

BIOMIMETIC APPROACHES TO ARCHITECTURAL DESIGN

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The field of biomimicry, where flora, fauna or entire ecosystems are emulated as a basis for design, has attracted worldwide interest in the fields of architecture and engineering. This is due to both the fact that it is an inspirational source of possible new innovation and because of the potential it offers as a way to create a more sustainable built environment. The widespread and practical application of biomimicry as a design method remains however largely elusive.

A growing body of international research on biomimicry in relation to the built environment identifies various obstacles to the employment of such a methodology. One barrier of particular note is the lack of a clearly defined approach to biomimicry that designers with little specialist knowledge in the fields of biology or ecology can initially employ.

Through a comparative literature review, and examination of existing biomimetic technologies and tools to aid in the biomimetic design process, this paper elaborates on three distinct approaches to biomimetic design that have evolved, and discusses the distinct advantages and disadvantages inherent in each. It is shown that these different approaches may have markedly different outcomes in terms of overall sustainability, and the question is posed – does mimicking the living world inherently lead to more sustainable designs?

It is posited that a general theory of biomimicry could become a vehicle for creating a built environment that goes beyond simply sustaining current conditions to a restorative practice where the built environment becomes a vital component in the integration with and restoration of natural ecosystems.

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