

Shade Architecture of the Arab Rural Mediterranean Residence

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Abstract:

The importance of the research is showing the environmental, cultural and social value of the Arab rural Mediterranean Residence as a regional heritage, where the concept of heritage brings aesthetic and functional values, and is characterized by persistence and continuity together, as it is an honest record of community culture, unity of its human and intellectual features throughout the ages, and a Physical fact imposed its acceptance and respect. Where the word (Tradition) expresses two aspects: the intellectual aspect and the physical aspect.

The research presented the (Shade Architecture) specifically, which is open spaces that connect the interior to the exterior, an expressive spaces with a local concept linking house to environment, It distributes shade and light to the harsh Mediterranean style, Whether it is from a solid construction or soft plant arbors, Where the house is the nucleus for practicing several vital activities.

The **problem of research** lies in ignoring the architectural heritage of the Arab rural Mediterranean Residence in building and designing our dwellings, so that our dwellings has become as a building without identity papers, and it has become described as a minor or exotic architecture, in line with the name of global design, which led to obliterate the identity of our society. The research **aims to** evoke (Shade Architecture) and the meanings of residential construction related to the traditions in the Arab Mediterranean area and its closely relation to the surrounding nature, and also aims to conclude architectural, environmental, social criteria that can contribute to design contemporary residence associated with the heritage.

The research presented the concept of (family contracture) as a basic factor in planning, and showed how one living style produced multiple housing patterns, it presented three solutions describes the relationship between dwelling and surrounded nature (Domesticating External Area) (Shade architecture) of Permanent Structure through an analytical approach, then it linked the old to the modern by studying some contemporary installations, Then **the results were presented and discussed** where the research was able to devise architectural, environmental and social criteria, and it confirmed the existence of social, functional, environmental integration through the design thought of the Arab rural Mediterranean Residence, through shade architecture and its elements: (Patio - Courtyard - garden), it believes that opening to the outside should not be confined to specific cultures, but it is a real demand for all world.

Keywords:

Shade Architecture - Architectural Heritage - family contracture - Rural Residence
The Arab region of Mediterranean basin.

1. Introduction

The concept of heritage is the outstanding balance and stock that is characterized by stability and continuity together, it involves a holistic dimension where it transcends the place to be the property of the entire world regardless of the region it belongs to, as it is in itself an intellectual

and beneficial value for each Humans. Here we choose the rural Arab Mediterranean Residence, Specially Shade Architecture; it is an open spaces cconnects the inside with the outside. This requires identification of: the source as an essential element, the community traditions of this conservative region and the population intimate link, As the construction structures of these houses varied, as well as the life activities, they are permanent residences that were and still are to this day the shelter of hundreds of thousands of families from the beginning of the Mediterranean until its end, despite being on the verge of extinction, they are local buildings that were built with local raw materials. This traditional architecture has always been a source of inspiration for a number of modern architects such as: Le Corbusier - Frank Lloydright - Mais van Druh - Hassan Fathi.

2. Overview and Background

2.1. Families are a key factor in Residence planning (Family Contracture):

When talking about the Mediterranean region, we must talk about (the family) in the broad sense, house area, water springs, ovens and birds nest, all of which are an extension of the residence, the design of these dwellings gives us an explanation of the interconnection of their spaces with the intimate spaces adjacent to them in nature. it is not limited to the people housing, but also includes the population that works for the benefit of the household, and agricultural and industrial production for them, Mediterranean men love participation and neighborhood, the analysis of housing Typologies confirms the extended meaning of the family, this (Family contracture) contributes strongly to shaping the internal spaces of the residence, its shape, size, and the spaces between dwellings.

2.2. Urban and architectural design Types of the residence: The Mediterranean Residences were never a free paradise, it was built with suffering than anywhere else, and there are two types:

2.2.1. Scattered and Grouped Housing:

2.2.1.1. Scattered Housing: They are scattered in the form of textile units with the surrounding nature and complementing them, their distribution depends on the population and demographic density, and they represent 20% of the housing units, about (3/4) of the housing Typologies are in plains, hills and plateaus, where agriculture, rivers, livestock and protection from thieves.

