

## Integration between sustainable architecture and Islamic heritage in Egypt's tourism facilities

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### Abstract

Heritage represents the civilizational roots in Egypt, expresses its identity and civilization, and contributes to the development of human civilizations.

The architectural heritage is - through its elements and vocabulary - a primary source of inspiration for designers in the field of architecture and interior design.

Despite the diversity of cultural and urban heritage in Egypt, resulting from the existence of different architectural cultures throughout its long history, we note that this heritage has not been used for tourism in a way that achieves sustainability, which wastes the opportunities for the economic development of the country.

Architecture and interior design are one of the most important areas concerned with sustainability, and its role is very important in the field of tourism through the design of sustainable tourism facilities.

The research problem is summarized in:

The lack of a link between heritage and current reality in architectural design.

Failure to activate the role of heritage in sustainable development.

Therefore, we aim through this research:

Achieving integration between sustainable architecture and the Islamic architectural heritage in designing tourism facilities to achieve sustainable tourism development with a contemporary sustainable architectural idea.

The architectural heritage is the embodiment of cultural and civilizational values that reflect a social and economic structure and illustrate the contribution of successive generations to the human civilizations of society.

The research contributes to clarifying how the integration between the Islamic architectural heritage and sustainable architecture in tourist buildings.

Heritage concept:

The meaning of comprehensive heritage is all that is inherited from cultures that include traditions and values, as it is a cultural extension that coexists in the present, which has an impact on cultural, political and social life and dealing with the surrounding environment physically.

The architectural heritage is an expression of the history and culture of a society and connects contemporary architects with their ancestors.

The Islamic heritage architecture is a cultural product between the cultural and material concepts and dimensions and the connection with the surrounding environment. It represents the Islamic heritage architecture as a reflection of the surrounding culture and aims to reach an architecture that suits the cultural and natural environment and is also compatible with modern construction methods and environmentally friendly materials.

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**key words:**

Urban Heritage - Sustainability - Sustainable Development - Sustainable Tourism - Sustainable Design

**المخلص**

يمثل التراث الجذور الحضارية في مصر ويعبر عن هويتها وانتمائها الحضاري ويسهم في تطور الحضارات الانسانية. كما ان التراث المعماري يشكل - من خلال عناصره ومفرداته - مصدر استلهام اساسي للمصممين في مجال العمارة والتصميم الداخلي.

رغم تنوع التراث الثقافي والعمراني في مصر والناج عن وجود ثقافات معمارية مختلفة عبر تاريخها الطويل الا اننا نلاحظ انه لم يتم توظيف هذا التراث سياحيا بطريقة تحقق الاستدامة مما يهدر من فرص التنمية الاقتصادية للبلاد. وتعد العمارة والتصميم الداخلي من اهم المجالات التي تهتم بالاستدامة ودورها هام جدا في مجال السياحة من خلال تصميم المنشآت السياحية المستدامة.

وتتلخص مشكلة البحث في:

-عدم وجود ترابط بين التراث و الواقع الحالي في التصميم المعماري.

-عدم تفعيل دور التراث في التنمية المستدامة.

لذلك نهدف من خلال هذا البحث :

تحقيق التكامل بين العمارة المستدامة و التراث المعماري الاسلامي في تصميم المنشآت السياحية لتحقيق تنمية سياحية مستدامة بفكر معماري مستدام معاصر.

ان التراث المعماري هو تجسيد لقيم ثقافية و حضارية تعكس بنية اجتماعية واقتصادية ويوضح مساهمة الاجيال المتعاقبة في الحضارات الانسانية للمجتمع

يسهم البحث في ايضاح كيفية التكامل بين التراث المعماري الاسلامي و العمارة المستدامة في المباني السياحية.

**مفهوم التراث:**

معني التراث الشامل كل ما هو موروث من ثقافات تشمل تقاليد وقيم فهو امتداد ثقافي يعايش الحاضر له اثر علي الحياة الثقافية والسياسية و الاجتماعية و التعامل مع البيئة المحيطة عمرانيا.

ان التراث المعماري تعبير عن تاريخ و ثقافة المجتمع ويربط المعماريين المعاصرين بسلفهم.

والعمارة التراثية الاسلامية هي نتاج حضاري بين المفاهيم و الابعاد الثقافية والمادية و الارتباط بالبيئة المحيطة وهي تمثل العمارة التراثية الاسلامية انعكاس للثقافة المحيطة وتهدف للوصول لعمارة تلائم البيئة الثقافية والطبيعية وتكون ايضا متناسبة مع طرق الانشاء الحديثة و المواد الملائمة للبيئة.

ولا يصبح الناتج المادي للعمارة تراثا ان لم يكن اكتسب قيمة نتاج لتفاعله مع المجتمع.

كان الشكل المعماري في العمارة التراثية الاسلامية يمثل انعكاس لمفاهيم التراث الاسلامي وقيمه وللبيئة المحيطة والمكان الذي يتغير مع الزمن ومع العوامل المختلفة.

وقد تطور الشكل المعماري مع تطور العمارة وبرز هذا التطور بشكل ملموس في القرن العشرين حيث تحقق نتاج معماري متنوع خلال النصف الاخير منه ومن ثم انتشرت عمارة الحدائة التي كانت نتيجة الرغبة في التجديد وعلي اثر دعوات معماريي الحدائة العرب الي الاسلتهام من عمارة التراث وتوظيفها في العمارة الجديدة  
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### الكلمات المفتاحية:

التراث العمراني – الاستدامة - التنمية المستدامة – السياحة المستدامة -التصميم المستدام.

