

Interactive and smart facades technology and its environmental impact

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Abstract:

The scientific and technological development has contributed to the enrichment of architecture in general, as facade technology has achieved many developments in both building materials and technology, especially with technologically advanced architecture, such as sustainable architecture, interactive architecture and smart architecture. The facades are the most visible parts of the building and shape the building style through its elements, with an interactive and smart technology that makes the building adaptable and interacting with environmental conditions, while determining its environmental impact.

The environmental impact determines the environmental impacts resulting from the establishment of projects, including raw materials, construction technology, and production ... which affect the ecosystem, and assesses the potential negative or positive effects of a project on the natural environment. The environmental impact aims at reducing environmental pollution, achieving a balance between environment and development, and preserving the ecosystem.

The advanced technology, especially the interactive and smart facades technology, added a new style of buildings that is characterized by complex simplicity, in both form and construction technology, and its relationship to the ecosystem, by presenting and analyzing illustrative models of buildings with interactive and smart facades, determining their environmental impact and their compatibility with sustainable environmental systems. The research is concerned with analyzing the types of interactive facades by identifying: the interactive idea, interaction technology, and the environmental impact.

Interactive facades vary with types of dynamic interaction: (mechanical, delusion, by user, media) which affect the interface's shape, its interaction and its environmental impact.

The interactive façade technology depends on the applied cladding technology, including “ventilated facades,” which depend on the existence of the installation structure, and is characterized by reducing the amount of building materials, reducing the temperature of the building and rationalizing electrical energy consumption. The interactive and smart façades include advanced external cladding materials of a reactive nature, such as Alucopond cladding, Interactive paints and Smart glasses Interactive cladding materials have industrial and environmental specifications, which are: resistance to weather, sunlight, humidity, pests and fires, reducing electrical energy consumption, and making use of Natural solar energy,

longevity and ease of maintenance. Interactive and smart interfaces are compatible with sustainable environmental systems when they contain environmental impact criteria.

Keywords:

Interactive and smart façades, façade cladding technology, Ecosystem, environmental impact, Anchoring structure