2.2.1.2. Grouped Housing: They are grouped and organized housing adjacent to neighborhoods, where the large families and customs are controlling, 80% of housing in groups, whether they are a village or an urban environment.

2.2.2 Three solutions to the architectural design (Architectural Shapes) (Typologies):

The architectural types of the residence were named (Typologies) and they are: -

2.2.2.1. Basic House: A very simple type with one room and ground floor.

2.2.2.2. Compact/Complex House: A complex type with Multi-room and floors.

2.2.2.3. Multiple Structure House: A house consisting of multiple buildings and each building is dedicated to a specific activity, usually a strict hierarchical of formal hierarchical level as a kind of uniqueness, this type is either graded or completely separate in its structure, where the structures are built on a straight line regularly or in strict radial planning or according to an geometrical shape with a functional layout.

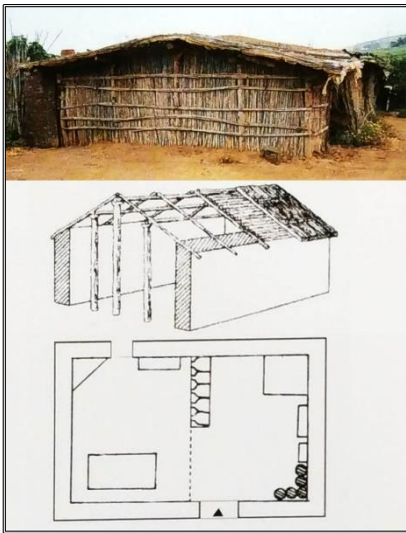


Fig.1 Ouarsenis village in Algeria, the basic house is a single living room with a conical surface built of trunks and bricks, the animal livelihood is inside (left).

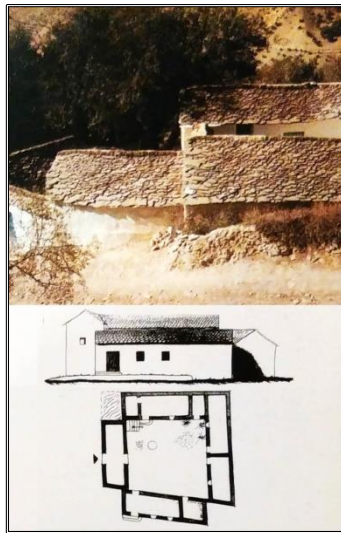


Fig.2 Ain Lakova village, Morocco, The Compact house, the plan is irregular and is divided into internal spacing with specific activities and separation of housing areas from production and animals areas (right)

2.2.3 Shade Architecture of Mediterranean region:

Opening to the outside is a basic requirement for the Mediterranean residences, It was achieved through three spacing of a rich and local official character, which contributed to drawing the imaginary boundary between the interior and exterior: (Patio – Courtyard – Garden), as the flow outward, there is continuity, it is attached extended living spacing in which activities, crafts and social relations are practiced, which we call (shadow architecture)

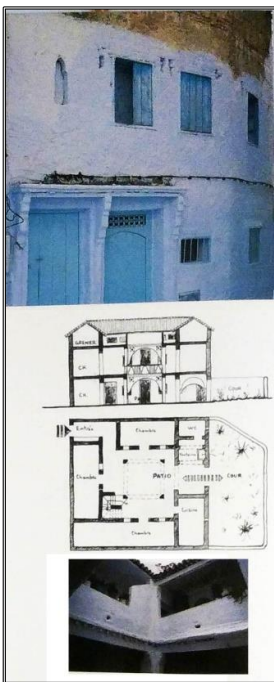


Fig.3 Houses with Patio, in Kasbah, Algeria, a traditional residence rising to the sky.