## Introduction :

The architectural heritage is the embodiment of cultural and civilizational values that reflect a social and economic structure and illustrate the contribution of successive generations to the human civilizations of society.

The research contributes to clarifying how the integration between the Islamic architectural heritage and sustainable architecture in tourist buildings.

## Heritage concept:

The meaning of comprehensive heritage is all that is inherited from cultures that include traditions and values, as it is a cultural extension that coexists in the present, which has an impact on cultural, political and social life and dealing with the surrounding environment physically.

The architectural heritage is an expression of the history and culture of a society and connects contemporary architects with their ancestors.

The Islamic heritage architecture is a cultural product between the cultural and material concepts and dimensions and the connection with the surrounding environment. It represents the Islamic heritage architecture as a reflection of the surrounding culture and aims to reach an architecture that suits the cultural and natural environment and is also compatible with modern construction methods and environmentally friendly materials.

The material product of architecture does not become a heritage if it has not acquired value as a product of its interaction with society.

The architectural form in the Islamic heritage architecture was a reflection of the concepts and values of the Islamic heritage and the surrounding environment and the place that change with time and with different factors.

The architectural form evolved with the development of architecture and this development emerged tangibly in the twentieth century, where a diversified architectural product was achieved during the last half of it, and then the architecture of modernity spread, which was the result of the desire for renewal and following the calls of Arab modernist architects to draw inspiration from heritage architecture and employ it in new architecture Hence, the call to post-modernity, which tended to search for roots and connection with the history of architecture, which contributed to the search for landmarks for architectural forms that restore the connection between man and his culture, beliefs and traditions of his society

Hence, the emergence of the concept of sustainability in the nineties of the twentieth century as a watershed point in the formal development in contemporary architecture, where the heritage was taken as a guide for the building's compatibility with its environmental surroundings, supporting the pillars of economic and environmental sustainability.

Sustainable architecture provided various environmental treatments that contributed to creating an environmental compatibility between the building and the surrounding environment.

Hence, **the aim of the research** was to return to heritage in order to achieve integration between it and sustainable contemporary architecture in tourism facilities.

The importance of research and its objectives:

Heritage architecture is considered sustainable architecture because it is a product of human needs and as a result of its adaptation to the surrounding environment, so the research aims at:

1-Activating the role of heritage in sustainable development.

2-Employing the Islamic heritage, achieving sustainability in tourism facilities.

In the research, we review how the concept of sustainability affects the architectural form in the reuse and selection of some of the vocabulary of Islamic heritage architecture and here lies the importance of the research.

### **Research Methodology :**

The research is based on the theoretical and analytical study of the reality of returning to the heritage in contemporary architecture in light of the increasing interest in the concept of sustainability with a review of models that support the research.

**The environment** is the set of natural and new factors in which a person lives and leaves an impact on himself, his health, his livelihood and his production. Projects to improve the environment aim at developing society in the areas of protecting individuals and groups from their private and public harms and dangers and developing them in a manner that provides safety, security and comfort and helps the growth of individuals' personality, improve their health and increase Their productive potential, through the use of science, engineering and technology means that create the right environment and maintain its levels of deterioration.

The concern for the surrounding environment is as old as man himself and came within philosophical contexts related to the three (religion, the universe and man),

As for the term (ecology) in modern times, it appeared since 1866 by the German zoologist (Ernst Heikel), and its name is derived from the Greek word (oikos) which means habitat, and he used it to refer to (research in the total relationships of animals with their organic environment And inorganic).

Since the early twentieth century, it has been defined as a branch of biology (biology) that researches the relationship of living things to their environment.

The biggest environmental problem facing the world today is the erosion of the ozone layer, which blocks and protects from the concentration of ultraviolet rays harmful to humans and their effects, such as the spread of serious diseases, as well as the problem of increasing the proportion of carbon dioxide, the deterioration of the biological environment and desertification, pollution of seas and oceans, soil erosion and other problems Environmental.

The concept of (environmental architecture) or sustainable architecture has become popular today, which is concerned with the physical and physical surroundings of the environment, and recommends the use of natural, unmanaged or semi-manufactured materials that do not harm the environment or reduce the environmental impacts resulting from various human activities and calls for the reduction of waste and pollutants. Preserving the natural resource base for the future.

Thus, advocates of (sustainability) interpreted it as (meeting the needs of current generations without compromising the ability of future generations to meet their needs). Thus, the motives for adopting the concept of sustainability in the urban sector are not different from the motives that led to the emergence and adoption of the concept of sustainable development in its environmental and economic dimensions Social and overlapping,

The matter goes beyond the circulation of structural materials and insulators or the optimal orientation of the building with regard to solarization and ventilation, to the exploitation of the energies of nature, such as the sun and wind, to take care of planning systems and building details, and to apply the results of organic research and its cycle, to serve the residents of the building.

And sustainable construction or green building is a new method and style of design, through which it evokes the environmental and economic challenges that have cast their shadows on various sectors in this era, as new buildings are designed, implemented and operated with advanced methods and technologies that are environmentally identical, and at the same time low costs, especially operating and maintenance costs. (Running Costs), as well as contributing to a safe and comfortable urban environment.

