

Adaptive Architecture: Reformulation of Socio-Ecological Systems

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Abstract : This multidisciplinary study interrogates the reformulation of socio-ecological systems by bringing different disciplines together and incorporating ecological, social, and technological components to the sustainable design. The study seeks for a holistic sustainable system to understand the multidimensional impact of the evolving innovative technologies on responding to the variable socio-environmental conditions. Through a range of cases, from the vernacular built spaces to the sophisticated optimized systems, the research unfolds how far the environmental elements would impact the performance of a sustainable building, its micro-climatic ecological requirements, and its human inhabitation. As a product of the advancing technologies, an optimized and environmentally responsive building offers new identification, and realization of the built space through reformulating the connection to its internal and external environments (such as solar, thermal, and airflow), as well as its dwellers. The study inquires properties of optimized buildings, by bringing into the equation not only the environmental but also the socio-cultural, morphological, and phenomenal factors. Thus, the research underlines optimized built space as a product and practice which would not be meaningful without addressing and dynamically adjusting to the diversity and complexity of socio-ecological systems.

Keywords : ecology, morphology, socio-ecological systems, sustainability

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