors' beautiful architectures, as well as diverse natures in Iran, it is essential to have sports complexes and stadiums in Iran. Stadiums are defined to meet the cultural-recreational needs of the complex audiences in an area. It is essential to develop such spaces due to the lack of sports-recreational spaces and the urgent need of today's humans to use standard cultural spaces to fill leisure time and tourism attractions. The extant study strived to link sports and culture and to stabilize this connection in the body of a sports complex. To do this, the analytical-descriptive method was used in this study.

Keywords: Sports, Community, Sports Complex, Stadium

1. INTRODUCTION

Sports and recreational needs are important issues with a considerable contribution to society (Amiri, 2005: 11). Sports place is the center for a 3D documented world consisting of sports and recreational topics. It is also a center to foster all people by participating in a healthy and happy culture. One solution to keep and improve health culture is to create a space for individual and collective activities in all urban areas. Sports-recreational uses are the most important parts considered in the comprehensive plans of each city. Fun and sports are critical issues that must be considered to improve the cultural level of health and create a healthy space to reveal the sports talents of cities. Therefore, sports functions have a significant and lasting impact on the cities' form and function in terms of aesthetical, social, economic, and symbolic aspects. Because there are many important historical locations and ancestors' beautiful architectures, as well as diverse natures in Iran, sports complexes and stadia must exist in this country. Stadiums have been constructed to meet the cultural-recreational needs of an area based on the audiences' needs in such complexes (Fakhar & Haeri, 2006: 41).

It should be noted that stadiums have been the most considerable human-built projects in past due to technical problems in the construction of such huge buildings, such as the Olympic

Stadium in Greece and the Colosseum in Rome, Italy). It is necessary to enhance sports-recreational spaces due to the lack of such places and the urgent need of modern men to use standard cultural spaces to fill their leisure time and attract tourists. The lack of such spaces causes overcrowding in other recreational spaces in the city, which intensifies social abnormal behaviors and weakens tourist attraction and investment in the area. The increased young population of Iranian cities has made it necessary to expand sports-cultural uses and their standard location to facilitate easy and inexpensive access.

Sports stadiums are broad recreational places, such as cinemas and theater salons that are architectural signs of a city or land. Finally, stadium design is accomplished if the structure and other buildings' issues of every stadium are considered at all dimensions from total to partial details in case of time and place. The structure designed in this research was divided into several parts: the structure of the volume's body shell is constructed as a monolithic concrete structure integrated with glass lattice structures in walls and ceilings. The internal structure of the volume is composed of concrete columns.

The extant study was conducted to create a proper connection between nature, art, and intelligent architecture and set this link in the body of a multifunctional sports-cultural complex. This stability is not a case predefined by architecture, but the audience in question observes the step-by-step natural and human process passed by architecture sciences from the beginning of the connection in the site of a modern stadium in Khavaran Town. To do this, the descriptive-analytical method was used.

2. Theoretical Foundations

2.1. Stadium, in terms of architecture

Sports stadiums are large recreational places, which are architectural signs of a city or land, like cinemas and theater salons. The stadium design finally is accomplished if the structure and other buildings' issues of every stadium are considered at all dimensions from total to partial details in case of time and place. Naturally, the stadium's face is towards sports activities and back to its surrounding, which is equipped with fences and other security barriers.

A stadium is a combination of different elements (e.g., sits, stairs, getaways, entrances, ceilings, etc.) that are highly inflexible, so it is difficult to match them with traditional construction forms. In this case, traditional composition rules have been overlooked, and architecture firms tend to find possible factors that have stability and resilience, aesthetic and harmonic use, but also show good architecture. Stadiums usually spend many days without any activity per year; therefore, they occupy large useful space for short-term use.

2.2. Spatial Intervention Perspectives

2.2.1. Functionalist Insight

The interventional side of this thought stems from boosting man's mental-moral aspects for production realms. Man's productivity and production are reduced due to working a lot, so space is required to overcome it and spend leisure time. In this insight, whenever space confronts time, then dysfunction occurs. In other words, such confrontation between space performances and time requires change by such intervention through capital in the land improving value-added.



Although his insight considers humans in the collective production, the important point is that individual form is useable regardless of social relationships. Practical application of this perspective has led to the following outcomes.

