Adaptation of the Architectural Designs Taking into Account the Impact of the Local Phenomenon of Climate Change in Palestine - Gaza Strip

The purpose of this study was to identify the means required to modify the design of existing residential buildings in Palestine and to adapt to the environment in the face of the climate change phenomenon. The layout of the structure can modify the urban climate through proper design, thus improving the thermal comfort both outside and inside buildings, even reducing energy demands for heating and cooling requirements. The main goal of the research is to examine the principles and goals for using adaptive design to change the way of designs residential buildings. In the future, a design model for both corporate performance and environmental conservation and buildings is expected to become a requirement. Climate change would involve adaptation of existing buildings, but it will also require the design of new buildings to be able to adapt. As the population ages and demographics shift, so does the need for flexible design solutions that consider the home's relationship to people's shifting perceptions about living spaces and personal narratives. In a future marked by rapid climate change, Design for Adaptability enables buildings to transform the evolving climate and react to it, as well as the resulting passenger needs. This research article outlines alternative options and concerns with adaptive design decisions. Recommendations coms to the following result: In hot and humid regions, the need to increase the width of Streets to increase air circulation, especially in these areas, to create a better atmosphere and reduce dependency on industrial air conditioning, to increase energy consumption and harmful pollution Gases are streamlined to reduce environmental effects.

Keywords: *climate, geography, energy comfort zone, cement elements, urban changes in buildings*

Introduction

The impact of climate change on the globe has only recently become apparent in the world, and average temperatures have changed since the history of Palestine and all nations, even if the changes are minor, they have had an impact on people's and buildings' thermal comfort. Increase their prices in the biological world, increasing the risk of epidemics spreading to humans, wild animals, and plants, as well as the risk of these diseases being spread by humans. As a result, it is critical that we respond to the current situation in a way that does not exacerbate the crisis, increase energy consumption, increase greenhouse gas emissions, or depend on non-renewable energy sources. The objectives of this research study included those follows:

1. Non-consideration by designers and architects of the environmental design of buildings.

2. So same architectural design and construction techniques are used in all Palestinian cities, taking into account the different environmental conditions.

3. There aren't enough research out there to show how certain design and construction elements affect a building's thermal and environmental performance.

4. It isn't just a matter of increasing isolation to show that environmental design works; everything has a limit, and if it reaches the limit and turns against it, reality must be measured and calculated to have the best results.

5. With the exception of those buildings that are threatened with demolition and therefore at the lowest expense, Palestine's urban planning is unique in that the areas allowed for construction are limited, resulting in buildings being clustered in dense hot spots and others being empty. For many construction firms, cutting costs is a primary goal in increasing profit margins. As a result, most of them had no insulation or space management, and the consumer was now suffering from poor ventilation and industrial lighting in some spaces, as well as a lack of thermal comfort in the building, unless he relied on electromechanical air conditioning to the seasons.

6. The importance of the research lies in the fact that it operates on existing buildings whose occupants are exposed to high temperatures in the summer and cold temperatures in the winter by suggesting design techniques and introducing new materials to improve environmental, economic, and living comfort. It's worth noting that the available studies focus only on newly built buildings prior to implementation, requiring them to adhere to a set of criteria and requirements while leaving existing systems behind. As a result, such variables such as the ratio of openings, materials used, room orientation, ventilation, and lighting, as well as complex adaptation techniques such as modifying the usage or treatment by simple partial demolition or extension, are taken into account. They will be considered, and we will need additional resources if necessary.

Climate and Environment

Climate

The West Bank and Gaza Strip have a climate that is characteristic of the east Mediterranean region, with hot and dry summers and cool and wet winters. Summer temperatures vary from 18 to 38 degrees Celsius, while winter temperatures range from 5 to 10 degrees Celsius. The rainy season lasts from October to April, but it may start a month earlier and seldom last until May.

The West Bank and Gaza Strip are sandwiched between Lebanon's high-rainfall area and Egypt's low-rainfall zone. As a result, the climate will range from arid to wet subtropical in the south and north.

