

**ISLAMIC ARCHITECTURE, SUSTAINABLE ARCHITECTURE, AND ENVIRONMENTAL PSYCHOLOGY**

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**ABSTRACT**

A number of scholars defined the implication of dwellings has been researched from different perspectives such as environmental psychology, sustainable architecture, and sociology. The designs in the Islamic architecture have roles with respect to the Islamic human nature. It is through the architecture that the Islam implement their culture. Due to varied climatic conditions, some regions present conditions that are harsh for the human beings to live in such areas. This necessitates the need to develop structures that protect mankind from such conditions through the adoption of sustainable architecture. Some of Islamic architecture in Iran utilize the natural resources such as the wind, water, and plants to achieve sustainable architecture. This paper presents Islamic and sustainable architectures in relation to the human nature.

**KEYWORDS:** Sustainable architecture, Islamic Architecture, Color and Light. Environmental psychology

**1.0 INTRODUCTION**

A number of scholars defined the implication of dwellings has been researched from different perspectives such as environmental psychology, sustainable architecture, and sociology. The Islamic architecture is an architecture whose designs have roles with respect to the Islamic human nature. It forms the basis for the implementation of Islam (Hyde, 2013). The Islamic architecture plays a role in fostering and facilitating the Islamic activities that take into account each moment of their lives on the earth. Some Islamic architectural designs are constructed in regions with harsh environmental conditions, though they have some features that enable them remain sustainable in those regions. For instance, a significant number of regions in Iran comprises of residential houses located in cities and towns within the desert regions. The cities are exposed to the main dynamics resulting from contemporary technique of architecture and redesigning in the last four decades (Emmanuel, 2014). Architectural designs should take into consideration their sustainability before becoming obsolete. Environmental psychology explains that the modern human culture is an upshot of the person's contact with the external natural environment through the history with the human nature based on the knowledge and experiences already encountered in the past. The climatic conditions have made the human beings acclimatize with the specific problems within that region through the use of architectural designs withstanding such conditions (Puthucherril, 2015). The main goal, of using sustainable architecture, is to provide the basic needs of human beings, enhance life standards, preserve the prevailing ecosystems better and ultimately reach the safer future (Hawkes, 2012).

**1.1 Islamic Architecture**

The architecture of Islam strives to address the needs of their human nature.



**Figure 1.0: Color, light and water presence in the Iranian Customary architectural designs with every design with a Conceptual message (Annie, 2012).**

Ibn Abdun, who was an Andalusian judge in the 12<sup>th</sup> century, considered the Islamic architecture as a haven where an Individual's spirit, soul, and body, are hosted, implying that the architecture was like the container of human lives. The architecture promotes unity of both the message and purpose. This makes it be relevant and dynamic (Crocker, 2012). Certain colors and light intensities have psychological effects on the human nature. They affect the emotional and psychological aspects of the users. The Islam considers their architectures to imply the origin of all creatures and consider the whole world being light. Light, color, and water are basic forms of esthetics in the Islamic architecture. Light represents divine wisdom. Color results from light refraction and the natural water forms the reflecting surface in Islamic architecture (Jill Franklin, 2012). Thus while building the floors and wall surfaces, they were made shiny in order to capture the light and reflect it as a decorative feature. Traditionally, light was transmitted from the porous wood sections and the colorful glasses. Examples of Islamic architectures illustrating the element of shiny surface are shown in Figure 1.0.

The shining of every color is considered to bring multiplicity. The Islam relates this with a diversity of worlds whereby all the entities are inter-related with each gaining value from the opposing feature to itself. A multiplicity of colors implies integrity and unity thus proving pleasure and vivacity to the beholder. (Figure 2.0).



