European Online Journal of Natural and Social Sciences 2014;
Vol.3, No.4 Special Issue on Architecture, Urbanism, and Civil Engineering
ISSN 1805-3602
www.european-science.com

The architectural formation of stadiums in different periods of time

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Abstract

Stadiums are places that can bring thousands of people together and create a very sensational architectural atmosphere. Unfortunately, they are seen as monumental objects in big cities and it is as if they were used as sculptures but it has to mention that they are durable volumes but have remained unknown in architectural studies. Looking at stadiums shows that their interior and exterior spaces should be interlocked and makes harmony as the exterior walls can create a city façade and the interior can make balance in people's emotion, providing that the same regulations and codes should be applied to stadiums in order to increase the coherence with the city.

Keywords: Architectural formation, stadium, old and new generation

Introduction

The main purpose of this article is to clarify the role of these huge stadiums and discuss in what ways they can give an appropriate services to cities. For years, stadiums were just for holding sport events and less attention was paid in their aesthetics role in urbanism. Culturally, stadiums can include thousands of users and can help them express themselves in such a way, effecting on urbanism as well. Therefore, scholars urge to review the role of stadiums in political, economic, and cultural point of view.

In this article, we at first review the formal evolution of stadiums and then we discuss the principles that should applied in stadiums.

Literature review

As ancient roman was interested in individual combats or killing completion and for doing such a competition, they were designing and developing a new form amphitheatre in a shape of ellipse which had slop stairs in all direction, resulting a very proper view for audience. In fact, the ellipse was formed by joining two semi sphere that was constructed before in ancient Greece, A new dimension of Roman amphitheatre was in such a way that emphasis on earth and natural slope of hill for creating seats for audience became impossible. Therefore, roman decided to construct artificial slope and structure around the land. In first centuries platforms were made by wood and later it replaced with stone and concrete (Figure 1).

Middle ages onwards

With penetration of Christianity to European societies, the emphasis was on religious, social codes and architecture was allocated to build churches rather than construct stadiums or amphitheatres. Some buildings changed their functions, for instance, amphitheatre changed to houses and church. In Renaissance and after it, horseback riding was held in uncovered stadiums and sometimes temporary platforms or covered areas were designed for important audience as they are known nowadays as VIP. Although, people were interested in complying the Roman and Greece style, stadiums and amphitheaters were not built.

Figure 1: The Verona Arena in Italy

Nineteen century

Stadium was revived after Industrial revolution as an architectural building and different methods of construction were applied to it. People were encouraging the developers to use the latest technology in construction and it resulted in stadiums and huge city halls. In 1894, Baron Pierre de Coubertin suggested a conference for reviving Olympic Games(AUGUSTIN, 1995)

In following an ancient stadium remaining from 331 B.C was discovered by Ziler, famous German archaeologist and architect and it was reconstructed in accordance with Greek patterns. In Late nineteen century, the laws and regulations were documented and based on them; it was determined what kind of equipments should be prepared for stadiums. The progress of technology, equipment and transport ended up to facilitating the long trips and resulted in increasing public's interest to sport, In 1896 Olympic Games has taken an important role in sport event.

Twentieth stadiums

First generation

In 1908, Olympic Games were hold in London and the stadium was named White City Stadium by James Faltun. The priority was given to structure and the capacity of this stadium estimated to 80000 people. The structure was made of steel and designed as modern stadium specifically for Olympic Games. (Figure 2)

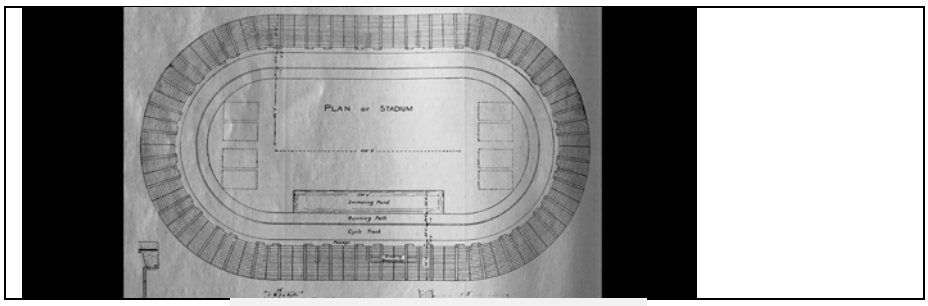

Figure 2. London Olympic Stadium 1908

Due to Second World War in 1916, the Olympic Games were cancelled but before this time, a stadium was built in 1913. The main characteristic of this stadium was its natural and beautiful shape that like ancient Greece amphitheaters was built organically and in harmony with its surroundings, without looking outdated. It was designed by Otto March who was inspired by this

stadium for designing a variety of sport parks in Germany (Figure 3). Finally, Berlin was Olympic host. This stadium has many advantages such as proper designing and colonnaded façade.