There is an inherited and transmissible environmental balance between humans, soil, water and the atmosphere that lasted until two centuries ago, then the environmental industrial revolution broke out, the beginning of environmental pollution and the rise in the proportion of toxic gases, so that many living species of plants and animals disappeared during that period in human history. According to the American Academy of Sciences, the Earth has not witnessed a similar rise in temperature for at least 400 years, and perhaps 1000 years ago, due to the magnitude of developments in human activity, especially in the industrial field.

### **Sustainability concept:**

The concept of sustainability originated and developed since the seventies of the twentieth century, but it spread and was used in building and construction in the nineties, and its emergence had a strong resonance and a reflection on many fields, including the field of architectural design.

The world has tended to pay attention to the link between economic and environmental development and from here arose the concept of sustainable development, which is defined as

meeting the needs of current generations without harming the ability of future generations to meet their needs

The concept of sustainable development is an environmental concept and then it turned into a comprehensive development concept based on three main pillars that represent its pillars:

- The environmental axis
- The social axis
- Economic axis

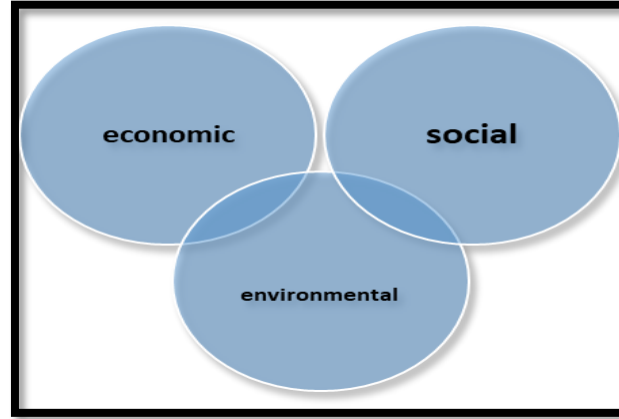


Figure (1) illustrates the axes of sustainability

From here, concepts emerged that were reflected in the architectural design. These concepts focus on issues of economic development, environmental protection, reduction in energy consumption, optimal use of natural resources and reliance on renewable energy sources, and among these concepts

**'Sustainable design', 'green architecture' and 'sustainable buildings'**

### **Environmental sustainability**

Environmental sustainability means preserving the current generations' share of the environment resources. Through this concept, we find that environmental sustainability means protecting natural resources from unjust consumption, protecting the environment from pollution and maintaining climate stability. Therefore, sustainability calls for reducing consumption and using environmentally friendly materials that do not cause Pollution and use of renewable energies that are not harmful to the environment and rationalization of energy consumption.

#### **Sustainable design is:**

A design that seeks to improve the quality of the built environment to the maximum extent possible and to reduce damage to the natural environment to a minimum.

Therefore, the trend was to design environmentally friendly buildings due to the need to follow a design approach that reduces energy consumption and reduces the consumption of resources and materials while reducing the impact of construction and use on the environment.

And the design is integrated when the design expresses the heritage identity as well, so it becomes distinctive for the surroundings in it.



**Sustainable design criteria:**

- Site respect.
- Energy conservation.
- Adapt to the climate.
- Reducing the use of natural resources.
- Thus, the goals of the sustainable building that express the heritage identity are (PowerPoint format)
- Efficient use of resources.
- Achieve energy efficiency.
- Preventing pollution, achieving internal environmental quality, and ensuring a healthy environment.
- Achieve a clear expression of cultural heritage in line with the surrounding environment.

**Heritage and the environment**

Islamic jurisprudence has given importance to the environmental aspect within its interest in architecture. For this purpose, the legal rulings were allocated and detailed to restrict human authority and movement within the framework of the caliphate of God and the faithfulness of reform in the land and its architecture. Thus, the human relationship with the environment entered the ranks of necessities and improvements in the purposes of the Sharia, including preservation of religion, soul and mind.

And explicit teachings were mentioned in the Holy Qur'an arranging the relationship between the triad (the universe, nature and man), and it called for looking and contemplating the universe in order to reach the absolute truth as an equation and a desired goal, meaning that a society of justice and peace free from the spirit of competition is the one that explodes the energies of the environment and deals with it in a way that does not. It leads to misuse of it, including the material resources and powers that are devoted to humans.

And on the same principles of the equation between the occult and ethics, an early call arose to germination, afforestation, and upgrading the surrounding green environment, and Islam's ethical approach has defined the essence of dealing with science, its methodology, and scientific research preoccupations that do not touch what the environment does not have under the pretext of development and yearning for progress as we touch it in a civilization Today, in this way, she chose from knowledge what is appropriate and discarded the rest.

Thus, man's relationship with the environment became real and not metaphysical, and constituted one of the laws of God.

**Characteristics of Islamic architecture**

In our society, Islamic architecture was moving towards sustainability, as it took into account the environment socially, economically and climatically.

The teachings of the Islamic religion include many principles of sustainability that have intertwined with social organization and social behavior

Which reflected on the urban product.

Scientific progress is able to develop human capabilities in order to exploit natural resources in a way that exceeds its achievement in heritage architecture, and this requires a systematic application of science and a comparison between modern and traditional constructions and reviving the principles on which heritage architecture relied, as traditional architectural ideas

may lose their importance in exchange for the comfort and ease provided by mechanical solutions. The unlimited use of machines caused current energy and environmental problems and therefore the trend was to return to natural energy sources.

In this field, traditional solutions developed by generations of societies in traditional architecture by relying only on natural energy sources can be of great benefit to open new horizons of research and application.

