Professional scientific sessions for art, architecture and urban planning Thursday evenings
Held in: Conference hall of Herampey Consulting Engineers
Date: 08.12.2016
Title: from geometry in traditional architecture to Origami in modern architecture.
Speakers and panel members: Mrs. M. Mahmoudi Zarandi and Mrs. F. Haqqi.

The first speaker was Mrs. Mahmoudi Zarandi who began her speech posing the following questions: why the Iranian geometry is ideal, is there anybody that doesn't like it, is there anybody that doesn't enjoy its visual effects? In the contemporary architecture that experience a challenge between tradition and modernity, the architects posed the following question, the past forms should be recovered or not?

In the Iranian architecture we assist to the phenomenon that generally the traditional geometry is ignored and replaced by a new approach.

The post revolution architects believed that the forms of arcs are elements belonging to the past, today everything is changed and they should adopt a new approach regarding the architecture. Mr. Mirmiran, a well known Iranian architect, believed that the contemporary architects should find the essence of the past forms and not repeat their physical forms. In the works of this group of architects the mentioned approach is visible and the Iranian geometry hasn't any role, so the question is that the Iranian geometry is not good, the houses of Kashan haven't a good architecture and today how we should we design? To answer these questions Mrs. Mahmoudi believes that we should understand how we feel the geometry and forms of the past and how our mind comprehend and evaluate them?

In her opinion the first step of the knowledge is realized through our five perceptive senses and the relationship that they create with the surrounding environment going from sensations to perceptions. According the studies the data that we receive is mostly through the visual sense. This sense helps especially the artist to understand the colors and their combinations. The colors help to understand the shapes and the forms, giving us the possibility to feel and enjoy them. Our brain collect all the information that surround us, register them and provide the following data base for the successive phases. Because our mind is a perfect visual recorder Mrs. Mahmoudi wants to understand how it would be possible to use the recorded data for new architectural designs, insuring the relation between the past and the future.

She mentions the name of the Iranian famous architect H. Sayhoon who had the capacity to combine the multiform patterns and use them in his works.

Continuing her speech she talks about our perception regarding for example the brick and the aluminum tiles used as building material, and because the first one is natural material and the second an artificial one, our mind according the long term recorded data, usually gives the preference to the natural material, because it gives us a better feeling and sensation. This is the

reason that we (the Iranians) prefer the brick made houses in Kashan than the buildings made in Florence, that in our historical memory a larger area of the deposited data.

In another part of her speech Mrs. Mahmoudi presented the personal experiences of different scientists and artists regarding the matter, that were very interesting approach.

Talking about the Iranian geometry Mrs. Mahmoudi believes that the reason of its value and success consists in its simplicity that at the same time contains a huge quantity of data that transmits to the viewer. As an interesting value she talks about the Imam mosque in Isfahan, where the combination of colors and shadows in the building are very pleasant for who sees them.

Concluding her speech Mrs. Mahmoudi poses a question, where is the position of architecture in the arts? Many think that architecture is part of the artistic sphere where it is design and part of the science where it is construction. The conclusion is, in her opinion, that architecture is the combination of artistic and scientific combinations.

The second speaker was Mrs. F. Haqqi who talked about how the origami and its geometry influenced the architectural forms. She stressed on the fact that her intention is just to focus on the relations that exist between architecture and the arte of Origami. She explained that the spheres that Origami plays an important role in architecture are the volume, the façade and the mobile elements.

In the first case that is also called “folder plate” the structures are stable and can also bear loads. The other forms of Origami are the volume that are not able to bear loads. To explain better the idea she reported the paper plate where we can increase its stability folding the plate through the forms that are more appropriate. Another form used in the façade is the triangular form that permit to obtain the desired visual effects through the combination of triangles, combinations that for example permit the control of the intensity of sunlight. The third use of Origami in architecture is the so called mobile architecture, where deployable and demountable elements are used to complete and enrich the architectural structure.

Mrs. Haqqi explained the way these elements reach their stability, having a modular structure to serve the desired functions foreseen during the design phase.

Continuing her speech she talked about a Japanese Origami expert called Tomo Hirotachi, who has registered a complex form of Origami used to feel the free spaces in the building.

The present problem is that now that we saw and knew these structures, how can we use them in the design process and in the buildings. The current theory is that first we should understand and know the patterns and their geometry and then use them in new concepts and structures.

Mrs. Haqqi presented the different types of Origami like Miora Ori, Youshimora, Diamond and diametric patern. Each of these patterns permit to create different, new and interesting forms and to do mental exercises that are necessary to find new design solutions.

Explaining the precise composition and structure of different types of Origami and how many similarities exist between Origami and the traditional geometry.

Concluding her speech Mrs. Haqqi talked about the Japanese professor Mr. Tachi that has designed a software called Origami that permits to create compositions through the application of Origami and use them for the proper purposes.

What Mrs. Haqqani explained was a simple introduction to better know and understand the Origami.