

SINGULAR ARCHITECTURE CHALLENGED BY THE ENERGY TRANSITION CASE OF THE CFC TOWER IN CASABLANCA

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ABSTRACT

Technological progress and technological advances that are constantly and rapidly increasing drastically have impacted the practice of architecture around the world. Architects now have a wide range of techniques allowing them a wide range of expressions using complex structures with advanced construction technologies and materials. This situation has led to the production of spectacular constructions and singular buildings that become architecture "icons". Nevertheless, the issue of sustainable development and energy efficiency is now a priority, as is the singular architecture. This question also involves the singular building in its interaction with its urban environment. This research deals with the design of a building through the combination of three concepts: the singularity of its architecture, the relationship to its environment, and its energy efficiency. The choice of Casablanca Finance City tower (CFC) as a case study is mainly driven by the singularity of its architecture compared to its environment and its supposed energy efficiency. A conceptual approach related to the urban landscape and the environment of the tower was developed as a part of the analysis of the site studied by Morphosis Architects. Three-dimensional modeling and dynamic thermal simulation of some models of the tower, proposed by application of energy efficiency measures, allowed to optimize the energy consumption of the tower with a significant reduction compared to the reference model, and thus to ensure the comfort of users of indoor environments of the tower.

KEYWORDS: *Singular Architecture, Icon, CFC Tower, Urban Environment, Energy Efficiency*

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