



Analysis of Design Indicators of Sustainable Buildings with an Emphasis on Efficiency of Energy Consumption (Energy Efficiency)

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Abstract

Nowadays paying attention to sustainable development issues has been a priority for different countries, due to technological advances and increasing number of problems caused by neglecting the environment. Sustainable development is a new field that considers all the aspects of human life. One of important issues in this area is, considering the energy and efficient energy consumption and reducing the environmental consequences of its consumption. Sustainable design of buildings is also an example of sustainable development. The purpose of this study that has been conducted based on documents and library studies and analysis of samples that are built with the sustainable approach is to study and compare the fundamentals of investigated samples with the criteria of sustainable development. The result is that fundamentals of these buildings as architectural responses can help architectures challenges in different environmental conditions.

Keywords: Sustainable Design; Efficiency; Sustainability; Sustainable Buildings.

1. Introduction

In 1960s widespread questions and criticism about development programs and its incompatible consequences on the environment, was proposed that finally caused the issue of sustainability to be mentioned and developed frameworks and limitations for development. After that the slogan "development without sustainability, no," "sustainability without development, no" was formalized [1]. Charles Janker in the last chapter of his book sustainable architecture, notes that with destroying the earth, we destroy the 27000 biological species in a year, which means 74 extinctions in a day or 3 destructions in an hour. New evidences according to Times magazine dated January 31th, year 2000 shows higher numbers for these destructions that is hundreds of extinctions in a day, global warming, ozone layer is getting thinner due to the use of various contaminants, increasing environmental pollution and extinction of biological species, all of these merge together to forecast the necessity of ecology and environmental issues for future in a way that surpassing an ash against green world, be the most notable issue in this century [2]. Therefore, modern architecture inevitably should move toward sustainable design so that it would be a way out of the emerged crisis. According to definitions, sustainable design balances the needs and demands of human and other pillars of the global biological system in future and present time [3]. As a result, a sustainable building is a building that has the least opposite effect on the natural environment and local and global establishment [4]. In addition to environmental, social and economic factors, the increase of energy cost in recent years has increased the desire for sustainability. In this way, the increase of energy price and conservation of its resources is inevitable these days [5]. The purpose of this paper is to study the factors and elements used in sustainable building that have been designed up to now and proposing these principals as efficient methods for designing the sustainable building nowadays. This research is conducted based on library studies and a

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