

JEDDAH WEST COAST ISLAND ECO-RESORT

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Abstract

The terms eco-friendly or environmentally friendly are designed to have no damaging effects on the natural environment and its residents. Thus, this work has proposed the development of eco resort at Jeddah, Saudi Arabia. In this work, 3 case studies were analysed to comprehend the design and architecture aspects of the proposed resort. Based on the case study analysis, the estimated area for the eco resort is 17100 m². The eco resort is comprised of several zones such as main building, suites, spa, gymnasium, restaurant, café, marine side, courtyard and dolphin bay. The proposed development site for the eco resort is located at the north side of Jeddah and it is an island landscape. The idea and design philosophy of this resort is purity, relaxation and preservation of nature's beauty. This eco resort will be a major attraction for visitors and Jeddah residents. It will also serve as an educational reference for those interested in nature and as an entertainment venue for tourists of all ages.

Keywords-- eco, resort, environment friendly, architecture, Saudi Arabia

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INTRODUCTION

Jeddah is Saudi Arabia's second largest city and the largest city in the Western province. The city is located on the Red Sea's eastern coast [1]. It was one of the Middle East's most ancient cities, but it has changed a lot over the years. One of the most important things about Jeddah is its location, which makes it the gateway to Saudi Arabia, especially Makkah's holy city [2]. The Corniche and Jeddah's Fountain are the two major attractions in Jeddah. As Jeddah developed, it expanded mainly to the north along the Red Sea coastline [3].

The old city is located in the center of downtown Jeddah. This is where a great mass of architectural wonders are located, these buildings are built of Red Sea coral reefs, fixed wooden beams and balconies [4]. Jeddah has changed considerably over the years from the traditional city with classical architecture to the economically important modern city of Jeddah, knowing that Jeddah is now considered the commercial center and capital of Saudi Arabia [5].

Although Jeddah is highly influenced by the outside world through international trade and pilgrimage, it still has the traditional architectural elements and features [6]. On the other hand, due to the discovery of concrete and other building materials and technologies, it is very rare to find traditional types of houses or buildings in the new Jeddah.

Jeddah is developing every day, but it is also under the impact of pollution. In fact, air pollution is considered a problem for Jeddah, mostly on hot summer days [7]. Thus, this work proposes the development of an Eco-Resort that is considered a new type of resorts, that will serve the environment, entertain the visitors and tourists at Jeddah, Saudi Arabia

CASE STUDIES

Three case studies related to resort architecture were evaluated in this study. The details of the case studies are as follows:

- Angsana Resort
- Al-Maha Resort
- Atlantis Resort

Angsana Resort

Angsana Resort is one of the islands in the Indian Ocean, Ihuru, on the North Malé Atoll, Maldives (Figure 1). It was developed by German architect, Professor Wolf Hilbertz, and Dr Tom Goreau. The facilities of this resort includes bar, diving center, lobby, reception, restaurant, rooms, spa facilities, private dining on beach, sandbank dining, and wedding facilities. The bar has indoor bar counter, indoor sitting area and outdoor sitting area that were designed using local materials such as wood and palm leaves. For the diving center, the beach front hut is built with natural material such as palm trunk and roofing leaves. Furthermore, the beach front villas has palm trees leaves roofing and is designed with large window to introduce natural light into the space and provide maximum views. Moreover, an open air seafront pavilion for weddings and occasion is designed with palm leaves and wood. This resort has received a number of awards for its eco friendly design and facilities that respect nature.



Figure 1. Angsana Resort

Al-Maha Resort

Al-Maha Resort is located at Dubai, United Arab Emirates (Figure 2). Al-Maha desert resort and spa, built in Bedouin style, is an environmentally friendly resort. It contributes in the conservation and preservation of the regional heritage of Dubai. This resort and spa has received eleven international awards for its creativity in sustainability and for its animal preservations. The facilities of this resort includes unique spaces for animal preservation, spa and fitness, art gallery, Bedouins' suites, Royal suites, Emirates suites, Presidential suites, in-suite dining, in desert dining, restaurant and deck dining. This resort is designed with large window openings to introduce natural lighting and view of the surrounding landscaped area. Furthermore, the resort has utilized natural materials such as palm trees and wood to build its suites and other facilities. In addition, this resort has incorporated tent type of roofing for its facilities.