2.2.2 Naturalist Insight

This insight focuses on the originality of man and nature emphasizing that nature rules relationships. This belief puts humans in nature, and man must rely on nature to prove his/her centrality, so man's freedom depends on the creation of natural spaces. According to this insight, leisure time can be in line with nature-based activities.

2.2.3. Culturalism Insight

This belief introduces cultural conditions and values as dominant factors in forming a space. In other words, space is the spatial outcome of each society's culture, which indicates itself as a symbol, makes a connection between forms, makes the space meaningful, and forms society's behavioral patterns. This insight defined the place as a composition of specific natural and cultural elements, which distinguish it from other places. According to this insight, the space is defined in man-environment and man-man commutations in the frame of social relationships. This insight emphasizes the past to give identity (Habib, 2009) to today's man by protecting and producing past symbolic achievements, i.e., it puts today's contents in the past's body. In general, this insight has a social-cultural approach to space and considers the form as the outcome of the human-environment relationship believing that the form will gain aesthetical aspects when is matched with environmental properties and is influenced by them.



3. Design regulations and standards

The football field's size depends on the match classes, but other internal dimensions and sizes of the field, including zoning and marking, are fixed, and lines are drawn based on a certain rule. A football field (also known as a football pitch) is a rectangle of 100-110m and 64-75m in length and width, respectively. A line divides the field into two equal parts from the middle side. The football field consists of 2 goal areas, two penalty areas, and four corners. The playing pitch must include at least 6m edges on the sidelines and 9m edges behind the gate lines (Planning and Budget Organization, 2001).

According to the German standard, small or large fields are set on a longitudinal axis towards the northern-southern side. The deviation is possible from the north to northwest and northeast at about 15°. However, the northwest-northeast axis is preferred. Some track and field sports, such as throwing and jumping are navigated, in a way that athletes are away from sun rays (Nixdorf, 2007).

According to sports spaces' standards in Iran, sports amenities of stadiums are classified into three categories A-C:

Sports amenities type A: this field consists of eight paths for track-and-field matches with small and large match venues in the central space, and the place for hammer and disc throwing, height jumping, and javelin throwing is located on the southern side. Spear jump, disc throwing, and equipment related to javelin throw, as well as some holes are installed on the northern side for the hurdle race. The long jump and triple jump races are done in the eastern direction located behind the playing pitch.

Sports amenities type B: this category is like the playfield type A, and the difference is only the presence of six paths for track and field matches around the pitch.

Sports amenities type C: this field consists of four paths with small and large 4-6-band fields at the central spaces. Amenities associated with height jumping, javelin and disc throwing, long jump, triple jump, and disc throwing equipment are placed in the northern part (Ernst and Peter Neufert, 2000).

3.1. Spectator Stands

Longitudinal sides of the football field are the most suitable place for spectators. In areas and places where there are not many spectators, and on sports pitches, one longitudinal side of the field is used for spectator stands (grandstands). Proper and fast access to spectators must be considered in the design of grandstands for ease and rapid evacuation of spectators (Noi Consulting Engineers, 2006). Spectator stands must be divided into two controllable parts. Spectators and fans of different teams must sit in opposite grandstands as it is possible. It is better to consider different access parts for fans of each team.

The color used for seats is another significant factor. Seats' colors have many visual effects, especially when some seats are empty. Some colors resist ultraviolet (UV) rays, and designers must pay attention to this point in the design process. The seats must be designed in a way not to hold water in them and be cleaned easily. It must be simple to clean around and under the seats. The seats' connection must be strong not to be corroded.

Sitting and standing places must be isolated by fences. The retaining fences, walls, doors, or glass fences must be 110cm in height. The gathering place in the stadium must be an indoor space, and its dimensions should be matched its capacity. Rest stands must be located in an attractive and healthy environment; these stands must have easy access and distribute in all parts at equal levels. Rest stands must be near the sitting and standing spectators' stands. The spaces must invite spectators to rest there (using information signs), and there must be adequate WCs. People queues should not be a barrier for other spectators. Moreover, support service units, such as information stands or childcare amenities are parts of desired facilities in modern stadiums.

3.2. Spaces for popular and famous individuals and receiving organizations' guests

The teams and referees' changing room is mainly located in special guests' stands and media families; this room is not accessible for spectators and media. The allocated spaces with locker room, extra space with shower, and WC are located near the players changing room. There must be a table and seats in this space (Noi Consulting Engineers, 2006).