### **Sustainability principles in heritage Islamic buildings:**

The traditional building was compatible with the environment with all its positives and negatives, as protection was achieved by reducing the impact of the natural environment conditions such as hot climate, humidity and the intensity of solar radiation. As for the ventilation, it was by exploiting the potential of natural energy sources such as the sun and wind. There are many basic principles on which the traditional building architecture in Islamic architecture is based, which, with modification and development, can be a function of the design of contemporary sustainable buildings.

#### **1-Building with clay or bricks**

The materials surrounding the occupants of the building are very important to provide protection from external conditions, and great care must be taken in choosing them, so that this is commensurate with their physical properties in terms of thermal conductivity, thermal resistance, diathermy, and reflectivity. It is also responsible for determining the length of time for heat transfer to and from the building.

Clay or adobe is the best natural building material, as it can provide thermal insulation to the building and help reduce the depletion of vital natural resources and carbon emissions. Clay was used on a large scale in many Islamic buildings throughout the ages, and bricks are one of the most important building materials used in Islamic architecture.

Especially in Egypt and the Maghreb countries, where wood and stone are scarce, and it is known in Egypt as red brick, and it is used in building load-bearing walls or as shoulders or in building domes and vaults, and in the case of building it with a large thickness, it helps to provide good thermal insulation of the internal spaces of the building. In the Islamic architectural heritage, we find that they were achieving this principle, environmentally friendly buildings have been in existence since the past, and the achievement of the principle of sustainability has been present since the past as well, as they used in their construction the local materials available to them, and took care of the availability of natural lighting and ventilation, they were preserving the environmental rights, And the rights of future generations.



Figure (٢) illustrates Adobe is the best building material  
Figure source <https://www.ecomena.org/islamic-architecture-ar/>



## 2-Thermal comfort

The design idea of the traditional dwelling was based on the use of the central courtyard as a central point to achieve the principle of orientation towards the interior, and it was the lung and the main outlet for the dwelling, as it works as a thermostat, taking advantage of the great fluctuation between temperatures between night and day, and the formation of different pressure places between the narrow shaded streets and the courtyard Open median.

In general, the inner courtyard was often surrounded by a fountain, a pool of water, or a salsabil, and it was provided with fruit trees. Together, these elements humidify the dry air and reduce its temperature.

Some amendments have been made to the concept of the courtyard to ensure the flow of air, including:

**The iwans:** they are spaces preceded by balconies surrounding an open central courtyard. Planned to contain a measure of shade throughout the day, and the iwan opens onto the entire courtyard, and the houses contain two iwans, one of which is summer facing north, and the other winter facing south.

Islamic architecture in its dwellings is characterized by the presence of an inner courtyard, the purpose of this courtyard is protection from climate factors, achieving natural lighting, achieving privacy, in addition to ventilation (by planting this courtyard, and fountains can be placed; making it shaded, and its air is refreshing that moves to the rooms around it.

**Al-Takhboush:** It is a room that is completely open to the courtyard, the floor of which rises from the courtyard, and was used for receiving guests in the summer, and its façade overlooking the courtyard faces the north. Al-Takhboush helps the air flow between the courtyard and the garden.

- **The seat** is often located on the top of the tent, and its façade is carried on poles and overlooks the courtyard, and with this configuration, the seat and the seat are exposed to the least number of hours of exposure to the sun with the least possible amount of solar energy than other facades.

## 3- Natural ventilation

Providing natural ventilation is one of the most important principles of sustainable design in traditional housing, as natural ventilation cools the human body, because as the air speed increases, the rate of heat transfer from the body to the surrounding environment increases, as well as helping to get rid of moisture and cool the building.

Air hooks are the most important means of catching winds and introducing them into the spaces of the dwelling, as it is considered one of the most important elements in Islamic buildings. The hooks form different pressure zones, so the air enters after it is purified and moistened and then exits it through other openings, and the process is reversible at night hours. It also helps to reduce the dust and sand carried by the hot and dry regions' winds, as they eventually accumulate at the bottom of the vent.

The wind-towers are divided into several types: the most important of which are the roof-top and the well-mounted hookah, which are one-way hookahs that follow the direction of the prevailing winds, while the wind towers are multi-directional, and there are simple-shaped hooks like a double wall.

#### 4-Underground construction

Harnessing the potential of the soil is one of the principles on which sustainable design builds to harness natural resources. The idea of building underground depends on reducing or determining the effect of external climatic conditions on the internal spaces, by taking advantage of the thermal storage capabilities of soil masses, which is called block effect conditioning.

The use of the properties of the subsoil is embodied to reach thermal comfort in the basement space, which is an entire floor or more underground. The basement may have more than one level depending on the climatic conditions and functional performance,

The efficiency of the thermal performance of the basement is evident, especially in the afternoon hours, when the outside air temperatures reach their maximum limits, as for the other spaces, the efficiency of their thermal performance decreases the higher we go, as the ground floor is better in its thermal performance on the first floor than the roof exposed to direct sunlight throughout the day. In the morning the ground floor is used and sometimes the basement, and in the evening the upper floors are used.

#### 5-Natural lighting

Natural lighting represents the most important strategy for sustainable housing to reduce the heat burden, and thus provide a comfortable environment for residents, as it was found that natural lighting from windows is three times better in improving visibility than industrial lighting equivalent to it.

The dilemma is that windows are a major source of heat penetration into the building, which made traditional architecture develop innovative methods for obtaining natural lighting and expelling direct sunlight, and among the most important of them are mashrabiya or chateaux or architectural treatments that allow gentle winds to enter, and do not allow sunlight to enter, usually covering the surface For windows and balconies that are used for sitting inside, The mashrabiya controls the passage of light and the flow of air.

