

Professional scientific sessions for art, architecture and urban planning Thursday evenings

Held in: Conference hall of Herampey Consulting Engineers

Date: 12.06.2014

Title: Environmental architecture and the intelligent use of the local facilities by the humans and the animals.

Speakers and panel members: Mr. H. Djahanbakhsh, Mr. M. M. Mahmoudi and Mrs. S. Nivi.

The first speaker was Mr. H. Djahanbakhsh who began his speech telling that the humans use the possibilities present in the nature to create conditions for a better life; the attention to the characteristics of the environmental facilities have been considered seriously during the last century and thanks to the achievements in the different fields of technologies, our possibilities made giant steps toward perfection. These characteristics to use the possibilities and capabilities offered by the nature distinguish us from the animals.

Today the environmental architecture has three principle aspects and characteristics that are: technology, stocking and celerity that permitted to the modern movement in architecture to achieve the pursued goals.

The environmental architecture began its process focusing on the historic heritage in the cities, considering the entire physical entity of the cities and the cultural and social aspects. This vision of the facts follows three principle directions that are : the natural , cultural and technological criterions .To obtain good and acceptable results in a similar architectural design process the designer must consider the local characteristics, paying attention to the principle aspects as mentioned above. The architects must consider the specific forms, activities, climate, geography and the relation with the previously built structures, the will ensure the entry of a new structure in the existing built environment. One of the reported successful examples is the national library in Singapore where the designers achieved a perfect link with the surrounding nature and the local and modern needs and characteristics.

Mr. M. M. Mahmoudi was the second speaker who began talking about the human I.Q. that is 110 meanwhile the max. I.Q. observed in the animals is 17. At the same time most of the animals know very well the geometric forms and the inherent static characteristics. Just as an example we can consider the spider that make networks that are masterpieces of strength and in many cases the engineers used the same material or concept to make products like robots for medical uses, cables to use in the bridges structures, parachutes, cordsanother example are the structures made by the honeybee that are resistant to the wind blows. The honeycomb has a very regular and steady form inside and a repellent form outside. The honeycomb is designed and made in order to prevent the rainwater flow in the comb, a fact that can be considered genial.

Another example are the termite's combs in the deserts that have extraordinary characteristics like the air conditioning (to warm or cool the comb). In order to ensure the growth of a particular fungus in the comb and vital for their nutrition, the interior temperature must be maintained on 31 degrees, meanwhile the outside temperature can vary from 3 to 43 degrees. These animals control the level of

humidity adapting it with the local wind flows. In case of the birds also, similar conditions and characteristics can be observed.

During the centuries the human kind tried to apply natural principles in the architecture in order to obtain the best and possible results. The same approach helped the constructors to make submarines watching the dolphins, or building a shopping center in Africa where the termites comb idea and structure was successfully copied and realized.

The last example presented by Mr. Mahmoudi were the plants. For example in case of the marine morningglories that have a structure that conduct the water flow in the direction that the plant needs. The same principle has been successfully applied to make artificial colors and surfaces for the walls where a special characteristic is requested (to maintain cleaner the surface).

The last speaker was Mrs. S. Nivi who explained that the environmental architecture aims and stresses the deep relation that exists with the natural processes and characteristics. In this process a small building comes to make part of the surrounding environment, realized in base of cultural, social, climatic, historic characteristics of the area. The environment offers and includes the local geography, topography, the urban traffic, the presence of the animals, the presence of the inhabitants; these are elements that help to obtain the desired results.

The environment architecture has three principle components that are:

- Historical.
- Climatic.
- Physical.

Mrs. Nivi speaking about the rules that characterize the climatic design are natural and renewable resources because of an imminent lack and ending of the fossil fuels. This is the reason that the designers must base their considerations from the local sources, climate and needs of the users. Mrs. Nivi believes that the principle problem that the Iranian architecture faces is that the many of the architects copy the western architectural products, ignoring the local background, needs, characteristics....In many cases the architects realize a buildings that seem containing traditional bases and characteristics but in fact they have not the functionality of the traditional buildings.

Mrs. Nivi tried to remember and present the routs that our predecessors followed to satisfy the needs of the users when designing a building. This is the reason that in different places and climates of a vast country like Iran the solutions and results reflect exactly the local materials, climate, culture, history...meanwhile the actual situation and production mostly ignores these aspects, making imposing the same solution all around the country.

What Mrs. Nivi believes and proposes to be adopted is to consider and apply the solutions that for many centuries the Iranians found and offered to face the problems and necessities in a building to have the lowest problems and the best solutions to ensure a tranquil space for living. Of course the principle roles in this kind of mentality are the sun, the selection of the appropriate materials and the correct geographical positioning of the buildings and their components.