**Figure 2.0: Colorful tiles showing the composition of various colors in Islamic architectural designs (Carey, 2012).**

## 1.2 Sustainable Architecture

In the traditional sustainable architecture, the siting of the buildings largely depended on and in harmony with solar energy. The positions of doors and windows were compatible with climatic conditions within the regions. The positions of the exits were all aimed at making them durable, withstand climatic conditions and give ideal life supporting conditions to the users. Modernly, most sustainable architecture emphasize the use of recyclable, regional and highly durable materials. Some buildings are made such that they utilize natural resources. For instance, they allow the passage of the wind primarily to cool and condition the internal space. The basement and the cellars create a pleasant air cooling mechanism that is innovative in nature and links the traditional architectural designs and the concept of stability (Annie, 2012).

There is a relationship between sustainable architecture and environmental psychology. As an example, the architectures provide use-values required to address basic shelters, dignity, and individual-affirmation. The designs are made using sustainable materials and provide long usable periods. At the present, the environmental architecture has focused on the world. The architecture considers the major environmental issues such as monitoring the environmental conditions through the use natural systems like wind and water, minimizing the energy use during material production and the application of clean and sustainable energies that aim to address the human needs (Bergman, 2012).

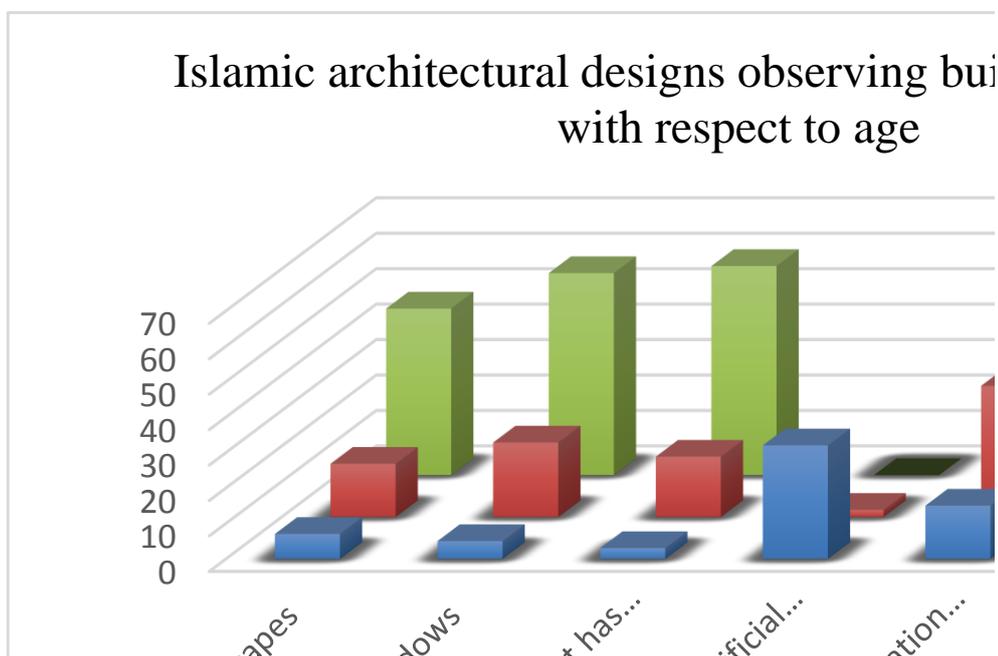
**2.0 MATERIALS AND METHODS**

**2.1 Goals for Sustainable Architecture**

The general goals for sustainable architecture can be broadly be classified into social, environmental and economic sustainability. Social sustainability comprises of environmental, psychological factors such as cultural identity, empowerment, accessibility, stability and equity in the human nature. The economic sustainability composes of growth and development while environment sustainability has goals of ensuring the integrity of the ecosystem and maintain the biodiversity of the available resources. During designing of buildings, the architecture must consider the principles of sustainable designing. He/she should take into account how harmonious the design will be with the prevailing climate, the sustainable materials to use and the ideal siting of the building for taking optimum privilege of recyclable energies. Others include the sustainable surfaces and building shape; like most of the Islamic buildings in which color and shiny surfaces has an implication (Rassia, 2012). The geographical position of the area under study is also a factor that should be taken into account. Areas with very high population densities should be avoided. The strategic location of the architectural design along with the environmental advantages forms the reasons for establishing the buildings at their current locations (Chakrabarti, 2013).