The research area's location The Gaza Strip is the southernmost portion of the Palestinian coastal plain along the Mediterranean Sea. It is bordered on the west by the Mediterranean Sea, on the south by Egypt's Sinai, on the east by the Negev desert, and on the north by the green line. The length of the western Mediterranean coast is approximately 41 kilometers, with a width ranging from 7 to 12 kilometers. The Gaza Strip is situated in a semi-arid climate. It is situated between the latitudes of 31o16 and 31o45 North and the longitudes of 34o20 and 34o25 East. The climate in Gaza is characteristically semi-arid, and it is situated in a transitional zone between a temperate Mediterranean climate to the west and north, and the arid Negev and Sinai deserts to the east and south. There are two separate seasons: the rainy season, which begins in October and lasts until April, and the dry season, which runs from April to September. In the summer and winter, the average daily temperature in Gaza ranges from 26°C in the summer to 12°C in the winter, with average daily maximum temperatures ranging from 29°C to 17°C and minimum temperatures ranging from 21°C to 9°C. In July and December, mean daily evaporation varies between (21-6.3) mm per day [1].

Environment

From planning and design, development, and building services, to service, repair, and restoration, and finally to end-of-life when the materials can be retrieved and recycled, an environmentally built building must consider every aspect of its lifecycle. Building orientation to capture the sun and winds, space placement, and sizing and alignment of windows for ventilation are all considerations that go into sustainable design. Building orientation should consider shaded indoor and outdoor living areas in architecture and orientation, as well as indoor and outdoor areas on hot and sunny days, as well as wind cover and breakers when the weather is cold. The Palestinian land is so small for building purposes that the form and orientation of the land is a predetermined factor in the design process. Well-designed buildings should have adequate natural light and ventilation. In the morning and afternoon, the eastern and western sides are exposed to the low-angle summer sunlight. In the summer, the sun's high angle in the sky makes it simple to cover windows with only a large roof overhang or horizontal shade. In the winter, the low angle sun supports the building's longer north/south sides. On the equator side, the roof overhang or shading should allow the Sun to shine into the building when it is needed for warmth in the winter and provide sufficient protection from high angle Sun in the summer. Oriented and spaced in such a way that the majority of rooms are available. Sun penetration into the building would be maximized if the majority of windows are built into the equator-facing wall. Living spaces should be situated to take advantage of cooling breezes in hot weather and to provide protection from cold winds in the winter. This does not imply that the building's orientation should be changed from north to south to take advantage of prevailing breezes, as the building does not have to face directly into the

wind to provide adequate cross-ventilation. Rooms that need more heat during the winter months, such as dining and entertainment areas, should be located on the equator side of the building. Rooms that are only used for a few hours during the day can be put in the back or, more efficiently, on the west side as buffer zones to shield living areas from the hot afternoon sun (for example bathrooms, laundry, entry corridors, stairs, bedrooms, bars). The long axis of some structures runs east-west. During the summer months, smaller surface areas facing east and west receive less sunlight in the early morning and late afternoon, while a wider surface facing south receives more sunlight at afternoon [2].

Energy Comfort Zone

The building's thermal comfort is largely determined by its thermal mass, which takes into account the sum of shifting temperatures, the hours of adjustment at its maximum and lowest temperatures, and the occupants' private atmosphere. This entails watering plants in the greenhouse, opening and closing machines, applying sunscreen, and the clothes that a person wears, and it is dependent on less heat control being approved. This is possible with a conventional air conditioning system [3].

Emphasizes the importance of solar radiation in the climatic biometric diagram, which influences the other climatic components [4]. The brightness of the sun's rays as they fall perpendicular to an area. This demonstrates the importance of calculating the angles of incidence in the sun's rays, which are determined by the angle of elevation, which is the angle of the horizon line, and the angle of azimuth, which is the horizontal angle that runs from true north to clockwise east, south and west, and back to true north. Solar radiation is affected by the rate of heat exchange between humans and the atmosphere, and the heat lost by the outside environment can be offset by load currents. Sun breakers, reflective fabrics, separation materials, and understanding the angle of incidence of sunlight between summer and winter can all be used to assess and handle the thermal comfort zone. The sun varies at different degrees of latitude and longitude, in addition to the four seasons [5].