Figure 3. Deutsches Stadion (Berlin)

Second generation

In 1930, with technological expansion of mass media and broadcasting, architects provide stadiums with more facilities for spectator. In other words, the comfort and relief of spectators were given the preference. These generations of stadiums are similar to concrete bowls and many innovations and creativities can be seen in their designing, Aztec and Munich (figure 4 and 5) are in this category (Bale, 1994).

Figure 4: Olympic stadium Munich

Figure 5: Aztec Stadium

Third Generation

In 1990, stadiums were designed in order to be ready for the reception of families. Sport was the focal point but not always attractive. Also, the main source of income for football clubs changes and broadcasting was pioneer of making these vital changes fast. Also, clubs established many shops to present their products.

The current generation of stadiums

Mobile structures effectively helped stadiums function as a multipurpose building. Of course, it should be noticed that the latest renovations and modernizing in stadiums followed a

commercial plan to increase the public awareness and therefore different levels of society such as merchants, journalists, civilians are accommodated in stadiums.

Increasing growth of football

Football has faced many changes in rules since its formation. In 1583, Philipe Stubbes mentioned “As concerning football, I protest unto you that it may rather be called a friendly kind of fight than a play or recreation - a bloody and murdering practice than a fellow sport or pastime”. Some centuries later, during holding a football match in Saint Peter square in Rome, Pope believed that football, meaning to be out of serious situation and entrance to imaginative world and that is beautiful.

Since, Baron Pierre de Coubertin began to advertise for the idea of holding new Olympic game, the importance of football has become more in such a way that no other sports can compete with it. The best example to prove this idea is that In Germany 2006 world cup, there was no athlete track.

Football stadiums in Europe and most South American countries have preference over other sports and this popularity stems from the nature of excitement and sensation in football but there are a variety of architectural forms in stadiums. In England, a common pattern is the ownership of stadiums by football clubs. The major effort is to create a sense of friendship and place among spectacle in designing as well.

First, there are some platforms that spectators are standing and encouraging their teams and it was cancelled for security reasons and in first and second club clubs, these areas were equipped by seats. (figure 6)

Figure 6: A "safe standing" area, using rail seats.

Secondly, there are some stadiums that spectators are close to the pitch. These stadiums create a sense of intimacy between spectators and match but in case of having it, designing athlete track would be impossible.

Although, clubs intend to hold this social and friendly atmosphere in England but it seems that multiple purpose stadiums could function better and gives services to the cities. In other European stadiums, different patterns are applied and it is different with England. For instance, each stadium is operating under municipality and use by a variety of clubs and additionally, stadiums are used by other sports. As a result, current generation of stadiums has more income in comparison with Britain’s stadiums and generally they have better shapes and forms as well.

Planning for designing stadiums

Sport complexes are usually are used for decades. A proper economic situation, the existence of ideal land for building stadium and long term goals for economic boom are the main reason for constructing stadiums. At beginning, a comprehensive plan should be prepared in order to provide the aesthetic and function together,

Financial resources: Designing of each stadium should be done in accordance with allocated budget and equipment provided in stadium depends on available budget.

Stadium capacity: Stadiums in modern and developed countries are constructed by private sectors and the determination of these stadiums should be parallel with local spectators or even the possibility of holding matches in upper levels. The capacity of each stadium depends on functional demands and goals but if designers and investors intend to hold international sport events, the minimum of 30000 individuals are required, holding important intonations such as confederation cup, the capacity is about 50000 and more important games such as final of soccer world cup need stadiums with 60000 seats. Although, some infrastructure such as hotels, airports, considering travelling should be predicted in advance,

Of course, a precise formula for determining the capacity of stadium does not exist. It is more in relation with authority's decision and designers and usually the economic conditions play an important role in capacities.

Economic science in designing: In order to achieve economic booms, encouraging guests, important spectators and individuals who pay more for tickets is essential. As a result more research should be carried to provide proper equipment, facilities and service to attract users' attention.(Gaffney, 2004)

The rate of speed change: The fast process of technological expansion and increasing the numbers of spectators with their expectation for providing high quality equipment and facilities ended up the life expectancy of building to decrease less than 30 year. Basically spectators do not intend to be in inappropriate condition and as a result designers have to redesign new stadiums but a question arises if new stadiums can meet their expectations.(Barth 1980)

Maintenance: Designing a stadium should be done in such a way that maintenance; cleaning, services and management have justified expenses. Therefore, the capacity of stadiums and controlling population are the most important items in choosing site based on trial and error.

Site planning for stadiums

In the past, stadiums were not taken seriously for their very limited capacity and because of it their location was mainly next to churches, city halls and important public places. With growing the population and promoting the possibility of travelling long distances, large places for holding sport event required. As the guest spectators were increasing, new problems rose. The lack of security and controlling the probable anger may cause many problems (Costa 1987).

The important role of spectators

Stadiums should be accessible for spectators and it is necessary to fully know spectators. Furthermore, numbers, place of living and available paths for accessing the stadium should be analyzed.(Broomberger 1990)

A suitable area for site: Designing a stadium requires a large area and the arrangement of structure and it dimension, creating a proper circulation and sufficient parking with proper distance impact on site planning.

