

The sustainability of architecture between the past and the present (sustainability of the Islamic and Christian places of worship)

Prof. Osama Mohammed Kamal Alnahas

**Full time Professor- architecture department- Shoubra Engineering Faculty- Banha
University**

osama.alnahas@feng.bu.edu.eg

Prof. Wagih Fawzy Youssef

**Full time Professor- architecture department- Shoubra Engineering Faculty- Banha
University**

w.youssef@feng.bu.edu.eg

Researcher. Asmaa Samir Mohammed Ahmed

**freelancer Engineer-architecture department- Shoubra Engineering Faculty- Banha
University**

asmaasamirmohammed@gmail.com

Abstract:

Technological development has caught up in all fields ,including the construction sector ,and some advantages have emerged ,but it has also been accompanied by some problems ,such as the problem of energy and climate change .The places of Worship have accompanied this development ,some of them were able to perform its role and others were not either because of their lack of commitment to the buildings standards or because they did not agree with one of the environmental or human factors .What is clear to us is that most of the buildings of the old houses of worship have so far been able to perform their role ably and have not been defeated by the factor of time and climate .It is necessary for us to investigate and analyze these buildings to determine the factors of their sustainability and develop it technologically , environmentally and humanly to produce buildings that can perform their devotional role as they should be.We have concluded by analyzing and evaluating some ancient and modern examples of Islamic and Christian places of Worship a measurement ruler that combines the principles of architectural sustainability for ancient and modern places of worship and summarized them in the marriage between the basics of architectural design (functional ,structural ,aesthetic , economic) and the properties of materials (natural ,physical ,chemical and mechanical) and the sustainability triangle which was deduced from the definition of sustainability ,which contains three sides representing(environment ,human and technology)

Keywords:

Mosques, churches, sustainable design principles,sustainable architecture

Introduction:

Religion represents one of the most important pillars of human civilization. We find that man is as keen on his religion and his place of worship as he is on himself, so religious buildings have received the greatest attention throughout the ages. It has recently been observed that there are models of places of worship that perform their function but disturb environmental resources, while others do not perform their required role. Some of them are even difficult to distinguish

as a religious building, so they become mixed with other buildings and lose their distinctive visual and mental image. Therefore, it was necessary for us to investigate, analyze and evaluate the buildings of ancient houses of worship, whose star still shines until now, despite time and other things, in order to determine the factors of their sustainability and integrate them with the current technological, environmental and human development, to produce sustainable buildings that maintain their visual image and keep pace with the spirit of the times. By analyzing examples of ancient and modern places of worship and comparing them, we can conclude that these are the foundations that must be in place for the buildings of current places of worship to be sustainable.

Research problem:

The lack of current houses of worship buildings to achieve the principles of architectural sustainability and the failure to benefit from ancient sustainable experiences.

Research hypothesis:

The research assumes that the buildings of current houses of worship do not achieve sustainability as their counterparts did in the past.

Research Aims:

Arriving at general foundations that achieve the sustainability of the buildings of current places of worship, deduced from analyzing ancient and modern examples of places of worship, and comparing them so that they serve as a measuring ruler for evaluating any religious building and trying to achieve its sustainability.

Research method and methodology:

The inductive, deductive and comparative analytical approach, where the theoretical part was extrapolated from which the foundations of sustainable design were derived, which were used to analyze ancient and modern models, and compared them to reach the desired measurement framework.

Results:

- 1) To achieve sustainability, the foundations of design (functional, structural, aesthetic, and economic) must be combined with the properties of materials, while providing a permanent financial source for spending on places of worship even after they are operational for their maintenance, as was applied in the past through the endowment, while activating the sustainability triangle consisting of (humans, environment, and technology). This triangle must be present in all design foundations.
- 2) It has been proven that ancient places of worship were the most suitable in terms of achieving the concept of sustainability.
- 3) There are some current buildings that achieve some principles of sustainability, so we can apply this word to them, but they need to take more into account the environmental aspects (especially energy and material efficiency) and social aspects in order to better achieve this concept.