The first component in climatological biometrics is temperature, which is accompanied by relative humidity. Because of this disparity, the challenges associated with balancing energy efficiency and thermal comfort, and most of the solutions contribute to achieving thermal comfort through constructing passive enclosures, such as the codes for maximum thermal insulation, passive solar thermal benefit, and the Shade, there are proposals for achieving thermal comfort by using efficient controls that lead to energy savings by the use of inexpensive equipment, such as B. For design and construction elements, as well as systems that depend on heating, ventilation, and air conditioning and aim to provide users with thermal comfort. These models can address issues with climatic conditions such as the Mediterranean climate, the continental

climate, the heating and cooling system for air conditioning or the use of radiant heaters, and issues with climate seasons. How to solve problems such as cooling or heating, as well as alternatives between structural elements such as heating and structural elements such as [6]. Flat-sharing families face issues with the negative thermal output of the apartment on both a planning and architectural level, and practitioners' and residents' perception of the preferences for the negative thermal output of the apartment in these areas does not always coincide with theoretical knowledge in this regard, though this can often be justified. Furthermore, bridging the gap between theoretical knowledge and concepts will pave the way for bettering current and future construction patterns in these areas [7].

Thermal Properties of the Casing Elements

Cement Elements

First, there are dark elements like ceilings and walls, which are called the building's envelope and protect the interior from climate effects. Every material has its own thermal properties to resist heat conduction to and from the building, regardless of its size, color, or texture.

Second, transparent points in architectural openings, such as windows and the different types of glass that cover them. Openings and windows are the most natural way to exchange air and create an atmosphere free of unwanted odors in public areas, corridors, and classrooms, as well as in all of the house's quarters, including kitchens, bathrooms, and bedrooms. If air currents are within a certain velocity range, they cool the atmosphere and reduce the heat emitted by lightbulbs and other sources, making the person more relaxed. This is dependent on the size of the opening, its orientation, and the existence of sun-shading elements.

Concrete Houses Once cement material reached Palestine in the first half of the twentieth century, concrete buildings, mostly made of concrete, spread and became the most common type of construction. Concrete has enabled multi-story building construction, decreasing land use, pushing the construction process and thereby reducing time, and providing a high degree of productivity in the design and use of spaces. (European Concrete Platform, Concrete Structures' Long-Term Benefits,[8]).

This was compounded by a sharp decline in the use of sandstone and mud in building until it was phased out in the second half of the twentieth century. The construction portion of buildings has been largely built as a result of the use of concrete, but the design process of residential units has been drastically altered. The most overs in the residential construction method can be described as follows due to the need for concrete:

- Move further through multistory vertical buildings in a very small area of property to respond to the growing demand for housing.

- Use of skeleton building systems as screens and partitions that can be freely built to lead to the outside and inside walls.
- For exterior and interior finishing, light materials and a variety of materials are used.
- Wide external openings may be built without affecting the construction process.
- The following accomplishments have resulted from this progress during the construction phase:
- Speed up the building process, resulting in time savings.
- Increased population density as a result of vertical building architecture, resulting in lower land use.

Reduced land use due to higher population density as a result of high building design.

Increasing the ability to use modern technologies to achieve comfort inside buildings, such as air conditioners, autonomous elevators, and other facilities.

The traditional type of a house in Palestine, which includes an open courtyard surrounded by living spaces and is built from local materials such as sandstone or mud, has given way to the concrete house style, which relies on modern comfort techniques. The change to the concrete house style appears to be justified due to its numerous advantages, especially in terms of low construction costs, reduced land use, and design flexibility. However, one of the most significant benefits to be considered is the negative effect on the new architectural identity in this sense. Traditional architectural features should be fully utilized when designing and constructing concrete houses and modern buildings, according to the report. This is seen as a step forward in the development of a local architectural style that represents the social and environmental conditions in Gaza while still keeping up with significant advancements in construction materials and techniques. This is not, however, a call to blindly obey or refer to tradition and abandon construction; rather, it is a call to blend the characteristics of traditional and modern house design elements in a flexible manner.

Sustainable Climate Design

The shape of the framework, the inner courtyard, the building's orientation, the sun's orientation, the shading of the windows, the colors of the exterior covering, the use of plants in the building, and the building materials used all contribute to the residential area's climate design requirements. It aids in the development of design solutions that are suitable for the desert climate, but further research is needed to develop architectural designs that provide adequate thermal comfort for people living in residential buildings in the area.

To adapt things into the world of plants, ecosystems, and the universe, sustainable design requires a collection of cognitive and analytical skills, environmental awareness, and adequate practical money. In other words, the

precise relationship between human needs and various forms of natural resources around the world is unknown (sustainable design). And a careful examination of these news patterns and circulates for various uses, [9].

