

### СЕКЦИЯ 3.

## **МИРОВОЙ ОПЫТ ПРОЕКТИРОВАНИЯ И СТРОИТЕЛЬСТВА СПОРТИВНЫХ СООРУЖЕНИЙ**

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### **ECOURBARCHITECTURE OF SPORTS FACILITIES**

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*Introduction.* Construction of sports and leisure time facilities, has become very important, at the turn of the century. Big sports events contributed to the improvement of social relationships as a whole, and gave rise to competition in terms of designing and construction of attractive sports halls and facilities in the open air. The sports in ecourbarchitecture cannot be considered as a marginal, but an active contextual, functional and generating social-cultural and historical phenomenon. The structures intended for sports are strategical ecourbarchitectonic, value resource for engendering of a new non-globalistic culture, and creation of new, impressionable images, dynamic city-building forms, a different ecourbarchitectonic FIS-communication identity, of places in micro and macro ambiance space. A sort of a spiritually influential model which can be read from the structures in Olympic complexes, contemporary schools, park complexes etc. The paper focuses on ecourbarchitectonic avant garde realizations of sports facilities which changed the conceptual philosophy in terms of organic shaping of sports facilities correlated with the state of the art technical-technological solutions and which established successful correlation to natural environment. Ecourbarchitectonic formation and designing of sports facilities will be radically changed in the near future. This is indicated by the sports facilities created after year 2000 where the contemporary thought and ideas of their iconic-cultural value in space can be appraised. The paper only partially presents new physical structures in the world: Indonesia, Poland, USA, Qatar and Japan.

*Key words:* ecourbarchitecture, sports facilities, shaping, competitions, results



Figure 1.1. Archipelago Arena is a modern and iconic sports and exhibition building in Senayan, Jakarta

At the crossroads of Jalan Gerbang Pemuda and Jalan Asia Afrika, next to Gelora Bung Karno stadium in, Senayan, Jakarta, on parcel having size of 66.935 m<sup>2</sup>, a contemporary sports Archipelago Arena for national, international competitions and fair events is located. The designer Ridwan Kamil [1] with his associates – Irvan Pribadi Darwis, M. Yuliansyah Akbar, had a good idea to use the dynamic architectonic forms to evoke associations to powerful muscles of sports persons, to use the dynamism of the volume and colored vertical stripes to accentuate the kinetics of the participants in martial and sports activities. The structure is very striking in urbarchitectonic and symbolic terms, with likable sports and light design. It is constructed according to standing international standards with high technology, and represents a town planning and cultural landmark for construction of sports facilities in this part of the world. It is nowadays the cult icon of Jakarta – Indonesia, and in general, a generator of new ideas in esthetic designing of public structures. The undulating façade changes the color of its skin which is a special experience for the visitors. It is supposed that this structure will have a significant economic influence on Jakarta, in a similar fashion as the Guggenheim museum in Bilbao.



Figure 1.2. Gdynia Sports Arena

The designers of the Arena Sport Gdynia, in Poland – Kar-czewski&Bernier Architectes [2] ATI Architektura Technika Inwestycje STALKO Kaczmarek S.J., realized the sports hall for basketball, volleyball and handball, according to FIBA standards, having capacity of 4334 visitors, on the site having surface area of 40.915 m<sup>2</sup>, with 9.100 m<sup>2</sup> of useful surface. The main arena has dimensions 25×48 m and is multi-purpose. It has excellent acoustic functional potential, so it can be used for concerts, fairs, exhibitions and other cultural events. It was opened on 22<sup>nd</sup> December 2008 and it is the main sports facility of the professional Euroleague basketball club, Prokom Gdynia. The structure has an attractive structure, and it is remarkably correlated to natural environment, to the forest belt. A part of vegetative structure is fitted in the oblique façade, an earth bank which is simultaneously the thermal insulation which reduces energy consumption. The impression is of an unpretentious hybrid physical structure. The appearance of the sports hall is resembling the tortoise shell, which approximates a biomorphic sculptural form.



Figure 1.3. Wells Fargo Arena, topped with solar panels

Arizona State University's Wells Fargo Arena is one of the best university sports structure in America. It was designed in the bureau DWL Architects & Planners, Inc of New Mexico [3], and it is designed for male and female basketball, volleyball, gymnastics, wrestling and for various concerts and performances. It was built in 1974. It has 14.198 seats for visitors.

