الأبحاث المقدمة للترقية لدرجة / أستاذ
ملخصات الأبحاث باللغة العربية / الإنجليزية

الإسـم : محمد عبد الفتاح أحمد العيسوي الكلية : الهندسة ـ قسم الهندسة المعمارية الجامعة : جامعة الفيوم
التخصص: التصميم والتحكم البيئي

Biomimicry Principles in Architecture
Towards a Guide to Contemporary Bio-Environmental Design Standards for Buildings

ABSTRACT

Nature has been a source of inspiration for humanity in various aspects of its life, and among these areas was the inspiration from nature as a tool in architecture by approaching nature and developing it also in what is known as biomimicry design. Despite the long history of human connection with nature, the scientific approach to simulating architectural design for nature emerged recently in the sixties of the twentieth century and was generalized in the late eighties, in what is known as biomimicry, which dealt with innovative design inspired by nature, but these studies and research are still in their infancy and the science of architecture is still capable of receiving many models of living organism biology and including them in its environmental designs. The problem of the research paper is that the application of bio-environmental techniques as a design approach has not been exploited and is still not achieved to a satisfied level, and there are still many different obstacles that prevent the biomimicry as an environmental design approach, in addition to the lack of a definition of the different approaches to biomimicry design strategies. The research aims to develop a direct methodology for the steps of biomimicry design, which can be used in two ways, the first includes how to obtain a biomimicry environmental design model that mimics nature, and the second works on exploring and analysing new biological models in the surrounding environment to use them in renewing, developing and adding strategies of biomimicry design. The results of the research indicate the possibility of relying on biological analysis of the adaptation of living organisms to specific environmental conditions and the extent of their adaptation to them as a design reference to building elements, which directly contributes to obtaining the most appropriate model for environmental design and effectively appropriate to the extent of the building's adaptation to the surrounding environment. The study also shows that the natural environment is still full of biological models and systems that have not been sufficiently utilized in different environments and used in advanced environmental designs for buildings.