Finally, privacy is achieved thanks to its narrow lathe, which is made of intertwined and intertwined wooden parts. The mashrabiya moved from Egypt to some Arab countries and was sometimes made of materials other than wood, such as marble, plaster or metal.



plate (1) illustrates Mashrabiya design  
plate source <https://andalusiat.com/>

Finally, there is no doubt that the Islamic dwelling is one of the most important examples of success in achieving the concepts of green architecture, as it succeeded in achieving a balance between beauty and function. The elements of the Islamic architectural heritage were found to work and complement each other, with the synthesis of different climatic, environmental and

social conditions. As for contemporary architecture, it faces many challenges to prove that it is capable of accommodating the requirements of sustainable development and preserving the environment, so it must re-explore the principles of traditional architecture and choose what are appropriate for the local environment and environmental influences, to develop and mix these principles with modern technologies, and use them in our contemporary architecture and our homes in Present and future,

Where modern technologies can make the use of traditional architecture principles more accessible and efficient to achieve the principles of sustainable architecture.

(Aelchenachel) also in Islamic architecture, showing its benefits in achieving natural lighting and ventilation, as well as shades that are made of local materials that are suitable for the environment of the area in which they are located. In order to create thermal insulation aimed at keeping the house cool and fresh during the hot day.

**“Sustainable architecture”** saw nature as having rights that must be preserved.

By creating a healthy sustainable environment that responds to environmental needs, the ideal solution is used to rationalize energy consumption without excessive use in natural resources:

١- Using renewable energies such as solar energy and wind energy.

2-Choose location, function, and construction solutions that are commensurate with local factors such as topography, local climate, soil, water, flora and fauna components in that area.

٣- Using environmentally friendly materials, and taking environmental construction theories into consideration in the building's structural system, its plumbing system, and any alternative methods of construction.

٤- The realization of ventilation, nature lighting, and the use of environmentally friendly materials should be well noted in the building.

All of the above are among the most important principles that achieve sustainability and preserve the rights of nature.

That dependence on nature should decrease with the use of the best and best solutions, supported by legal and financial regulation, modern materials, environmentally friendly products, and at least - as little as possible - reducing the consuming mentality.

The environment has the right to a friendly building that respects it, a building that employs functional and technical solutions with the function of the building in a harmonious way in harmony with the environment.

Respect for the environment is part of the ethical practice in the architecture of Islam, as it is the source of building materials that embody the architectural elements, which participate in creating architectural spaces suitable for living and an intimate atmosphere in which physical and psychological comfort is taken into account.

solar radiation, high rate of radiation loss at night, and relative stability in the types of daily and seasonal winds, and in adopting a human line that consecrates the feeling of comfort for the inhabitant, and it is a source of building sources for his stable psychological state, and then It collapses in the ethical practice vis-à-vis his society, which is considered a means and an end, and thus they reached that explanatory equation, and they adopted a method of construction consistent with those climatic data and benefiting from them,

The Islamic environment in general is characterized by drought, low rainfall, high intensity of solar radiation, high rate of radiation loss at night, and relative stability in the types of daily and

seasonal winds, and in adopting a human line that consecrates the feeling of comfort for the inhabitant, and is a source of building a stable psychological state, and thus they reached To that explanatory equation, and they adopted a method of construction in harmony with those climatic data and benefiting from them, and in general the environmental aspects of Islamic architecture are devoted to the following formulas:

- They reduce the visible surfaces of the buildings, as well as the rate of thermal transfer, by aligning the buildings in groups and blocks.
- They benefited from the fluctuations in temperatures by using mud or bricks to build thick walls while reducing the number of openings, thus limiting the energy exchange with outside air and the leakage and gathering of dust.
- They made deep tanks in the ground to conserve water.
  - Limit the rates of solar heat gain, by building deep courtyards surrounded by rooms and wooded, as well as keeping the cold morning air for several hours and reducing the impact of dusty winds and by using high fences that provide a degree of desired shade.
- Use (cleaves)
- They used the basements underground, which architecture is not in need of today because of its multiple functions.
- Vaulted ceilings were used to increase the coefficient of thermal transfer, and were flat to require the extraction of hot air at the top of the dome, and natural ventilation openings were used in windy areas.
- Use solar energy in rooms designed for winter occupancy and stored energy in the walls and ceilings, and made heating in winter take place in rooms used for housing and sleeping only in order to save energy.

The design of Islamic buildings took into account the respect of the heritage in every natural environment to suit it, and the respect of the constructive norms appropriate to the (fixed) environments, and the dedication came through constructing the walls from local materials with a thickness that guarantees their durability and bearing the burden of building loads, and their resistance to heat and humidity.

Here we mention that Islam has not objected to respecting the moral values of peoples, which is consistent with its moral aims, especially in architecture,

The architecture took into account in every natural environment what suits it from its inheritance.

### **The negative effects of modernity**

Human beings have been shocked by the negative effects of uncontrolled material modernity, and since the energy crisis of the 1970s, architects have begun to think and question the wisdom of having box buildings surrounded by glass and steel that require massive heating and expensive cooling systems, and as a natural reaction, people have begun to get enthusiastic about green architecture and buildings. From there, a tide rose demanding energy rationing and rationing its consumption, and the voices of architects who demanded more energy-efficient architecture, including:

William McDonough, Bruce Voll and Robert Fox from the US, Thomas Herzog from Germany, and Norman Foster and Richard Rogers from Britain.