- 4) When designing places of worship, constants such as orientation and the presence of some elements must be taken into account in order for them to perform their function.
- 5) There are some modern models that do not take into account functional constants or environmental factors, such as the Police Mosque in Sheikh Zayed, which follow the design trend (departing from the norm) and this is not called sustainable.
- 6) Design trends are divided into three types, which are the conservative historical, the renewed historical, which includes collection, renewal, as well as abstraction, and the trend of departing from the norm (does not achieve identity). Adhering to the historical roots is important, but keeping pace with the times in aspects that accept change, such as the plastic aspects, in a way that does not prejudice the image. The general mentality of places of worship.

Recommendations:

- 1) Activating the endowment principle again and encouraging people to donate to places of worship and services under the umbrella of the Endowments Authority.
- 2) Integration between a body specialized in issuing a code for the design and implementation of houses of worship, such as endowments, and another body specialized in issuing the sustainability code for the Green Pyramid here in Egypt until a special code is reached for the foundations of the sustainability of buildings in houses of worship, which are summarized in the foundations of architectural design, material properties, the sustainability triangle, and the presence of a funding source. Permanent like an endowment, taking into account constants and the principle of identity when designing.

References:

- ' (usamat muhamad kamal alnuhasi: "alialastidamat fi eimarat masjid wamadrasat alsultan hasan" , waraqat bahthiat , majalat buhuth eulama' aluathar alearab , 2012 mi.
- (ʻsalim rayid: "almafahim almiemariat alhadithat waltashkil almiemariu almueasir lilmasjidi" , almajalat al'urduniyat lilfunun , almujujalad 9 , eamaan , al'urduni , 2016.
- (ʻsanam muhamad tali alsaghir: aistikhdam altiqlianiat aldhakiat fi almabani almustadamat , almazhar alkharijiu limintaqat alkhaliy alearabii kadirasat halati- majalat handasat alraafidayn (AREJ) , almujujalad 24 , aleadad 2 , kuliyat alhandasati. handasat , jamieat almawasil , aleiraq , 2019 , s 45-46.
- (ʻqabilat faris almaliki: "tarikh aleimarat eabr aleusuri" , dar alminhaj lilnashr waltawzie , eamaan , al'urduni , 2011 m , s 25-31.
- (ʻmahmud hasan almalaah , marwat khalid mahfuz , jurj aishaq jundi shinudat: tatawur aleimarat aldaakhiliat lilkanisat alqibtiat fi alqarn aleishrin , majalat aleimarat walfunun waleulum al'iinsaniat , almujujalad alkhamsi , aleadad 22 , 2020 , s 30 - 33.
- (ʻmaha fathi 'iibrahim , alealamat altaarikhiaat waeimarat almasajid almueasirat fi misr , risalat majistir , qism alhandasat almiemariat , kuliyat alhandasat , jamieat binha , 2018 , s 67-78.
- (ʻwajih fawzi yusif , tatawir alkanayis alqibtiat , al'urthudhuksiat fi misr - kanayis wa'adirat wadi alnatrun , risalat majistir , qism alhandasat almiemariat , kuliyat alhandasat , jamieat eayn shams , 1974 m , s 55-72 , si. .199 , s 204.

- (^walid muhamad alghamari barakat , nisrin yusif 'abu muslim , basint eabd albari mahdi eimarat: dirasat muqaranat limaeyir LEED , mabadi alaistidamat fi aleimarat al'iislatmat , waraqat bahthiat , majalat aleimarat walfunun , aleadad aleashir , si. 788.
-) Croome Derek J Clements:" What do We Mean by Intelligent Buildings", ASCE Press, Reston, USA, 1997.
- 2) Poirazis , H:" Double Skin Façades - A Literature Review ", Division of Energy and Building Design , Lund Institute of Technology (LTH) , Lund University, SWEDEN,2006, p131.