On the approximately radial arena roof – the fifth façade plane, there are 2100 solar panels mounted, producing the energy sufficient to power 125 family houses. It is an energy efficient sports structure with advanced technology. The Photovoltaic statistics of university campuses indicates that in the USA, there are 368 of photovoltaic installations in 271 campus, in 41 state. The total capacity of these solar-panel installations is 167.574 kWh, with the average capacity of 455.4 kW. The di-

mensions of the structure is 400/340 meters. It has excellent acoustic design, and has attractive hall interior and six floors housing offices and dressing rooms for Arizona State basketball teams, together with the rooms for training – with weights, and other auxiliary rooms.

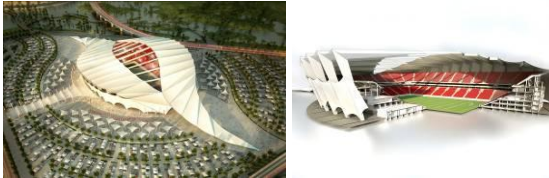


Figure 1.4. Qatar 2022 FIFA World Cup Stadiums

The Al-Khor Stadium will be one of the five new most contemporary stadiums intended for the World Football Championship 2022 in Qatar, in AL Khor, the city at a distance of 50 km north of Doha. The stadium will have a peculiar, asymmetric urbarchitectonic elongated volume having a shape of a shellfish with 45.330 of covered seats for spectators. It will be connected with several transport systems, and its parking lot will have the capacity of 6000 cars, 1000 taxis and 350 buses. There will be 1000 seats for media representatives. The stadiums will have a contemporary cooling technology allowing for a temperature of 20°C (36°F) at the stadium. Upon the completion of the World Championship, the seats of the upper part of the stadium will be dismantled and donated to the countries with less developed sports architecture. All five stadiums were designed by the German architects, Albert Speer&Partners [4].



Figure 1.5. Zaha Hadid's winning design for Japan's new national stadium, which will host the 2019 Rugby World Cup

The famous architect Zaha Hadid [1.5], of London, being best of ten design teams, won the competition for the best conceptual urbarchitectonic design of the new National Stadium in Tokyo organized by the

Japanese sports federation, for the event of the Rugby World Cup to be held in Tokyo in 2019.

"Our thirty years long study of Japanese architecture and town planning was built into our winning design. We rejoice that the National Stadium will be built according to our concept", said Zaha Hadid. The stadium will become the integral element of the Tokyo urban fabric. Through its elegant design, it will organically integrate the surrounding cityscape and become a cultural center, an exciting place for communication and gathering of people. The unique structure is cohesive, archi-sculptural in character, and has a vertical silhouette which will easily blend into the micro ambiance structure of the city. The new sports facility will have a mobile roof. The completion of construction of the sports hall is due in 2018.

### *Conclusion*

Several examples in the field of designing of stadiums and sports arenas intended for the global manifestations planned in various parts of the world, show that their form has long ago departed the rigidly-angled matrices and that archi-sculptural quality and imitation of natural physical structures is a dominant trait. Apart from that, the structures have a strong iconic-symbological and cultural character, and by them are organically and environmentally related to the immediate environment. Their essentially new, contemporary geometry and materialization of form has stemmed from high-tech computer generated technological solutions. They have intensive artistic-esthetic, identity properties, which help achieve functional hybridization and innovative-creative blending of various cultural-artistic and historical – urbarchitectonic forms in space. Such building and artistic changes in the structures of the cities bring about the conceptual recommendation, non-stereotyped value and integrative change in the totality of diversity and in establishment of new forms of urbarchitectonic living. For the sports persons, the newly designed compositions of sport facilities provide a potential of support, challenge and stimulation for achieving the top results.

The spatial stage of a city obtained spatial-multicultural and inspired communications with the advent of contemporary, non-standard designing and planning ideas of urbarchitectonic physical structures of sports facilities. Its powerful, dynamic and non-globalistic influence resulting in direct creation of new strategy of developing comes into focus as a

formal "binder" for adequate formation of the future identity of urban design in the history of cities.

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### **STADIUMS – THE PRESENT AND THE FUTURE**

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Stadiums are arguably the most important sport facilities today. Due to their significance, size and popularity, they define the surrounding space and often even the cities and areas they are located at [2]. They become the symbols of the countries they were built in. Stadiums are also architectural objects seen by more people than any others [5]. The number of people who see stadiums on TV is enormous, since sport manifestations are commonly being shown at prime time. Also, stadiums are buildings that gather the greatest number of people at the same time, even more than 100.000. Stadiums owe their public visibility to the growing popularity of sports in the last one hundred years. Other than this, stadiums as magnificent architectural objects also deserve to be in the center of attention. Compared to other types of architectural buildings, stadiums have very long inactive periods, while they retain very high maintenance costs [1]. Thus stadiums need to attract visitors even in the inactive period and in such way ensure their financial sustainability.

Today stadiums are usually built with some type of cover. Cover is an important element of the architecture of the stadium, both esthetically