Figure 2. Al-Maha Resort

Atlantis Resort

Atlantis Resort is located at Dubai, United Arab Emirates (Figure 3). It was designed by architect Sol Kerzner. The resort covers a 46-hectare property with 17 hectares of aqua-themed entertainment and 22-story hotel. The facilities of this resort includes lobby, suites, lagoons, marina entertainment center, water park, underwater corridor, casinos, luxury hotel, beach. Restaurant, lounges, bars and spa. The lobby of this resort is designed with large windows to introduce natural light into space. Furthermore, the luxury suites are designed with balconies to introduce natural lighting and views. Furthermore, water adventure, salt and fresh water attractions and an open-air marine habitat are the focal points of Atlantis. Moreover, this resort has a 4.5 hectare dolphin bay, which serves as a dolphin preservation area, which is designed with eco friendly environment.



Figure 3. Atlantis Resort

PROGRAM ASSUMPTION AND SPACE DETAILS

For the proposed eco resort, the total estimated area is 17100 m². Table 1 shows the zone division of the proposed eco resort. Based on Table 1, the zones of the eco resort are main building, suites, gymnasium, spa, restaurant, café, marine side, courtyard and dolphin preservation area.

Table 1. Space details

Zone	Area (m ²)
Main building	450
Suites for couples (10 Units)	1200
Suites for family of 3 (20 Units)	3600
Suites for family of 5 (20 Units)	5800
Gymnasium	1300
Spa	1500
Restaurant	1500
Cafe	300
Marine side	600
Courtyard	350
Dolphin preservation	500
Total	17100

PROPOSED SITE AND ANALYSIS

In this work, the proposed site is located at the north part of Jeddah, which is close to the sea shore (Figure 4). This site is located in the middle between Jeddah and King Abdullah economic city. It is an island and it is selected due to its popularity as a tourist attraction area. This site is surrounded by natural environment. Furthermore, this site is near to airport and it is easily accessible by the tourist. The site is accessible through one major main road and several sub-roads. In terms of climate, From October to April, there are six months of warm weather in the day time and cool weather in the evenings. From May to September, it is hot and humid. Throughout the year, there's a nice cooling breeze from the North West side which is from the sea side mainly (Figure 5). Moreover, the site has good sea views from all sides. The site is comprised of several zones and the placement of each zone is shown in Figure 6.



Figure 4. Site location



Figure 5. Site wind direction



Figure 6. Site zoning

PROJECT DESIGN

This proposed eco resort is a new type of tourism destination at Saudi Arabia. The concept and design philosophy of this resort is purity, relaxation, and preserving the beauty of nature. The resort was designed with windows distributed according to the sun movement and wind direction. The windows are placed in the north direction. Furthermore, this resort is surrounded by plants which provides shading, light distribution and directs airflow. Likewise, openings are placed at the northwest side of the resort as it provides the distribution of natural air in to the building. Moreover, this resort is equipped with roof gardens that provide shade. Additionally, these roof garden assist to filter the air reduces the air temperature, increases wildlife habitat, insulates the building, and functions as a solar control unit on the roof. Also, heat reflecting glass were used in the building to reduce the effect of infrared heat from the sun. Besides, passive cooling system and solar heating elements has been incorporated to the design of this resort. Furthermore, this resort will use the electricity that is generated by the solar panels. Figure 7 to Figure 10 shows the proposed design of the eco resort.



Figure 7. Top view of eco resort



Figure 8. Main building



Figure 9. Suites of eco resort



Figure 10. Dolphin bay

CONCLUSION

In this work, the development of eco resort at Jeddah, Saudi Arabia is proposed. For this eco resort, the estimated area is 17100 m². This eco resort is comprised of several zones such as main building, suites, spa, gymnasium, restaurant, café, marine side, courtyard and dolphin bay. This eco resort is expected to attract people who are interested in the natural environment. Furthermore, this resort will enhance the tourism industry of Jeddah and it will contribute to the economy of Saudi Arabia.

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