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HOTEL DESIGN WITH RESPONSIVE ARCHITECTURE APPROACH IN BANDAR ABBAS

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ABSTRACT

Attending leisure time as one of the basic needs in a technologically dominated life is one of the most important social trends in contemporary communities. Tourism is one way to spend leisure time according to this development. It affects the human environment, the economy, and the livelihood of communities significantly. The issue of accommodation is important as well as the importance of this industry and its aims. Hotels built in Iran generally face several architectural problems, including the profitability of the space design and the attractiveness of the design form. With an overview of the potential of the coastal town of Bandar Abi, the need to build a hotel suitable for the region and also for today's needs and which is influenced by the spirit of the site is felt. The possibility of creating touristic attractions. In this study, in the field of design, the performance criteria of the hotel design and maximum use of the room that a hotel requires, such as using a higher percentage of guest floor facilities to maximum levels and the circulation and service areas to a minimum, design of the structural form, core, etc. The use of artificial design attractions and climate change, together with building façade technology, can create an attraction for customers and economic profitability, and a sense of place. In other words, the responsive approach to architecture can be an appropriate response for hotel performance in this research.

INTRODUCTION

The tourism sector is recognized as the world's largest and most varied industry. Since our nation is among the world's top 10, not only in terms of tourism and tourist attractions but also among countries in the Middle East (Erfani, 2015).

In two aspects of the system of tourism activities, man-made environments are important. On the one hand, they are the source of tourism activities with regard to population density. On the other hand, they are considered to be the destination for tourism activities because they are based on livelihoods and social and economic, trade, industrial, cultural, communications, leisure activities, and historical monuments. Tourism is a natural, spiritual, mental, and social necessity for mankind. They will find

its true meaning when they also happen in a desirable and enjoyable environment where residency takes place and facilitate the conditions for this. To ensure this, users should be able to refresh their breathing and provide regeneration and rehabilitation of physical and mental health.

On the other hand, the living room and the atmosphere are one of the areas of social, cultural, and recreation policy. In their article entitled "Responsive Architecture/Performing Instruments," Philip Beesley and Omar Khan say that responsive architecture is called on to address every anticipated and unforeseen requirement of different user dimensions. In this paper, they consider physical, functional, social, or seminal dimensions of responsive architecture and think that a design should respond to its users today as well as to future users and technological developments.

Scientific studies show that tourism is one of the most widely used resource and energy industries. In the future, it appears to continue growing with the same intensity. On the other hand, the scale of tourism is transferred to the natural environment for many years from the surrounding area of ancient sites. In the meantime, beaches have become increasingly important as one of the major tourist destinations. In the world, the majority of travels belong to beach tourism (Shie'h and Alipour Eshliki, 2010), according to the World Tourism Organization.

There was a kind of rupture in Iran's archeological design following the Qajar period, when imports of an unknown and unknown architecture were introduced to the Iranian-Islamic tradition. When the Pahlavi era began, and this gap between traditional and imported architecture became increasingly obvious, architects and theoreticians sought to fill the gap between them and connect the past to international architecture imported. The discussion of "responsive design" in contemporary Iranian architecture has been one of the hottest topics to date due to current challenges (Amirjani, 2013).

Different architectural trends aim to deal with modern life themes. They all have the purpose of creating a type of architecture with the color and smell of contemporary life and formal diversity. The process of design and its outcome can strengthen relations with the architectural public. We can mention responsive architecture among these different trends.

Urban planners and architects have always regarded climate as a natural phenomenon. Designers have always sought to respond to weather conditions throughout the history of architecture and construction. The climate is regarded as a basis of human life and activities in indigenous and local buildings, ultimately leading to houses' shape and beauty (Shams and Khodakarami, 2010).