Each architectural void is a medium that contains the human being who works in it, and the idea aims to achieve the best possible relationship with the building and what it contains, as well as the environment when we enter it and the interactions created by users, visitors, and passers-by, in order to better balance appearance with logical analysis.

Natural Ventilation

Natural ventilation is a traditional design philosophy that is gaining popularity among architects due to its ability to build comfortable, stable, and clean interiors. Fresh outside air enters a wide space through low-level inlet ventilators in a well-designed natural ventilation system. Warm air rises and escapes via high-level ventilators at the ceiling. A buoyancy effect is created by the broad height gap between the arrival of fresh air and the departure of warm air through the atrium, which draws air through the building. The upward airflow and ventilation produce a cooler, more comfortable indoor atmosphere as well as an ideal smoke extraction route. Natural ventilation systems are equipped with electric actuators and sophisticated controls, allowing this mechanism to be easily incorporated into any building management system for climate control or fire safety.

- The external air pressure and the air inside the ventilation field are two different things.
- On the built-up site, the presence of relatively active winds in the region to be ventilated.

1-These buildings have a distinct character in the ventilation phase, and many architectural designs have been found to have been influenced by the climate variables that helped the building achieve thermal comfort, such as: B. Islamic styles and their structural improvements, which helped to ventilate the building adequately by:

2- Courtyards are used to allow for the free flow of air within the building as well as the absorption of hot air.

3- The use of architectural elements and their history, which was one of the solutions for these areas, as well as the use of mashrabiyas, which can reach the fresh air in this region without penetrating air-laden dust, and the prevailing winds directed openings taking into account the narrow and open spaces, were some of the solutions for these areas.

The basic shape of the building is the product of several factors, including the type of motion in it or the size of the necessary space, which represents the integration between formative elements and specializes in the proportions of

repetition, rhythm, and contrast inherent in man's construction, and some of them are symbolic fact.

The beauty of the buildings varies depending on the time, city, population, and culture. And this is without regard for the traditional basic requirements of function, security, and collectivity, as well as the preservation of environmental resources during and after construction by reducing stress on resource and energy use.

Architectural design, in general, is the distribution of elements of a specific program on a chosen site with the aim of achieving solid working relationships with various choices, and in order to achieve these relationships for the best solution, the following should be done:

4- Increase the amount of wall crumbs and sunscreen you use to get enough shades to build a temperature difference that lets air and ventilation move around. This can be seen in the inner courtyards. However, since it is performed very carefully, it is not possible to absolutely rely on this process.

If it completely depends on air diffusion, this will move very slowly. When the difference in densities is exploited, however, ventilation is better because air movement is more efficient. High pressure areas and low-pressure areas are formed within the city by a disparity in street widths and squares where there are broad squares one after another, i.e. H. Large shows, which leads to low pressure and the existence of narrow streets, i.e. H. Small shows, which leads to high pressure and the succession of wide streets.

The tightness of the wind movement is created inside buildings, but with the same street widths, there is no pressure differential, so we must rely on mechanical coolants. It's either natural or industrial, and it's one of the most significant factors influencing home building.

Natural light: it has a low cost and can be overhead or from the side, including:

Ceiling lighting: Architecturally preferred because:

- Ability to control the amount and direction of incident light. Provide an even amount of light for good visibility.
- The external elements of trees and buildings do not affect the amount and type of light.
- Provision of surfaces and walls for cabinets and furniture.
- Availability of the maximum depth of the building without internal shipyards.
- There are few shortcomings that can be remedied by some technical treatment. These disadvantages include: increased ceiling loads, dust build-up, difficulty cleaning, and the possibility of water leaks that are unsuitable in buildings Layered.

Side lighting: This is done through conventional windows of different sizes or through openings along the wall. The openings can be placed on the

plane of sight. The main disadvantage is that the wall cannot be used for display purposes.

Side lighting features: good ventilation, suitable temperature, simple layout, highlighting the plastic elements and different views to avoid boredom.

Industrial lighting:

A microcomputer has recently been used to control the intensity of lighting and its methods of using natural light. Various industrial lights are used to present the building in the most beautiful way from inside and outside in the dark.

