

Applying the concept of zero-energy buildings in the design of cultural centers through interaction with the user

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Abstract:

The General Authority for Cultural centers played a very important role in contemporary Egypt. In the 1960s, we used to see it displaying theaters and films, organizing cultural seminars, and supervising libraries. However, despite the Authority's spread in all governorates with more than 500 cultural sites, "Palaces of culture, houses of culture, libraries," but the societal impact they have has been reduced to the greatest degree. Therefore, it does not play the role that is expected of it, as the majority of the palaces are closed, without serious activities and events, seminars or activities, to live like any cultural facility in crises, the most important of which is the economic crisis, and the absence of awareness among young people of the importance and necessity of culture and its impact on the individual and society, and the lack of understanding of its meaning and purpose and that it is the means. Ideal for nourishing their inclinations, developing their mental powers, and meeting their psychological needs. This is a societal culture that requires a massive change in awareness and understanding in a nation that is in dire need of cultural action. Hence the role of the interior designer in trying to preserve the cultural heritage and protect it from incoming influences, by contributing to solving the problems of these palaces so that they regain their effective role in society, and that is through designing self-sufficient cultural houses or zero or neutral buildings, which achieve a balance between the energy consumed And the renewable energy generated by the building itself, meaning that its energy production is equal to its consumption. The designer also tried to help achieve the lost enjoyment of young people and encourage them to develop their mental abilities and psychological needs through interaction with the various interior design elements of the culture houses to generate energy, The thing that young people lack at this stage is to give them a sense of meaning and purpose. In other words, when the work they do is connected to a goal that is dear to them, this sense of connection to the goal provides them with great positive energy, and raises their level of concentration and understanding of various cultural activities, and thus increases perseverance, tolerance, and enthusiasm. By combining fun and cultural awareness. Culture greatly affects human behavior, as values, beliefs, traditions, customs, and cultural perceptions form an essential part of his personality and control his thinking and behavior. It also affects the interaction of individuals with each other and with the outside world. For example, human behavior is affected by the values and beliefs that are taught. In his cultural environment, which controls his thinking and actions. Culture Palaces are one of the cultural institutions affiliated with the General Authority for Culture Palaces, which is an Egyptian body that aims to provide these cultural and artistic services and participate in raising the cultural level and directing the national awareness of the masses in the fields of cinema, theatre, music, literature, and the popular and plastic arts, as it provides Performances by artistic groups and plastic arts exhibitions, in addition to many different arts.

Research problem

- The societal impact of cultural palaces has decreased due to the economic crisis.
- Lack of awareness among young people of the importance and necessity of culture and its impact on the individual and society.

Research objectives: Trying to preserve cultural heritage and protect it from incoming influences, by contributing to solving the problems of these palaces so that they can regain their effective role in society.

- Designing self-sufficient cultural houses, zero-sum or neutral buildings
 - Helping achieve lost enjoyment among young people and encouraging them to develop their mental abilities and psychological needs through interaction with the various interior design elements of the culture houses to generate energy.
- The importance of research :The importance and necessity of culture and its impact on the individual and society, and realizing its meaning and purpose and that it is the ideal means of nourishing inclinations, developing mental powers and meeting the psychological needs of young people, in a country that is in dire need of cultural action.

Research methodology: The research follows the descriptive analytical method by examining the problem, defining its features, formulating hypotheses and deducing their consequences. The designer studied and analyzed the architectural and design solutions for cultural centers based on their nature, requirements, various activities, and the target groups for their construction, which would reach the design and construction of zero-energy buildings that consume the least amount of energy possible. When a renewable source of energy is added to these buildings, they will be able to produce enough energy to meet or exceed its operating requirements, it classified these solutions into passive strategies (solutions to isolate and manage the building using smart systems), in order to reach the percentages that the building needs to produce through the user's interaction with the interior design elements to reach an energy-neutral building. "Positive strategies", and this is represented in the following tables "Table 1, 2- :"

Results: The researcher explained the percentages provided by each element of the total energy consumed for that element in the building according to international estimates. She then collected the average of those percentages and divided them by "100% x the number of elements" 3" in order to arrive at the total percentage of saving the building's total energy consumption represented by In the following equation- :Percentage saving on total energy consumption = $\text{Average}^{\%50:70} + \text{Average}^{\%40:50} + \text{Average}^{\%50:60} = 60+45+55 = "160" / "100\%+100\%+100\%" = 160/300 = 0.53$

$x \ 100 = 53\%$. The value of saving the building's energy consumption kw/h = "53 x 31" average building energy consumption in kilowatts per hour" = 16.5 kw/h

Keywords :

Zero buildings, culture Centre, user interaction

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