In addition to creating thermal comfort inside the buildings, the building's design will reduce fuel consumption and, most significantly, improve the environment based on architectural principles compatible with each region's climate. In areas like Bandar Abbas, with hot and moist climates, this is twice important. Bandar Abbas is one of Iran's most important coastal cities in the south. A large number of tourists visit the city each year, the crossroads of two distinct geographical contexts of land and water (Honarkhah and Ghaedi, 2013). Tourism is expanding much more quickly in coastal areas than in other areas. Of all tourist activities, only tourism and beach recreation are increased by volume and diversity (Mirza

Kouchak et al., 2014). According to the latest statistics provided by the statistical center of Iran, Bandar Abbas ranked 13th as the main domestic tourist destination and 10th among domestic tourists (Hajinejad et al., 2009). The phenomenon of tourism is inevitably linked with human conduct and activities to satisfy its curiosity by the technical-cultural, political, social, and economic infrastructure created in the 21st century. With the new tourism era coming and changing, it becomes easy to see that, given its tourist attractions, capacities, and facilities in various areas, it ranks 95th among 181 tourism-dignified countries and 137th within 2020. In terms of its special capacity as an ecotourist, Iran is not one of the world's top five countries. In Iran's present urban society, this industry is extremely important in the postmodern spatial, cultural, social, and economic structures. This feature is one of these important goals of community planners in the area of tourism today to broaden public open spaces and build modern recreational and accommodation centers.

Generally speaking, hotels constructed in Iran present many architectural problems and the attractiveness of the design, including the rentable design of spaces. The need to design a somewhat adaptive hotel to the regions and meet today's needs, influenced by the spirit of the site, can be felt to assess the potential of the coastal city and create a tourist attraction. This study is based on the hotel design in the city center and lack of land, etc. Attention should be paid to hotel design performance and the maximum utilization of the spaces required by the hotel, including the increase in infrastructure levels for guest floors, maximum traffic and service areas, design of building shape, central center, etc. The problems of land shortages, customer attraction, and economic profitability can in some measure be overcome both inside the building and with attention to climate and technology. In other words, the responsive approach to architecture in this research can, to some degree, overcome these limitations.

METHODOLOGY

This study uses an analytical-descriptive methodology.

This study employs a methodology of analysis-description.

The information collected contains definitions and everything that leads us to the subject to obtain information about it using the desk research, field studies and websites, and observations on hotels and tourism centers. The façade and the responsive architectural design are evaluated in all building elements. Some examples of flexible buildings were studied during the recognition phase on their façades, plans, and spatial connections. The project site is in the center of Bandar Abbas in field research. It concerns the most important services and facilities. This study aims to achieve a suitable design model by analyzing Bandar Abbas's conditions for the environment and climate and studying statistics and demography, architectural instances, hospitality and tourism theories, hotel design standards, and library information past trends current status. The relation between the variables was analyzed, and the hypotheses tested.

Case study (Bandar Abbas)

According to estimations by the Statistical Center of Iran population in 2016, Bandar Abbas, the capital of Hormozgan, is 680,336 people, the

area of Bandar Abbas is 80 km^2 (Statistical Center of Iran, 2011). This city always had various population structures which had different neighborhoods and human relations. The spatial resources studied in this city are very limited. Due to its proximity to the sea, its relations with the other countries in the South of the Gulf, and its commercially wealthy urban development, Bandar Abbas has always been a gateway for various people to enter the city throughout its history. Thanks to its horizontal expansion on the Gulf of Persia, Bandar Abbas is composed of several ethnic groups that have caused ethnic concentration in a given place or neighborhood due to their interest in collective life. Bandar Abbas did this in itself in the form of puzzles that compose the whole thing.

Furthermore, several ethnic groups have sought similar jobs, which have led to the formation of various ethnic settings and areas in the city. Moreover, the city has its symbols and signs. The coexistence of those signs identifies a city from other cities. The city receives its signs and the signs.

General principles of climate design in hot and humid areas

Building climatic buildings aim to provide its residents with a comfortable and secure space against adverse outside conditions. Efforts should be made to minimize harmful effects on their interior when designing responsive buildings. Heat sensitivity has been shown in the head and neck. For instance, the building's occupants respond more to a warm roof than to a warm wall. For designers to develop ceiling height and the choice of material and colors, such considerations are important.

The general principles of ecological cities design in hot and wetlands are directed towards the following aims:

Providing maximum shading and minimizing heat absorption

The wind energy use in these areas is the decisive factor in the building's location. The appropriateness of the building's direction for wind use is more important than the structure's proper sunlight orientation.

The largest wind effect is perpendicular to the direction of wind blowing on the façade of the building.

In these areas, the air movement has a more prominent effect on environmental cooling because of air moisture and should therefore be used. This shift also reduces surface heat and their heat reflection. Therefore, in these areas, the environmental conditions will improve significantly if the necessary steps can be taken to control the quantity of sunlight entering the building and transport air in good quality. To achieve this goal, simple tools like a deck fan can be effective.