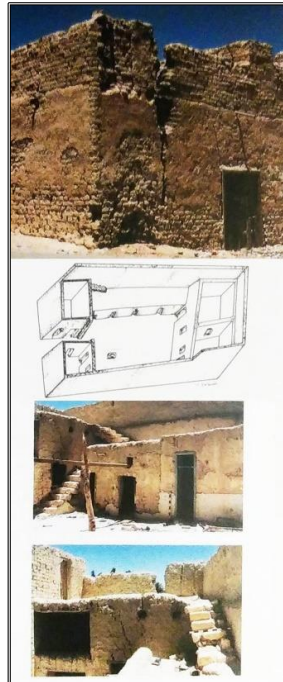


Fig.4 Houses with Courtyard, in Jordan, the house is a more Bedouin light structure.



Fig.5 Taghzout, Haut Rit, in Morocco, The inner Patio is open to the sky and creates a symphony of shadows and coolness while at the same time creating privacy and a safe haven, intimacy and a

Fig.6 Medina, in Tunisia, The planning of the house does not differ, whether in the upper or lower class housing, where the inner Patio is the heart of the house and all the elements wrap around and attract to it, and contains vital activities, it is based on the communication between the rooms and family members - Archway arched that shade, reduce the limit of sunlight and protect in rainy days (Shadow

2.2.4. An analytical study of shadow architecture for rural housing in some Arab countries

2.2.4.1. Shadow building for a rural residence, Rashid – Egypt.

2.2.4.2. Shadow architecture for a rural residence in Sheikh Hilal village – Syria.

2.2.5. An architectural, environmental and social criteria proposal for designing a contemporary residences associated with the Arab rural Mediterranean residences. (By researcher)

Criteria		Application	
Social Criteria	Requirements and social relationships	Social requirements	
		Average residence	<p>The number of family members determines the shape, area, and number of its internal spaces.</p> <ul style="list-style-type: none"> - Proposed residence is a house with courtyard 95 m². - Consists of ground floor of (shaded courtyard - entrance - bathroom - kitchen open living room at the entrance - two bedrooms).
		Distinctive residence	<ul style="list-style-type: none"> - Proposed residence is a house with Patio. Consists of ground and first floor. - Ground Floor consists of: (Patio – bathroom – kitchen – Guest bedroom with bathroom - Guest Seat open to the patio). - First Floor consists of: (Living space overlooking the patio – Master bedroom with bathroom - Secondary bedroom) Fig.7
Architectural Criteria	contracture Phases		<ul style="list-style-type: none"> - Foundation and Establishment (above or below ground). - Walls Building System :(stone system or clay system). - Ceiling Building System: (flat ceiling, sloped ceiling, domed, vaulted). - Construction of ceiling and floor structures (wooden frames). - Rendering and washes for insulation.
	Define the procedures		<ul style="list-style-type: none"> - Understand customer expectations and requirements. - Developing complete building design drawings and building type proposal:- <ul style="list-style-type: none"> o Designs derived from the surrounding environment. o Associated with social, economic and functional requirements. <ul style="list-style-type: none"> o It has the ability to expand in the future. - Make the construction description in terms of materials and techniques (stone - clay bricks - mortar - wood) and (wall building system – ceiling and floor building system- - frames and wooden structures).

		<ul style="list-style-type: none"> - Make a vision for the implementation and site management. <ul style="list-style-type: none"> - Reinforcement aid. - Security and safety systems. - Conceive a future maintenance and building restoration.
	<p style="text-align: center;">Shade Architecture</p>	<ul style="list-style-type: none"> - Reintroduce the elements of traditional shade architecture that naturally enhance the building performance, namely: (patios, domes, vaults, sloped roofs, mashrabiya, wooden windows of olive wood, stained glass which spread and filter the light and thick walls of thermal insulation). - Improve the shadow architecture performance as follows:- <ul style="list-style-type: none"> o The use of trees in the yard or patio, it separates the hot air over them and the cold ones below them. o Using moving water fountains to increase moisture. o Take into account the duration and time of surfaces exposure to sunlight. <ul style="list-style-type: none"> o The use of shading methods to improve thermal performance in the event that the yard area is more than 18 m², we can use arbors, vine plants and reed sticks. o Making inclinations for the surfaces toward the patio to facilitate the descending of cold air at night. o Raise the ceiling height and make inclinations and openings in it to facilitate the release of cold air at night inside the space. o Design a small windows towards the patio, yard or garden to ensure thermal insulation.
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Environmental Criteria</p>	<p style="text-align: center;">The surrounding environment determines the materials and techniques</p>	<ul style="list-style-type: none"> - Site Study (surrounding environment conditions - the available raw materials - study and modify techniques (knowing how of Local Technical Typology) a thorough study in terms of: (available materials - climate - soil quality - means of transportation). - Use a variety of local available natural building materials such as: raw stone, mud bricks, palm trunks as an alternative to expensive reinforced concrete. These materials must be made simply and quickly on site and less expensive than the other available building materials. - The use of simple, locally, available construction techniques, and provide they to meet the minimum mechanical strength. - Use trained local workers with basic traditional skill and craftsmanship