• Direct overhead lighting outside the unit.
Direct lighting in the device.
• Lighting on both sides of the device.
Lighting and Color: The lighting can be colored, but this type is not comfortable on the days of surgery that require focus and visual effort, but it is possible to take advantage of the reflection of the light. Colored walls on which a different reflection factor forms from color to color in order to differentiate rooms or to create an atmosphere of movement in the evening to break boredom into the same color and dimension of sleepiness.

Orientation

Natural ventilation and light are important in these areas, so the direction for this must be decided by examining the prevailing wind movement.

- The building is directed towards the prevailing winds all year round.
- The orientation of the building must help ensure that the building is not exposed to direct sunlight.
- Take into account that the orientation in summer will not help the sun penetrate the interior, so that the temperature of the building being reduced will not be increased.
- Face the building and its openings away from the dust-laden winds.

The development of thermal comfort processes in the home between the past and the present

More than five decades ago, how people lived and what natural conditions they lived in to survive in mud buildings If you start building with local building materials, you'll be a pro in no time. These materials are known for their good behavior and thermal conductivity due to their resistance to clay walls, which are infamous for their heat resistance and short lifespan.

This allows for thick building walls with mud-covered wooden roofs to keep them cool in the summer and warm in the winter [10]. The widespread use of cement, rebar, and its components in residential buildings, such as cement blocks and reinforced concrete, began to cause thermal problems. Since

concrete bricks and ceilings made of reinforced concrete are susceptible to heat penetration from the outside.

The widespread availability of electrical energy and its low cost allowed a person to cope with the conditions of his home environment by employing various methods of air conditioning to combat the excessive heat and freezing cold. This has led to an increase in electricity consumption [10].

Several books and published studies in Europe and America have centered on the construction of insulation. Which is dominated by a cold climate that reaches below the freezing rate in some seasons - the thermal insulation on the other hand Loss of heat energy outdoors and thus rationalization of energy consumption when heating. Most research has shown that no less than 30% of the fuel used is used to heat various buildings, which in turn has a serious impact on the economies of their countries. Most studies have shown that no less than 30 percent of the fuel used is used to heat different buildings, which in turn has a major effect on their countries' economies. Most of what has been written in our Arab world focuses on the use of natural ventilation techniques such as the roof as an alternative to air conditioning and the use of local construction materials such as mud in buildings to distinguish them as an alternative to modern insulation materials in their resistance to conduction [11].

Urban Changes in Buildings and Their Effects - Treatment of the Internal Environment

The changes in urban development differs from the level of individual buildings to the level of regional planning, the direction of streets, etc. During preparation, the factors affecting the adaptation of the indoor environment to the ambient climate in the building are seen in the climate, e.g., B. The location of the courtyards and the commercial and industrial zones. Overcrowding of the spaces surrounding the building and lack of cohesion, in addition to:

- The shape and composition of the building.
- Management of the building.
- The exterior colors of the building envelope.
- The thermal properties of the materials used.
- Openings: size, location and shape.
- Planning problems that affect the general climate of buildings.

Also, increasing humidity and decreasing air movement, the shadows of the buildings collapse on top of each other. Minimizing the impact of buildings on the external environment is considered in the following steps.

- The design phase of the building
- The building implementation phase
- The operational phase of the project
- Anticipation of maintenance and waste disposal

The study aims to find compatibility and suitability with the environmental properties, especially the determinants the climate of the study area and the main aim of the research is to evaluate the importance of the vocabulary of the housing envelope Resistance to climatic conditions in the housing. The study has many sub-goals as follows:

- Clarify the relationship between the concept of architectural design, climate, and human thermal tolerance.
- Determine the enclosure elements that affect thermal compatibility.
- Clarification of the effects of climate design on energy saving
- Suggestions for improving the performance of housing elements through changes in value, material, and construction.
- Strengthening social awareness of the importance of architectural and climate design for residential buildings.

Sustainable development, is a difficult concept to define; it is also continually evolving, which makes it doubly difficult to define. "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs Sustainable development is generally thought to have three components: environment, society, and economy [12].

