The use of Structural Systems Inspired by Nature in Sustainable Architecture

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Abstract:
In light of the world's lack of resources and the weather changes caused by man's misuse and exploitation of his environment and the impact of our current lifestyles on the environment lead us to depletion of the natural resources of the earth. The way to deal with this situation is either to preserve natural resources or to simulate this nature which is inherently sustainable by taking nature as a model and scale. The process of mimicking nature, simulated, or biologically inspired designs as a tool and strategy for sustainability involves finding solutions to design problems by simulating the natural world. The nature of the systems, materials, processes, and structures, which have long been the ideal means and writers whose ideas are inexhaustible to inspire the solutions to the needs of successive generations and problems of design through the times To sustainable sustainability in a way that addresses design challenges more sustainably and more effectively. It is also an indicator of nature's work systems and thus a productive and inspirational tool to re-visualize the built-up world.

Hence, Nature can be inspired most as the experience of it is more than 3.8 billion years in the evolution process, so the idea can be taken and used to change the whole idea. In bio-mimicry itself, it is to develop an evolutionary process to enhance life, by creating new technology for mankind. The basic idea is to make a combination between technology and engineering by helping humanity to treat nature in better harmony, so that the entire world user can create better products by developing greener and more sustainable technologies, without harming nature. Research Problem: the lack of adequate studies on the importance and role of simulating living natural systems in terms of form, composition, structure, and ecosystems as one of the means and ways to achieve sustainability in architecture. Research goals: The research aims at extracting the indicators and the morphological and constructional determinants in the field of simulation of living natural systems and the possibility of transferring some of their transformations into sustainable architecture. The research was based on the hypothesis that nature and its models can be used by simulating its forms and choosing the appropriate structural and environmental systems that help in achieving sustainable architecture. The research adopted the method of study for a group of international architectural projects within three pillars; Simulation of living nature., Decisions of sustainable ecosystems., Simulated Regime Origins of Living Nature.

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