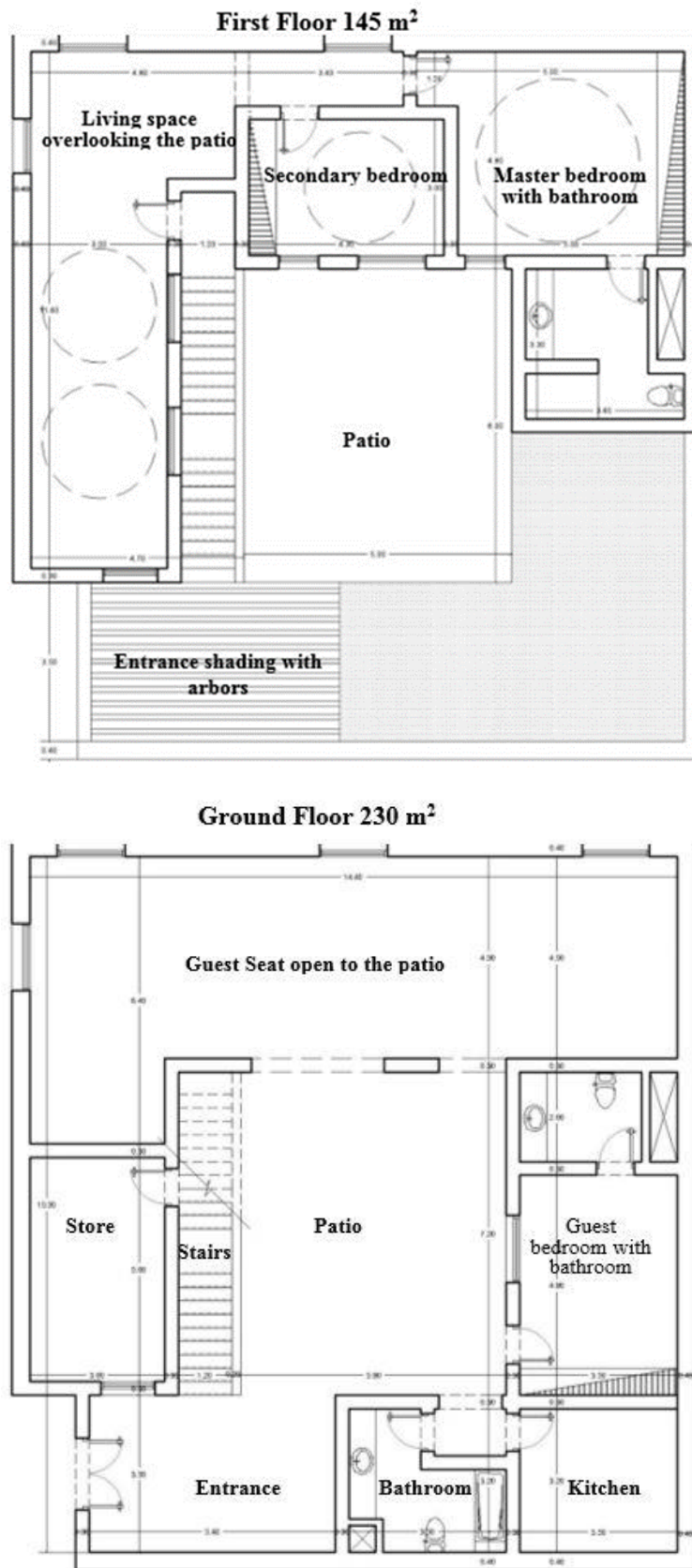


Figure (7) A proposed design for a high social level house, with an internal Patio consisting of: ground and first floor as follows: - (By researcher).