These architects began to discover and develop architectural designs that focused on the long-term environmental impact during the operation and maintenance of buildings, and they were looking beyond them (initial costs of construction, and since then this view has been rooted in some building evaluation systems such as the (BREEAM) standard). Which was applied in Britain in the year 1990 AD, and the standards of the Presidency of Energy and Environmental Design (LEED) in the United States of America, which is an abbreviation for (Leadership in Energy and Environmental Design), and this last standard was developed by the American Green Building Council (USGBC), and its application has started In the year 2000 AD, LEED standards aim to produce a greener built environment, and buildings with better economic performance, and these standards that architects, engineers, developers and investors are provided with consist of a simple list of criteria used to judge the extent to which the building adheres to green controls. Points for the building in different aspects, so the energy efficiency of the building is awarded within (17 points), and the efficiency of water use is awarded within the limits of (5 points), while the points of quality and safety of the internal environment in the building reach limits (15 points). It can be gained when adding specific features to the building, such as: renewable energy generators, or carbon dioxide monitoring systems, After assessing the points for each side by the concerned committee, the total points that reflect the LEED rating and their classification for the intended building are calculated, so the building that scores (39 points) gets a rating (gold), and this rating means that the building reduces the impacts on the environment by a percentage At least (50%) compared to a similar traditional building, while the building that scores a score of (52 points) has a Platinum rating, and this rating means that the building achieves a reduction in environmental impacts by at least 70% compared to a traditional building. similar.

The evaluation of buildings in such a way can reveal to us the number of traditional buildings that are inefficient and thus identify the reasons for this in the folds of the methods used in their design, construction and operation. Efficiency:

“... it is not only the use of energy, but the use of materials, and the waste of water. It only serves his own interests, and thus there is a huge deficit and a total lack of quality and efficiency in the building in general

We find that cultural heritage is one of the most important pillars of sustainable development. We find that cultural heritage is one of the most important pillars of sustainable development, and Egypt's continuous pursuit of leadership in sustainability depends on four main axes.

#### Leadership axes in sustainable tourism development



plate (2) illustrates leader ship axes in sustainable tourism development



## Architectural heritage belongs to generations

Preserving the urban heritage in the Arab world is a necessity, especially for future generations, due to the necessity of linking them with the ancient past and heritage of their ancestors. Regarding "sustainable heritage", we clarify that the use of the term is due to an economic point of view, and the fear of demolishing monuments and heritage buildings. Therefore, it was necessary to find ways to preserve the antiquities of the Arab region and Egypt in particular in various ways.

## Islamic heritage and tourism

The world has preceded us in stages in laying the foundations and methodologies followed to achieve a sustainable heritage and with interest in culture, and has many experiences in this field. Traditional and historical.

Many Islamic countries have succeeded in preserving their heritage and the arts of Islamic buildings, in order to highlight the distinct cultural aspects of their cities in front of visitors and tourists, which contributed to the development of the tourism sector in those countries significantly and significantly, Although other religious buildings are the main attraction in the field of tourism - especially religious tourism -, improving the environment, developing religious, historical and archaeological sites and showing their features in a decent appearance are among the important and indispensable priorities and an integral part of tourism, and therefore attention should be paid With the advantages of Islamic architecture arts, not only to enrich the tourism side, but to develop feelings of self-pride and self-awareness and to develop and revive high-end architectural traditions as living and effective arts that play an important role in promoting tourism, and attention must also be paid to the aesthetic and artistic aspect of new tourism facilities in order to create an effective and influential Islamic content Commensurate with the importance of the role played by these facilities.

All indications indicate that Egypt enjoys a prominent tourist position in the Middle East region due to its distinguished geographical location, its historical, cultural and religious position, and the aesthetic values and distinctive arts rich in its buildings represented by various types of architectural and decorative elements and vocabulary, such as domes, lighthouses, arches and corridors The utensils and saucers (exposed inner squares) and all kinds of decorations, especially the complex muqarnas and the faience, gypsum and brick motifs, in addition to the wooden decorations, and (mashrabiya), in addition to the archaeological and tourist sites that characterize Egypt ... all of these are considered among the most important characteristics and pillars of tourism in a form. In general, religious tourism in particular.

The advancement and development of the tourism reality in Egypt and its development requires relying on sound scientific plans and studies to re-plan and develop tourism facilities in a physical way, and from here it is imperative to strive to strengthen the relationship between tourism and Islamic architecture - which architects and artists view as intertwined with beauty, spirit, and the essence of history and civilization. And values, customs and traditions -.

Islamic culture has played an important role in shaping the urban structure of Islamic cities, especially religious ones, and in a way that made their fame reach the horizons, due to its religious and heritage landmarks.



The Islamic architectural heritage in Egypt has become an important aspect of human civilization, and it faces environmental threats

In order to revive the Islamic architectural heritage, it is imperative to establish vivid urban tourism models that stem from our ancient Islamic customs and culture in their originality, which contributes to the development of cultural norms and social values in Islamic societies. These models should achieve the aesthetic dimensions of Islamic architecture in their form that preserves the Islamic decoration and inscriptions, and the additions should be inspired by the wonderful designs of religious and heritage buildings, and to choose the appropriate colors for new buildings, where color is a basic condition for the building.