**3.0 RESULT AND DISCUSSION**

The latest urban designs and planning involves the identification of borders of various neighborhoods within the town and their interaction.



**Figure 3.0: Islamic architectural designs observing building principles with respect to age (Kazimee, 2012).**

For instance, the Ardestan Islamic city in Iran is situated in a desert in which just like other areas with similar climate, water plays a big role in ensuring the city exist. Moreover, most of the traditional designs within the city largely depend on the availability of water. The modern sustainable architecture are constructed considering the nature of urban sustainability in the designs. A study conducted by an American researcher Emmanuel revealed that the traditional architectural designs relied on natural resources such as water and plants for conditioning more than the modern designs that heavily rely on artificial cooling systems than the natural resources(Emmanuel, 2014). Taking an example of Islamic architecture in Ardestan, the above parameters hold as shown in Table 1.0.

**Table 1.0: Islamic architectural designs observing building principles with respect to age (Kazimee, 2012).**

Nature of sustainable architectural design and city planning	Percentage observing building principles (< 5 years old)	Percentage observing building principles (5-15 years old)	Percentage observing building principles (>15 years old)
Using water and waterscapes	7	15	47
Tree use in casting shadows	5	21	57
Vegetation use that has acclimatized with the prevailing climate	3	17	59
Application of artificial conditioning systems	32	2	-
Planting dense vegetation close to buildings	15	37	62

This can be represented on the bar as shown in Figure 3.0

The climate is an essential aspect in the logical formation of structures and sustainable architecture. Additionally, the climate related issues pose threats to those individuals living in this areas. As time goes by, the problems presented in the climate necessitate the need to look for solutions and surprisingly reduce the disturbing climatic factors and capitalize the climatic relaxing aspects.

#### 4.0 CONCLUSION

This research paper presented the Islamic architecture, sustainable architecture, and the environmental psychology. Most of the Islamic architectures are designed with the shapes having certain meanings. Light, color, and water are basic forms of esthetics in the Islamic architecture. Light represents divine wisdom. The shining of colors bring multiplicity that imply integrity and unity thus proving pleasure and vivacity to the beholder. Sustainable architecture has been the measure of enhancing life quality and achieve cozy living conditions. The general goals for sustainable architecture are broadly categorized into social, environmental and economic sustainability. The factors in social, environmental and economic sustainability were reviewed. The paper also presented the principles of sustainable designing and the evaluation of architectural designs that are constructed in line with the sustainable architecture and planning parameters. The future designs should incorporate social, economic and environmental factors to achieve sustainable architecture.

#### REFERENCES

- Annie Y. (2012).** *Sustainable buildings and infrastructure: paths to the future*. New York,: Routledge.
- Bergman D. (2012).** *Sustainable design: a critical guide*. New York: Princeton Architectural Press.
- Carey M. (2012).** *The illustrated history of Islamic architecture*. London: Southwater.
- Chakrabarti A. (2013).** *CIRP design 2012: sustainable product development*. New York: Springer Press.
- Crocker R. ( 2012).** *Designing for zero waste: consumption, technologies, and the built environment*. New York: Earthscan Press.
- Emmanuel R. (2014).** *Sustainable buildings*. New York: Routledge.
- Hawkes D. (2012).** *Architecture and climate: an environmental history of British architecture, 1600-2000*. New York: Routledge.
- Hyde R. (2013).** *Sustainable retrofitting of commercial buildings. Warm climates*. London; New York: Routledge.
- Jill Franklin H. (2012).** *Architecture and interpretation: Essays for Eric Fernie*. Woodbridge; Rochester: Boydell Press.
- Kazimee B. A. (2012).** *Heritage and sustainability in the Islamic built environment*. Southhampton: Wit Press.
- Puthucherril G. (2015).** *Towards sustainable coastal development*. Boston: Brill Nijhoff.
- Rassia S. T. (2012).** *Sustainable environmental design in architecture*. New York: Springer ©.