There are two changing rooms for four people, a room with extra facilities of modern infrastructures, and indoor accesses that are directly connected to the grandstand. This place is located far from the players' space but near to changing rooms. There is also a medical examination room near locker rooms on the playfield for players and referees in emergency cases and injured players. There must be suitable wide access for medical transportation (stretcher).

There is special access for honored guests far away from the public entrances. There are many differences between stadiums in terms of performance and deployment. Sometimes, separate entrances are designed. In many cases, special entrances for honored guests indicate signs of



that stadium's address. The honored guests are usually receipted in a separate place even after competitions; this place is connected to a special space in the stadium's lodge. The guests enter the stadium through the reception hall or a large foyer depending on how they get to the stadium.

During important sports competitions, some media are redirected outward from the stand to the correction part (intelligent media center) located near the TV space (Nixdorf, 2007). Technical and situational equipment are critical factors: cameras must be away from sunlight in afternoon and evening competitions. The main camera is located on the main stand, and its height depends on the camera angle, and the stand's distance and height. According to the FIFA guideline, the camera's angles are set based on the horizon line.

3.3. Public space in a cultural sports complex


According to the proposed classifications, a public space in a cultural sports complex mainly is an indoor and private space with some limitations in access ownership and space users. Besides these limitations, cultural complexes provide some advantages, such as security, safety against climate changes, etc.

Public space in cultural complexes has recreational and identity functions. Public space users can be considered, as individuals who enter a cultural space where its recreational functions naturally provide cultural advantages. The important point, in this case, is the number of space users. The more the number of users, the more dynamisms and capacities of the space will be. Therefore, these spaces may have not been designed for interconnections, but the presence of individuals in these spaces has made them a place for such actions. So, ownership and access limitations may be obstacles in such spaces. Compared to urban public spaces like streets and squares, however, this can be considered a semi-public space. This is a space controlled by a public organization for public interests so that all people have access to it at any time (Mokhber, 2007).






Access to the space and its activities can be completed with two other dimensions of brokerage and interest. Therefore, public space can be defined as a space that allows people to have access to the space and do some activities there. This is a space that a public organization controls and a space managed for the public interest (Jahanbin, 2009).

Separate locker rooms, communication corridors, equipment warehouse, administrative spaces, workshops, stage undergrounds, etc. must be designed separately far away from the stage. All spaces mentioned above must have direct access to fresh air and ventilation (Habib, 2009).


Table 1. Examples

Row	Stadium name	Image
1	Santiago Bernabéu Stadium, Madrid	



2	Khalifa International Stadium, Doha, Qatar	
3	Mercedes-Benz Stadium, Atlanta	
4	Olympic Complex, Athene	
5	Azadi Stadium, Tehran	
6	Imam Reza Stadium, Mashhad	



7	Foolad Arena Stadium, Khuzestan	
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4. Site's profile

East Azerbaijan province is located in this position: 36° and 47min-38° and 42min northern width, and 45° and 3min-47° and 43min eastern length of Greenwich meridian. This province has borders with the Aras River and the Republic of Azerbaijan in the north, Ardabil in the east, Zanzan and West Azerbaijan in the south, and Urmia Lake and West Azerbaijan Province in the west. Tabriz has a low-humid climate with an average rainfall of 285mm annually.

According to the examination of wind blow in terms of geographical directions, speed, number, and breeze percentage in Tabriz, the local winds blow severely and poorly from all directions. Of them, east and northeast winds last and blow more. The wind blows from the east followed by northeast direction winds. These winds are air flows with strong power blowing over Tabriz Plain during a year. Most winds blow from the East annually.