And to adopt the style of Islamic architecture and by using the elements of the local structural heritage, so that the facades of the buildings look like wonderful paintings,

Examples of buildings that express the contemporary Islamic heritage in Egypt are:

### **Al-Azhar Sheikdom in Cairo: Established in 1990**

The level of the expressive composition of the Islamic heritage is represented in the use of domes and brides of the sky as one of the distinctive elements of the sky line, and the use of vocabulary and details of the Islamic heritage as it is without reformulation, including mashrabiyyas, vaults, muqarnas, sistrums, geometric inscriptions, and colored decorations in the interior spaces of the courtyards. Stone in design, as used in heritage buildings

Formative expression also depends on renewal and liberation from the explicit revival of the heritage vocabulary in an attempt to search for creativity, innovation and non-conformity with the heritage to develop a new architectural language.

It depends on the use of heritage formation and trying to formulate a new architectural language to liberate from proportions and scale and employ its vocabulary in a contemporary way that expresses the elements. It is also distinguished by the choice of features and the most important heritage symbols that confirm the Islamic character



Plate ( 3 ) Clarifies the sheikdom of Al-Azhar

Source <https://www.facebook.com/Ana.Me3mary/posts/962914447063467>

### **Palace of Arts Opera House:**

Use the distinctive features of the sky line, such as the minaret and the sistrum, as well as take care of finding an expression of the Islamic heritage with a contemporary vision, by choosing the most important elements of Islamic formation, dealing with them, liberating them from proportions and scale, and employing them in a contemporary way. Environmental treatments It was characterized by the expression of Islamic heritage features in a different way that relied on abstraction and liberation from its familiar image, using the development of technology and

the distinct treatments of the Islamic heritage vocabulary to express the needs of contemporary society



Plate (4)Palace Arts, Opera House of

Source : [https://m.facebook.com/pg/FalvatOsrAlfnwn/posts/?ref=page\\_internal&mt\\_nav=0](https://m.facebook.com/pg/FalvatOsrAlfnwn/posts/?ref=page_internal&mt_nav=0)

Most of the tourist facilities are characterized by the weakness of the Arab and local identity in their design and not being related to the natural environment, whether in architectural or interior design or furniture design.

And the civilization of the place and in insufficient compatibility with the surrounding environment or its climate

Open in Google Translate

Tourism facilities (ecology) that express the Islamic identity as one of the architectural solutions for the development of sustainable heritage tourism in Egypt.

Ecological lodges are eco-tourism facilities that are designed, built and managed in a manner that contributes to and supports the conservation of natural and cultural resources.

The term eco-hotel is considered a term to define the identity of a type of tourism facility based on the element of nature that leads to raising the economic value of natural resources and cultural experiences

Ecolodge can be understood in the Egyptian context as a new type of tourist building that provides an environmental educational experience for the tourist about the natural and cultural life surrounding him and increases knowledge and knowledge of the surrounding natural environment and its manifestations.

The design of an environmental facility (eco-lodge) that expresses the Islamic identity requires following an architectural style called (eco-design). This method is based on three principles that must be taken into account when implementing:

The design solutions must follow from the natural environment surrounding the place and overlapping with its heritage and cultural background.

-The experience of local architects over many years in this field should be used.

- The design must be integrated with nature in architectural formations that complement it and not enter into conflict with it and with the nature of the site in a way that expresses the heritage identity.

From the foregoing it becomes clear that the main element in establishing environmental tourism facilities that express the Islamic heritage is to reach a process of integration and integration with the weather, culture and nature in the surrounding area.

**Design and planning considerations for eco-lodge that express the Islamic heritage:**

From the reality of the environmental definition, the architectural designer, interior designer and planner for these facilities must take into account the following considerations:

Respect the nature of the site.

- To reduce as much as possible what can cause the product to pollute the natural environment.
- The architectural product does not cause any damage to the historical and archaeological resources of the area in which it is located.
- That the building adopts architectural forms compatible with the environment, the natural elements of the place and its surrounding local buildings, so that it does not cause incompatibility with the natural beauty of the geographical topography.
- To take into account the design standards of the architectural product, its functional spaces, and its compatibility with the Islamic cultural heritage.
- The buildings should be signed in places that do not hinder the natural growth of wildlife while trying to merge with the elements of the natural environment in an easy way through the use of colors close to the colors of nature elements such as rocks, sea and sand, interacting with nature by finding open spaces that communicate directly with the surrounding nature.

The architectural product enriches the cultural environment and preserves its heritage heritage

- To make use of the design foundations of the relationship between sustainable environmental architecture and the elements of the Islamic heritage.
- The necessity of making use of local raw materials and materials in the construction, finishing and cleaning works.
- The architectural design of the building takes into account the balance in its use between different types of visitors and users.

The division of the project into implementation phases with the aim of monitoring its effects on the natural and environmental resources and the possibility of remedying them in the subsequent steps is taken into consideration. It is also taken into account that the project is designed to allow future modifications and expansions in a way that limits the resort to demolition and removal operations and the resulting waste, by using materials that easily accept the process of re-processing. the use .

- The design of the building should be based on ventilation and natural lighting, while limiting ventilation and artificial lighting. Also, the use of air conditioning must be avoided and attention to natural climate treatments such as the use of air gates on the roofs of buildings To attract and direct marine air inside buildings or through yards inside the units, it works to provide good ventilation for the internal facades overlooking them.
- Using environmental design mechanisms (solar energy, wind, water ... etc.)
- The use of local renewable source building materials with the use of simplified technology suitable for functional needs.
- To save as much as possible in the areas of the buildings to reduce the negative impacts through the use of local building materials or materials that reduce the cost of constructing the building.

