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Natural Patterns for Sustainable Cooling in the Architecture of Residential Buildings in Iran (Hot and Dry Climate)

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Abstract : In its thousand-year development, architecture has gained valuable patterns. Iran's desert regions possess developed patterns of traditional architecture and outstanding skeletal features. Unfortunately increasing population and urbanization growth in the past decade as well as the lack of harmony with environment's texture has destroyed such permanent concepts in the building's skeleton, causing a lot of energy waste in the modern architecture. The important question is how cooling patterns of Iran's traditional architecture can be used in a new way in the modern architecture of residential buildings? This research is library-based and documental that looks at sustainable development, analyzes the features of Iranian architecture in hot and dry climate in terms of sustainability as well as historical patterns, and makes a model for real environment. By methodological analysis of past, it intends to suggest a new pattern for residential buildings' cooling in Iran's hot and dry climate which is in full accordance to the ecology of the design and at the same time possesses the architectural indices of the past. In the process of cities' physical development, ecological measures, in proportion to desert's natural background and climate conditions, has kept the natural fences, preventing buildings from facing climate adversities. Designing and construction of buildings with this viewpoint can reduce the energy needed for maintaining and regulating environmental conditions and with the use of appropriate building technology help minimizing the consumption of fossil fuels while having permanent patterns of desert buildings' architecture.

Keywords : sustainability concepts, sustainable development, energy climate architecture, fossil fuel, hot and dry climate, patterns of traditional sustainability for residential buildings, modern pattern of cooling
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