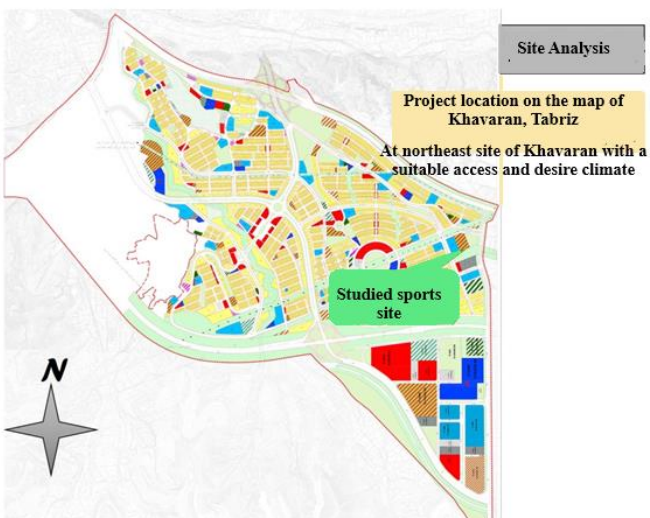


Figure 1. Project site

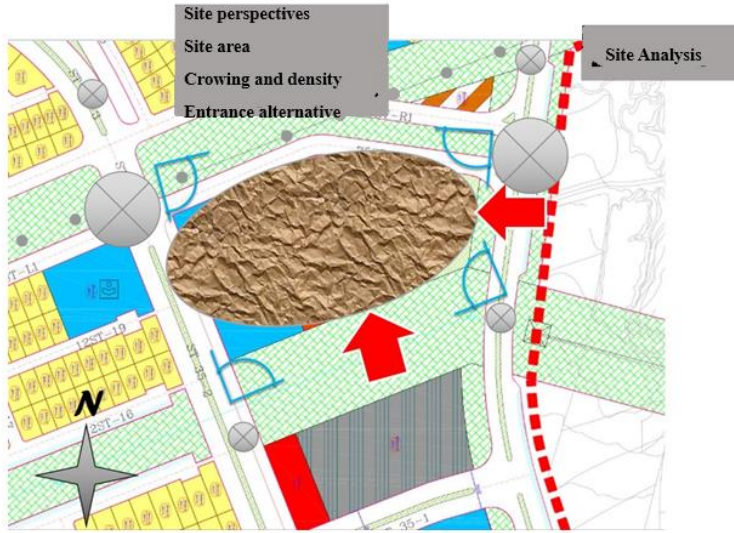


Figure 2. Site accesses

5. Complex design

5.1. Design principles' attitude

- Provide a safe and calm space for users in urban life
- Provide special spaces for users based on the regular and planned programming
- Try to increase the social, cultural, and sports skills of users
- Create a suitable place for various educational, cultural, recreational, and sports activities
- Make users involved in the space
- Pay attention to human scale in the design process
- Proper use of the site for sports and entertainment
- Suitable application of open and semi-open spaces
- The structure designed in this plan is divided into several parts: the structure of the volume's body shell is constructed as a monolithic concrete structure integrated with glass lattice structures in walls and ceilings. The internal structure of the volume is composed of concrete columns.
- Night lighting
- Build two entrances on the site
- Different indoor and outdoor cultural sports spaces
- Design of headboards, canopy, and other rest spaces
- Use of vegetation for climate considerations and creating calmness and fresh air in the environment
- Design of indoor and semi-open parking lot
- Design of flooring on-site, skylights, and even complex' ceiling design