The best thermal protection method is to build a cloister in the south part of the building (sensitive or responsive view). By shading, the building's interior does not receive direct sunlight. It offers some comfort zone by catalyzing the sea breeze into it. The wind-beating machines struck by the wind from all sides are another building element of great importance for traditional architecture that can still be used in their way. Thus, due to lightness outside and cooler air, which is heavier, warm air enters downwards and inwards. Because of the continuity of this procedure, a relative comfort zone is always provided by a relatively good design.

The slope of the roofs should be such that water drains rapidly in the face of heavy and irregular precipitation. The roof should be around the side

walls so that there is not irregular rain with the wind at the connection between the ceiling and the wall.

The building should be constructed on the east-west axis with north and south views less exposed to sunlight and can also use ventilation with the wind. When the building cannot be placed on the east-west axis, the building's main area should be protected from direct lighting when designed on other axes.

The building needs to be open to use the airflow. Constant airflow for all rooms should be considered.

In the wind-blowing direction and at an altitude where the wind is reaching the occupants, openings on the north and south walls should protect them against direct sunlight.

Roofs should be light and have thermal insulation (Moshiri, 2006).

Principles of designing outdoor spaces in hot and humid areas

Lack of enclosing walls: ease of airflow between spaces

Design of open spaces: the possibility of favorable breezes in the yard

Shading: Adequate shade for people outdoors at work or rest

Planting: Purifying and filtering sunlight, reducing the temperature by creating transpiration in space, and preventing new annoying radiation from the sky.

Climatic solutions used in the plan

Form, elongation, and location of the building

In hot and moist areas, the building's shape should be lengthened and rectangular in the east-west axis due to the high intensity of sunlight in the east and west. This form also allows drawings to be created within the building and moisture reduction.

The choice of a building's site depends, in general, on factors such as the natural state of the land, the need for private space, noise control, and reduction, and both wind and sunlight factors.

In hot areas and at low latitudes, the building should go in the least solar energy.

Olgi has researched the intensity of solar radiations in vertical areas in different geographical directions at various hours and seasons to identify the most appropriate construction direction in different latitudes. He measured and recorded the amount of energy radiated on the vertical surfaces by a difference of 30 degrees. He examined the most appropriate construction direction in various climates. Below are the results for warm and wet climates. (Kasmaei, 2003) and) and (Climate and Architecture, 2003).

Principles of design of residential complexes

The general plan of the hotel

Various hotel types offer different quality and facilities standards. Hotels can either belong to a chain or operate autonomously. Special design terms may apply if the hotel is part of a chain.

City hotels, special holiday hotels, clubs, apartment hotels, and motels include types of hotels.

Such rooms are usually allocated in these hotels. Catering facilities should cover between 50 and 60% of the floor area, including rooms, toilets, toilets, bathrooms, shower rooms, corridors, and entrances. Public reception areas include a reception desk, corridors, lounge areas of 4 to 7%, meeting and convening areas 4 to 12%, interiors, kitchens, staff rooms, warehouses, work area, management and secretaries 1-2%, maintenance and rehabilitation 4-7%, recreation and sports facilities, businesses and beauty salons 2-10% of the floors. Special sections with a range of space requirements may also be required for seminars, health centers, and outdoor facilities. In zoning and design methods, national classification systems are either mandatory or voluntary (letters, numbers, stars, crowns, etc.). Over 100 regulated classification systems, often based on the World Tourism Organization (WTO) model, are used for hotels.

Table 1. General conditions of hotels

		General quality
Minimum requirements	One-star	The accommodation unit can have 8-10 bedrooms. It has a limited public area and limited services and factories for food and drink. Informal services, often provided by the family or the hotel owner in the family environment, may be offered. The décor, the fittings, and the fittings can be better equipped than space typically found in hotels and accommodation centers. In general, cleanliness and hygiene must be observed in minimum acceptable conditions. The devices are safe and usable.
	Two-star	This may, for example, include 20 bedrooms with limited public space, but better and more comfortable bedrooms than one-star hotels. The owner and family manage most of the hotel. There may also be formal hotel facilities; in the accommodation unit, a set of services and facilities is offered, including food and drinks. In one-star hotels, the decor, accessories, appliances, and furnishings are less like home appliances. The management and the staff provide the services and treatment of guests formally, and the hotel staff are familiar with their functions.
	Three-star	Medium size hotels in one-star and two-star hotels with 30 bedrooms with better services and facilities than usual. The quality and service of a three-star hotel can also be offered through smaller facilities and accommodation centers. There is better indoor access to the public. Public space and bedrooms are usually bigger in suburban and suburban areas. Management and staff are well-presented and officially trained in their work. Employees are more aware than staff in two-star and one-star hotels. Usually, the quality of service and the guest's comfort are more important than the lower grades in these accommodation units.