Design and Planning: -

- Ground floor spaces on 230 m² of :(patio - kitchen - bathroom - guest bedroom with bathroom – Guest Seat open to the patio - store – stairs - Entrance).
- First floor Spaces on 145 m² of :(master bedroom with bathroom - secondary bedroom - living space overlooking the patio.

Shadow architecture elements:-

- The dome was used in the roof of the first floor.
- Use the patio as an element for shadow architecture, which is the center of the dwelling place - a place for family and guests to gather, its thermal adaptation function as it stores the heat during the day and broadcasts it at night, all window open to it.
- Clay bricks wall system with 40 cm thickness for external walls and 30 cm for interior - with lime mortar rendering to isolate moisture.
- - Building the roof of the ground floor ceiling is structured of wooden frames of palm logs, with mud mortar pouring as a filling on beams of reed

3. PROBLEM STATEMENT

Ignore the Arab rural residential architectural heritage of the Mediterranean basin in building and designing our housing, despite its environmental, social and cultural importance, so that our housing became like a building without identity papers or identity cards, and it became described as an exotic or minor architecture, in line with the name of globalization Design, which led to blurring of the identity of our societies.

4. AIMS AND OBJECTIVES

- Revival of Shade Architecture and the meanings of residential construction related to traditions in the Arab rural Mediterranean region and its close connection to the surrounding environment.
- Concludes an architectural, environmental, social criteria proposal that could contribute to contemporary residence design related to the heritage of the Arab rural Mediterranean residence.

5. HYPOTHESIS AND METHODOLOGIES

- The possibility of achieving (social - functional - environmental) integration in the contemporary residence between the original and the innovative.
- The research relies on the analytical approach to the regional architectural heritage of shadow architecture for the Arab rural Mediterranean residence, and then an attempt to devise tools that contribute to the preservation of heritage architecture today and tomorrow.

6. CONCLUSIONS

- The research was able to devise an architectural environmental social criteria that could contribute to the design contemporary residences related to heritage, which depends on the use of elements of shadow architecture, improving its performance, studying the site and its materials thoroughly in order to modify simple techniques to strengthen local raw materials.
- The research was able to reintroduce the elements of the traditional shade architecture, which naturally enhance the performance of the building.
- The research hypothesis was realized in the possibility of achieving integration (social - functional - environmental) through the design thought of the Arab rural Mediterranean residence.
- The Arab rural Mediterranean residence has achieved the criteria of compatibility and openness to the surrounding environment through the design of (Shade Architecture) or the so-called Light Architecture.
- Openness to the outside should not be confined to specific cultures and places, but it is a true demand for all worlds.

7. RECOMENDATIONS

- Draw attention to the importance of establishing the basic criteria for the regional Arab rural Mediterranean residence design as an important historical heritage that can be used in future building and construction projects for the residential buildings, especially the tourist buildings, as an important tourist attraction that expresses an identity.
- Broadcasting heritage values in the design teaching curricula for students in order to preserve the identity, as well as urging designers the importance of attaching innovative design with heritage.
- Supporting the publication of the architectural books and magazines issues that deal with arts and architecture related to identity, to urge the establishment of design values related to heritage.
- The challenge will be to institutionalize traditional construction practice as an alternative to existing building systems, as these challenges can be addressed through cooperation between government and the private sector, and through training on traditional techniques by introducing regulations and facilities that encourage the use of local natural materials, and by providing Clear business case.
- Establish a new social and economic model in providing an affordable alternative to imported materials by using local resources to enhance employment opportunities for local residents.

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