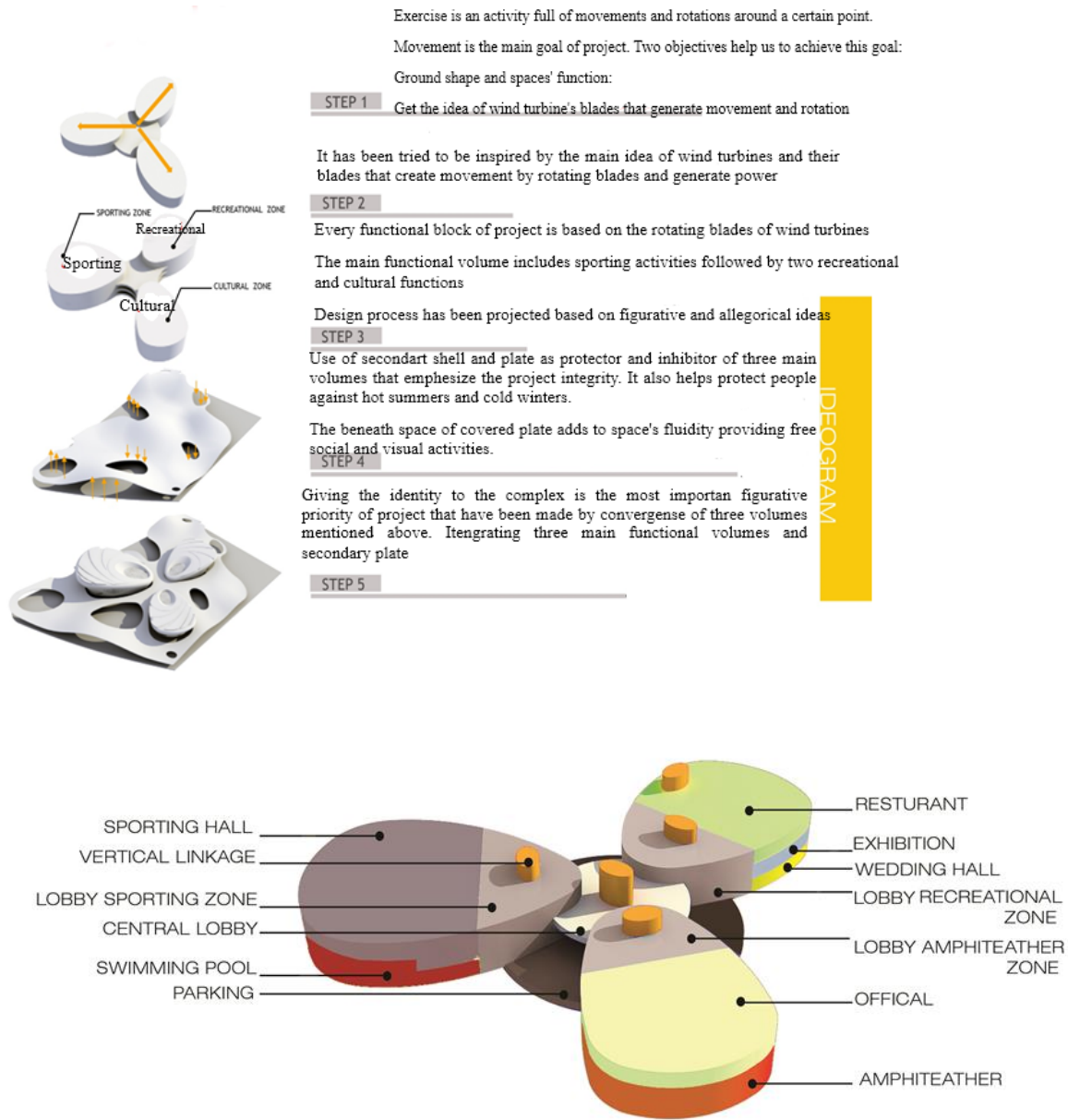


Figure 3. Space's diagram



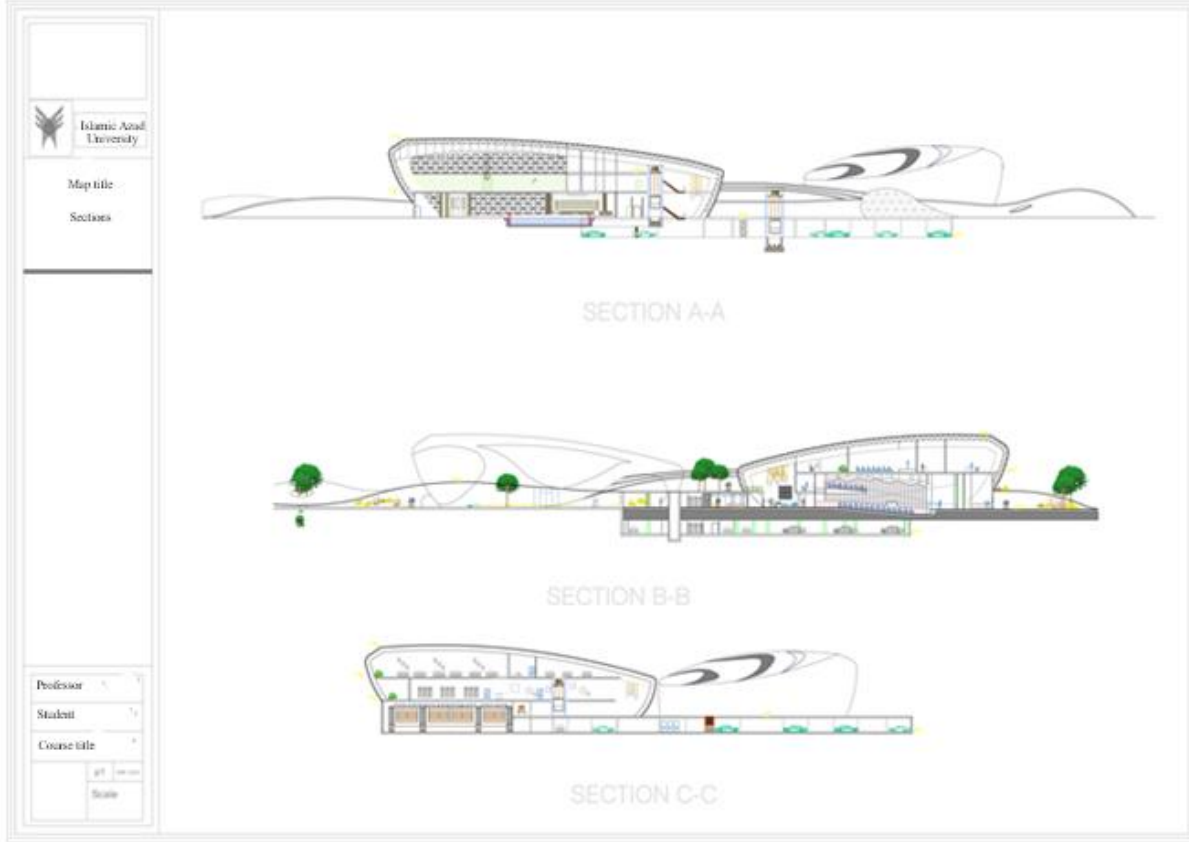


Figure 4. Design Plan

Conclusion

In a suitable and vibrant city, citizens live in urban places from early morning until late night, and pedestrians walk in these places. In these spaces, people use motor vehicles. Citizens spend a long time in streets, parks, and markets, so a high-quality environment must be provided for people to meet their daily needs. A good city is a lively (24-hours) city where the issue of noises caused by vehicles at night has been solved. In the opinion of Lynch, a city must be functionally responsive and meet vitality, meaning, access appropriateness, supervision and authority, efficiency, and justice. In terms of environmental vitality, a good residence provides an individual's health and welfare and survival of living organisms.

Today's Iranian community highly lacks social-cultural focuses due to the unconditional dominance of cars so that streets, squares, and alleys are full of cars during the majority hours of the day and night. Such phenomenon has led to various environmental, noise, and visual pollution, as well as soulless and insecure spaces. Such spaces have caused many problems for citizens, including broken social relationships, lack of sense of belonging to the environment, destruction of collective memories, frustration, and numbness in social behaviors and relationships. However, squares, streets, and alleys must be centers for social behaviors, richness, diversity, legibility, uses' composition, spaces implementation, behavioral campgrounds, security, social supervision, functional attractions, and a combination of work uses and urban housing to create a suitable environment for life and vitality. Because sports stadia are closely

connected with functional requirements, such as clear visual lines, circulation, etc., they can be considered as buildings whose forms directly depend on the contract performance. On contrary, the massive physical scale of a stadium is a specific issue in suburban areas that is difficult to put inside the city. Therefore, many attempts must be done to match the stadium's size and its surrounding environment.

References

- Neufert, E., Neufert, P. (2000). Translated by Hedayat Mootabi, Tehran, Azadeh Press, third edition.
- Amiri, T. (2005). Design of Tape Goolan Complex in Mahabad, MA degree, Faculty of Architecture and Art, Islamic Azad University, Tabriz.
- Jahanbin, N. (2009). The definition of city nature and introducing indexes and criteria for surveying its situation in the contemporary era, Tehran, Journal of City Identity, Issue 4, Faculty of Art and Architecture, Islamic Azad University Science and Research Branch.
- Habib, F. (2009). An analysis of the interaction between culture and city space, Tehran: Journal of City Identity, Issue 4, Faculty of Art and Architecture, Islamic Azad University Science and Research Branch.
- Fakhar, Z., Haeri, N. (2008), Investigation in museums architecture qualitative properties including their cultural heritage to organize their functions.
- Kasmaee, M. (2008). Climate and architecture, Isfahan, Khak Press.