	Four-star	This type of hotel offers high-quality service with a set of services and facilities that its guests want. Such hotels generally have wider rooms. However, smaller hotels can meet our four-star hotel's expectation by increasing the quality of services and are more luxurious and better equipped. Four-star hotels have great public spaces. The hotel's public areas with the guests who are staying at the hotel are the priority. There is no problem if other customers have more capacity to provide services in these areas. The rooms offer greater comfort than three-star hotels and better quality. There are professional staff and uniforms available at the hotel. Existence of a high-quality, quality food and drinking sector with seriousness in terms of food and drink preparation by providing the desired food and drink quality There should also be conference and banket space, business center, health care, entertainment, sports, depending on the location and workload and the type of customers. Other space than the main restaurant should be available for eating.
	Five-star	These luxury accommodation centers offer more facilities than 4-star hotels, customer services, and the food and beverage service, which are broad and in compliance with the highest international standards. There are many additional amenities available in the wide and sumptuous hotel center. The customer is attracted to the presence of skilled employees by excellent service. The hotel's appearance reflects international industry standards.

Table 2. General services

General quality		
Minimum requirements	One-star	All guests are welcomed with friendliness, efficiency, and courtesy. All reservations and questions, requests, letters, and visitor complaints are replied to politically and expeditiously. The management and staff have comprehensive hotel information, local attractions, and events. Services must be adequately provided. It is possible to limit technical skills. Telephones that are entering the guest must be connected as requested. The person responsible for this work was trained.
	Two-star	More signs of professional clothing approach and technical skills should be provided at this level. A limited number of employees or specifically hotel owners can be used to perform services.

	Three-star	More formal services with a higher level of skills are available. Management and employees are more formal and well attended and usually wear uniforms. Technical and social capabilities meet guests' needs and requests. At least one of the world's living languages must be fluent in the person responsible for admission.
	Four-star	Employees are in uniform and under management supervision. With a very high level of technical and social skills, the guests' needs and requests are met.
	Five-star	In different parts of the hotel, experienced staff were employed. All departments are supervised and managed by the staff. Double tasks for the employees show that the hotel is not in this class. Regardless of service style, technical and social skills in this degree indicate extraordinary discipline.

Drawing on the findings of the adopted methodologies, the Site has the potential, because of its position and nearby tourist and recreative attractions, to create uses such as hotels. However, to do so, people and useful extensions, and more attention must be given to the site. Therefore, since tourists need places to stay and spend time, it is quite understandable that a hotel exists in this place.

Project studies

Architectural idea

The hotel consists of a number of related functions and activities that can finally provide accommodation and other services for travelers temporarily. A few issues had to be dealt with in the hotel plan, which led to the project planning. The plan contains the following:

Know how to design the site

A) In the site and design process, the sea and the commercial complex are important.

B) An important design factor is also the eastern-west stretch of the site.

C) Other important design factors are geographical and climate factors such as the wind, mainly from the north and south, sunlight, etc.

Hotel's general objectives for the site

One of the main objectives in the design of the hotel is to use Iranian design to achieve the following objectives:

