

Sustainable Design Techniques for Glass-Metal Architecture Facades of Public Building

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Abstract:

There is no doubt that the mineral glass facades give public service buildings lightness, grace and beauty, and it is a good and distinct idea reached by the pioneers of modern architecture, in the countries of Europe and America. So it is not surprising that cold cities seek to use these facades, in a way that ensures them comfort, and does not require expensive treatments from them. These facilities, which are described as modern and contemporary, have spread to many Egyptian cities without taking into account the environmental difference, as if they were a single group, which looks very similar to Western facilities, in a phenomenon known as the international style. The research problem stemmed from the need to study the effect of observing process design and sustainable implementation treatments on the glass mineral facades of public buildings, whether governmental or private in Egypt. The aim of the research lies in crystallizing concepts and methods of sustainable design, in order to reach the optimal use of raw materials and technologies, mineral glass facades for public service buildings in Egypt. Also reducing the use of new materials in these interfaces. In addition to respecting the principles and foundations of the urban planning of the site, which make these facades compatible with the environment with all its elements. The safe design of the facades also plays a role in taking into account the safety factors of the facade elements and their structural installation during the design and implementation stages. Finally, the architectural nature compatible with the environment, from a historical and social point of view, and even with the customs and traditions of society. The third axis concluded that the mineral glass facades should benefit from the latest technology developments and successes, to produce patterns that achieve a great investment in the properties and specifications of the materials, in order to enhance the goals and functions of sustainable design. Then the research ends with a set of controls and recommendations necessary to adopt the ideas of contemporary environmental trends, such as taking a sustainable design as a general approach to the development of mineral glass facades, and then the use and employment of natural energy elements, in light of an objective assessment of future development prospects.

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