There are several factors that influence the city's intelligence, such as technology, people and communities, economic governance, planning and infrastructure. Overall, there is a bit of information and research on urban planning principles and tools in creating and contributing to the smart city's smartness. The most important thing is to clarify the importance of urban planning for a smart city context and vice versa. It is important to get an overview of the concept of smart cities from the perspective of urban planning in order to find and highlight the important points of contact, relationships and roles of urban planning in creating smart cities. This would lead to sound principles for smart cities that would enable sustainable development, efficient urban growth and a better urban land-scape. The key role of Urban and Landscape design in the creation of the smart city is based on the merge of technological aspects along with the physical city including its residence and public spaces, politics, economy, ecology, etc. Smart technologies (ICT's) combine with urban design principles and strategies could be a great tool for a proper coordination and management of complex issues. Smart city sees urban design as strategy in action, focused on results, help people envision a better future and get inclusive smart city goals successfully. As well, urban design help they leverage design's power to generate innovative solutions that affect real transformation. By developing a deeper understanding of the connection between design, business and human experience. Through a combination of research and partnerships urban design seek insights that will help solve the city's most pressing challenges [13].

The design process is the process of forming and assembling elements and placing them in a particular configuration to give it a particular purpose or sense, and relies on experience Personality and human behavior from this point on, in all aspects of life and wherever design is related, the systemic sustainable development process begins as design and sustainability have become a successful feature of design. Sustainable design is the most important pillar of holistic sustainable development and implies the creation of safe management of the environment based on the efficient use of resources and respect for values that foster harmony with the environment, since sustainable buildings strive to reduce their negative impact through efficiency on the environment. Usage of energy and resources; It is therefore important to increase the level of competence and the understanding of architects of the value of this definition and how to design buildings.

A general framework for understanding sustainable design should be in place and this is done by the concepts of sustainable design. In three points:

a. Achieve the sustainability of the building tools used.

b. A sustainable building's life cycle.

c. Built to meet humanitarian criteria. The intersection of architecture, electro-mechanical engineering and structural engineering is sustainable design. In comparison to basic scale, proportion, proportion, texture, shadow and light aesthetics, the building design team has to deal with long-term environmental, economic and human costs. The most commonly used feature of sustainable design can be described, such as:

A. Comprehensive preparation, architecture and the relevance of simple choices as they have the greatest effect on energy efficiency, e.g.

B. Passive solar architecture that utilizes solar energy, as well as natural light and natural cooling with proper guidance.

C. The expense of sustainable buildings does not have to be more costly than traditional buildings, nor does the simplicity or lack of design complexity vary.

D. System integration as each of the elements is a part of the whole and is required to be successful in that design.

E. The most important concepts for sustainable design are reducing energy use and the preservation and enhancement of people's health. The concept sustainable construction represents and has been framed by environmentally conscious design approaches in the field of architecture. Sustainable architecture, by and wide, by increasing efficiency and moderation, aims to reduce environmental effect of buildings usage of resources, electricity, space and creation In simpler words, these are ensured by the concept of sustainability or ecological design. Today's actions and our choices should not preclude opportunities for future generations. Thus, green building architectural design environmental solutions and treatments had simultaneously led to economic and health benefits and many social benefits at the individual and community level [14].

Conclusions

Climate design is not an architectural or urban trend, but a systematic process of building planning and urban settlements to ensure their compatibility with the climate and provide suitable climatic conditions for their residents, this does not prevent the existence of schools or architectural and urban trends that take on climate design, refers to design philosophy. Every building must be climatically designed in such a way that it offers suitable climatic living conditions and people worked in it, regardless of the look of that design. The building can be designed in hot regions with the main aim of providing suitable climatic conditions without having to rely on mechanical air conditioning, the building is designed with a view and towards the inner courtyard delete it. In this case, the climatic design is the main determinant of the projection shape and mass the building and the architect can use several means of agglomeration to serve the main idea of the design it's the climatic fit.

Climate design is a method that must always be done in conjunction with a building's architectural design. Regardless of the architecture school a builder attends, ceilings and exterior walls can be insulated with heat and soundproof glass, as well as a few other design considerations, to improve the thermal comfort of the building's occupants. The building is thermally successful without occurring in this scenario. This can be seen, for example, in the architectural design of the facades or the project, which is similar to the courtyard. It satisfies the users' practical requirements while adhering to the designer's definition. It has its own school and is also sensitive to the climatic aspects of the region. And it can be the building has a formation of domes and mashrabiyas, and there is a courtyard in his hometown, but not the building has a formation of domes and mashrabiyas, and there is a courtyard in his hometown, but not Designed to be climatic and does not offer users any thermal comfort.

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