Upstream documents: During the site planning, upstream document s such as comprehensive plan should be precisely reviewed.

Sustainable stadiums: Environmental factors during construction and after if should be considered.

Outside city stadium: Site planning for constructing stadiums in suburb is when a big complex is to be built. In order to fulfill financial sides, it must consider other activities for stadium as well. Due to sufficient space and lack of limitation for accommodating population, the stadiums are built with maximum capacity and it is possible to allocate more spaces to parking. Public transport system and the existence of space help designers consider the future development (Canter 1980)

Inside city stadiums: The placement of stadiums in a vast area close to city center has some advantages such as proper transport, main roads, highways and parking. In this case, the stadiums can benefit from city facilities. For instance, the possibility of using stadium services such as parking should not limited to spectators. The main disadvantage of this stadium is future development is restricted due to lack of enough land.

Sustainable design: One of the most important items in site planning is sustainability that should be discussed in different aspects. For instance, residential regions are sensitive areas if they are located next to stadiums. Below, some of the current environmental issues that may occur in stadium area are seen:

- Increasing traffic
- Noise made by large number of spectators
- Noise made by the sport event
- Too much light for match
- Shading of stadium on adjacent buildings
- The lack of activities around stadium when there is no match
- Improper proportion of project in surroundings

A proper analysis and adjusting with condition can minimize the current problems.

- Traffic and population management during the match
- Controlling light and noise by sound barrier and reflectors
- Constructing the stadium below level to reduce height
- Presenting new functions for creating new activities when there is no match
- Stadium orientation
- Pitch in stadium can be used as a beginning and base of design. Shape of land, dimension and orientation are significant factors in designing a stadium.

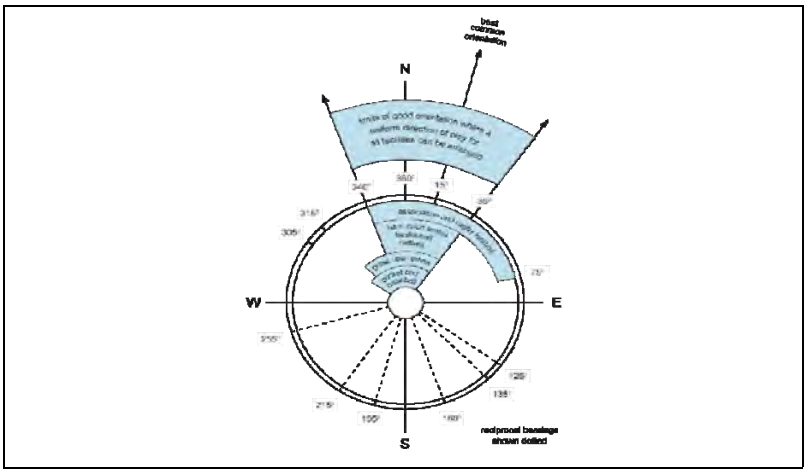

Figure 7: Stadium orientation

Controlling sun radiation: In order to control unfavorable sun radiation, transparent ceiling that limits sun radiation can work along a proper orientation. In this case, it can avoid an intense contrast for players and spectators.

Multiple purpose stadiums: The maintenance expenses of stadium cost a lot and for economic purposes and increasing income, it should predict the possible ways for using stadiums for more than 40 or 50 days that matches are hold in stadium. To add more, stadiums are used for more than 200 days. For instance, a athlete track can increase sport activities.(Figure 8)

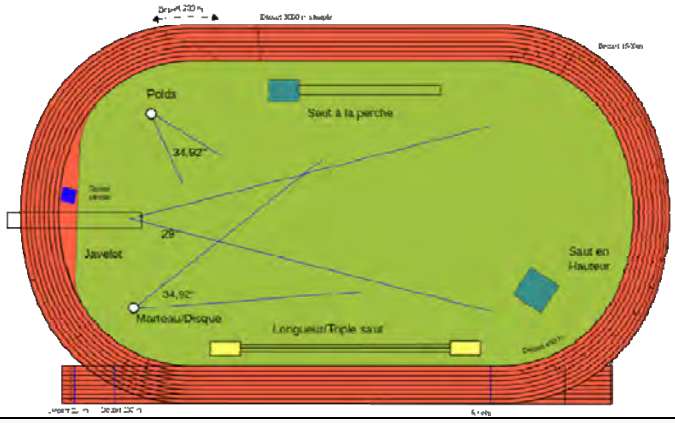

Figure 8: A typical layout of an outdoor track and field stadium

Conclusion

To occupy a place as a stadium requires to pay attention to social, cultural and political aspects as well as considering architectural principles. Due to new role of stadiums, they should play different roles in urbanism and are not seen as monuments otherwise, it may cause many problems and not only do they help boom the economy they city, they impose extra expenses. Stadiums in spite of the past, has a direct relationship with users and it can create comfort and happiness for him, of course it depends on the quality if designing, in some cases, stadiums are giant and huge sculptures that are rarely used and occupy a vast area without giving service to the city.

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