1) View of the collection site as a whole

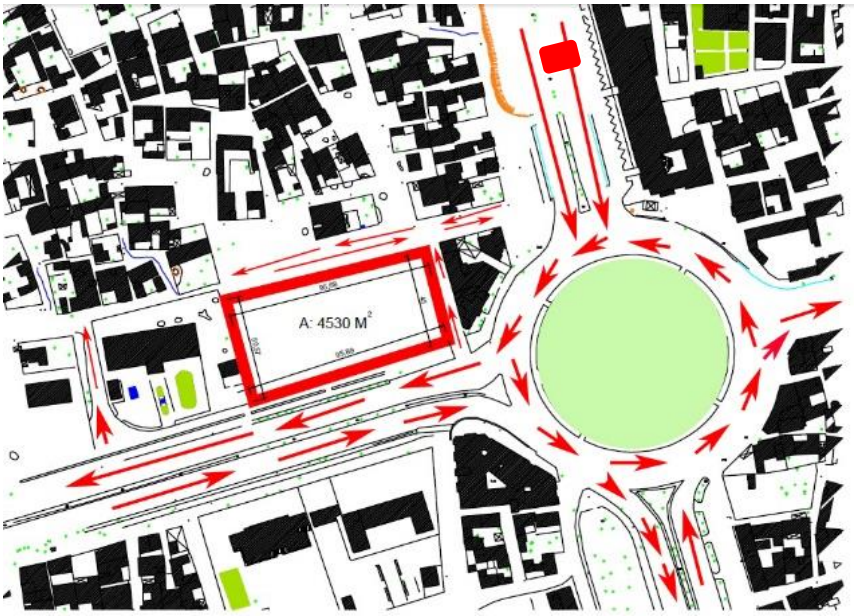
2) View of the memorial square

3) Confrontation and conflict with elements of texture as well as streets, buildings, and natural and historical elements.

4) Create environmental readability and site identification with Bandar Abbas.

An introduction to the site

The place is located on Pasdaran Boulevard near one of the town's old squares, namely Shohada Square (memorandum). It has a reception and tourist office in Bandar Abbas Center, district 3 of the city.' The main access to the site is on Pasdaran Street from the south, and the site has two accesses to Malek Ashtar Street and Pouneh Street from the east and north. The site is situated in the center of the town and near the beach and fish market. It is located conveniently in the eastern-west area and access to public services. The land dimensions are 50x95, and the area of the site is about 4530 m^2, which can be a suitable reply to Bandar Abbas, according to its performance and population.



A

B

Figure 1: a) Location of the site, b) Ways of access

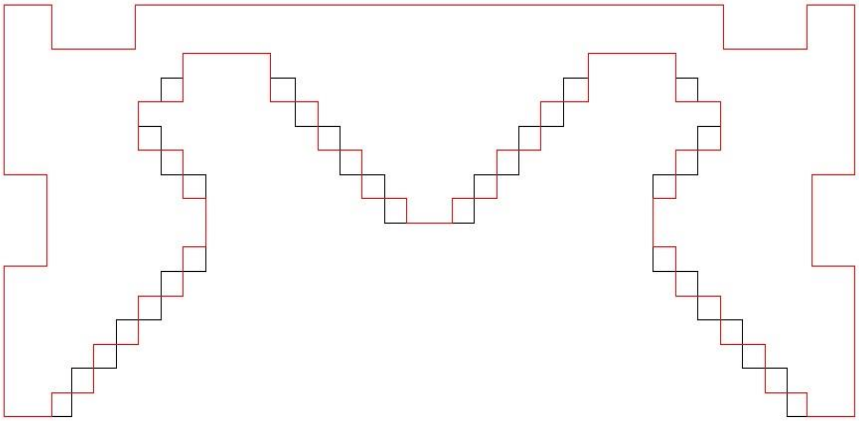


Figure 2: Design idea

Figure 3: Images

CONCLUSIONS:

Building a climate building aims to provide its residents with a comfortable and protected environment against adverse conditions.

The following objectives should be focused on general design principles in warm and wet areas according to the responsive architectural approach:

Providing maximum shading and minimizing heat absorption

Because of air humidity, air movement has a much higher impact on the environmental cooling in these areas. This shift also reduces the heat of the surfaces and reduces their heat reflection. Therefore, where measures to control sunlight amount can be adopted, the air can be displaced throughout the entire building in these areas with appropriate quality, on the one hand. To achieve this objective, simple tools like ceiling ventilators can be effective.

The best thermal protection method is the construction of a cloister in the southern part of the building. By shading, the indoor space can be avoided by direct sunlight. It provides a comfort zone in a way by catalyzing the sea breeze into them.

The building is situated on the east-west axis with north and south-facing views to reduce sunlight and wind ventilation.

The building needs to be open to use the airflow.

This plan's basic concept is based on the climate plan and the traditional Bandar Abbas architecture. It combines building volumes, i.e., shading floors, each with a wide porch such as a yard and green ceiling for each room. The symmetric openings on the south front allow the visibility and wind blowing to benefit.

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