

Principles of Green Architecture Suitable for Application in Yemen

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Abstract:

Green Architecture (GA) began to appear -as an expression - in the seventies of the last century. Recently, Arab world begun to interest in GA. GA evaluation systems have emerged as a basic requirement to determine the quality of these buildings and their commitment to the principles of green architecture. Although there are many GA evaluation systems in many countries, Yemen delayed in applying the principles of GA, and its buildings moved away from applying the internationally recognized GA principles (GAP), although some of these principles appeared throughout history in Yemeni traditional architecture.

Applying the principles of GA always faces different circumstances that may affect it positively or negatively, and they differ from one society to another. Traditional Yemeni architecture has been characterized by many features, environmental aspects and many architectural treatments that meet the goals and principles of GA, but the applicability of all the principles in Yemeni architecture has not been tested. Thus, this paper seeks answer a central question that asks about the applicability of GAP in Yemen. The research aims to find an answer to the central question by examining the applicability of GAP in the Yemeni built environment. A questionnaire is conducted for architects and specialists in Yemeni Architecture to examine the applicability of GAP in Yemen in light of its circumstances. The study ends with results of the questionnaire, analysis and discussion of the applicability of green architecture principles in Yemen and the degree of their importance in terms of application. The research concluded that there is a set of principles that are applicable in Yemen which are: Respect for site; Adapting with climate; Energy efficiency; Material and resource efficiency; Water efficiency; and Indoor environment quality, with a set other GAP that specialists demonstrate that they are not applicable in Yemen. The study also recommend to apply the approved GAP in Yemen in relevant contexts.

Keywords:

Green architecture, The Yemeni urban reality, Yemen.

1. Introduction:

Green architecture represents one of the most important modern trends that calls for laying the foundations of new architectural and environmental thought in a more in-depth, understanding, and connected way with nature and environmental systems as a whole. This trend and other trends that call for taking into account the natural environment and integration with it have emerged as a result of the negative impacts the world is witnessing on the environment surrounding us. Such as the depletion of natural resources and raw materials, and the spread of pollution, diseases and noise. Green architecture began to appear in the seventies of the last century in developed countries, and interest in green architecture has also begun recently in some countries of the Arab world and the Gulf countries, and green building evaluation systems have emerged as a basic requirement to determine the quality of these buildings and the extent of their commitment to the principles of green architecture, and despite the spread of green building systems Evaluation of green architecture in many countries. However, Yemen suffers from a delay in applying the idea of green architecture, and its buildings have moved away from applying the internationally recognized principles of green architecture, some of which have appeared throughout history in traditional Yemeni architecture.

1.1 Research problem:

The scarcity of studies that dealt with the concepts and principles of green architecture in Yemen or investigated the degree of compatibility of the principles of green architecture with the Yemeni urban reality, as most studies were limited to dealing with environmental thought and environmental treatments in ancient Yemeni cities. This problem is also considered the result of a lack of interest in the green component in culture and awareness. The general community.

This research seeks to find an answer to a central question, which is:

To what extent are the internationally recognized principles of green architecture applied in Yemen?

To answer this question, you must first search for answers to the following sub-questions, which are:

- What is the concept of green architecture and what are the most important principles of green architecture recognized internationally?
- What is the urban reality of the Republic of Yemen affecting the application process?

2.1 Research objective:

The research aims to find answers to the central question of the research and the sub-questions emerging from it so that the applicability of the principles of green architecture can be verified in the Yemeni local reality.

3.1 Research methodology and tools:

The research methodology is based on the deductive approach in general, through an analytical desk study of the concept and principles of green architecture and evaluation systems, as well as a description and analysis of the factors affecting the Yemeni urban reality, and then deducing the most important principles of green architecture appropriate for

application in the Yemeni urban reality through a questionnaire designed by the researcher, which It was used as the main tool for the study, so the research structure is as follows:

- o The concept of green architecture and its principles.
- o The urban reality of the Republic of Yemen, and the factors affecting it (functional, natural, humanitarian, technological).
- o The suitability of green architecture principles for application in Yemen.

The research is based on a questionnaire designed by the researcher to obtain opinions from architects and academics about the suitability or lack of suitability of the main and subsidiary principles of green architecture for application in the Yemeni reality. Figure 1 explains the research methodology.

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