**A study of some models for eco-tourism facilities:**

The following is a presentation of some examples of eco-hotels that were built and operated within the framework of the Egyptian nature environment as an entry point for sustainable environmental tourism development:

**Analytical study of a desert lodge hotel project as a model of an eco-lodge in the Dakhla oases:**

The hotel was built in 2003 and was intended to be built in the Islamic style of the village of Al Qasr, The hotel has 3 floors with 32 single and double rooms and suites for families

The raw materials used in the construction process are all stones, trees, palms, and environmental materials such as palm leaves and mud bricks found in the oases of Dakhla.

Building materials: All rooms are constructed from natural materials from the local environment  
The roofs are made of palm leaves and tree stumps.

The doors are from acacia trees and the windows are mashrabiyyas built from the branches of trees in the desert.

The floors of the rooms are of mountain colored ceramic,

The walls of the rooms from the inside and outside are lined with mud and straw for two reasons.

The first is to preserve the shape and appearance of the hotel in the style of countryside, and the second reason is to maintain the room's climate in cool summer and in the winter warm, whatever the temperature of the air.



plate (5) illustrates The use of natural materials in building materials  
plate source: <http://www.desertlodge.net/>



Plate (6) illustrates The rooms and the residence area & reception building of the hotel  
plate source: <http://www.desertlodge.net/>



## Analytical study of the Ecolodge Guest House project in Siwa as a model for an eco-lodge

From the standpoint of the building's belonging to the heritage identity around it and that it is part of the surrounding environment, the French architects Laetitia Delubac and Christian Felix could

The design of this resort in Siwa in 2004-2007 and the main goal of the design was to be in harmony with the surrounding environment and integrated with it

### Building materials

The walls were built with the archive material by craftsmen from the oasis, which is a traditional building material made from a mixture of mud, sand and salt, which helps the building integrate with the surrounding environment and the archive acts as a natural insulation, which makes the air inside the building in a moderate condition in the cold and hot seasons.

### Integration with the heritage environment in design:

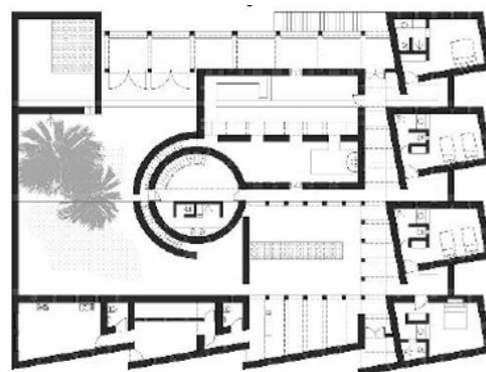
The architects decided to dispense with all the elements of technology, as this resort aims to provide a relaxing atmosphere for visitors to enjoy the simplicity and tranquility of the surrounding environment.

The living rooms were directed to the north to protect them from the sun's rays, and on the southern façade the architects made small holes evenly carved on the façade and overlooked a palm grove to protect it from the sandy winds.



plate(7) illustrates An external shot

source: <http://archometrend.blogspot.com/2009/10/ecolodge-in-egypt-by-laetitia-delubac.html>



Figure(3) Horizontal plan of the ground floor



Plate (8) illustrates Local raw materials in building materials and furniture

Source: <http://archometrend.blogspot.com/2009/10/ecolodge-in-egypt-by-laetitia-delubac.html>

**Results :**

- The link between architectural design and sustainable interior design with the surrounding environment and its Islamic heritage is one of the important factors that achieve distinction, privacy, and compatibility with nature for tourism facilities and work to increase tourist attractions.
- The elements of the natural environment contribute to defining the features of the architectural and interior design and the nature of the facility with the extent of the raw materials and materials provided from that environment, as the climate and changing weather factors affect the construction systems and the nature of the architectural design.
- The Islamic architectural heritage contributes to enriching sustainable environmental architectural design and creating a distinctive environmental architecture that expresses the Islamic identity in a contemporary way and bears the environmental features of the surrounding environment in a manner compatible with it.
- Reaching a design style that combines contemporary sustainable design elements and Islamic cultural heritage elements in a way that achieves the functional, structural and aesthetic aspect according to scientific foundations and design standards to obtain a contemporary sustainable design that expresses the Islamic heritage identity
- Achieving sustainable environmental design for tourist resorts in Egypt requires the integration of aesthetic, heritage, social and environmental values. It also requires studying the nature of users and the characteristics of the internal built environment and realizing the requirements of the place's users and visitors.
- The research concluded that a set of environmental, economic and social considerations for the sustainability of the interior design of tourist resorts expressing heritage and based on the principles of sustainable architecture.

**Recommendations:**

- The necessity of linking interest in nature's elements and its vocabulary, taking advantage of all its natural manifestations, and using the elements of sustainability in the Islamic heritage in designs for contemporary sustainable tourism facilities.
- The principles of environmental design in the field of sustainable architecture and interior design should be applied more in tourism facilities due to its importance in addressing environmental problems in the world.
- Attention must be paid to the use of technological techniques in sustainable design as a basic direction for interior design in tourism facilities to achieve maximum benefit from simulating nature in saving energy and reducing pollution.
- Attention should be paid to the designs of tourist facilities and make them more suitable in form and function by linking the internal spaces and the external surroundings in an environmentally appropriate manner, which in this way achieves the quality of the internal environment for the interior design.



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