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The Role of Revitalizing the Traditional House in Highlighting Social-Cultural and Ecological Dimensions in Contemporary Housing Design

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ABSTRACT:"Vernacular architecture can be defined as 'the architectural language of the people' with its ethnic, regional and local 'dialects,'" The recent rapid developments in modern building technology have imported new styles and building idioms to the local architecture. Modernism in architecture is a term that describes a new work which rejects the inheritance of the past and gets out from the well known traditional relations and rules. The global fascination of contemporary architecture has led to an enormous loss of cultural and architectural knowledge. Then, the immersion of a modern model in architecture caused a great increasing neglect for traditional architecture and its practices. Modern architecture had been enabled to meet social and aesthetic issues related to local identity and cultural heritage. The aim of this study to make it clear that local architecture could be embraced to be as "a framework for raising the question of identity and innovation" within the scope of the Arab-Islamic architecture. Thus, how it will contribute to gain more ecological and identity aware contemporary architecture. The emphasis of this work is on revitalizing the traditional house to fit contemporary needs. A series of houses in Jordan designed by Rasem Badran was analyzed and an interview was conducted with him to evaluate what had been mentioned. Some recommendations were highlighted to take into consideration.

KEYWORDS:Contemporary Architecture, Ecological Design, Identity, Modernity, Social-cultural factors, [Vernacular architecture](#).

I. INTRODUCTION

Recent development in technology and science introduced new dimensions and made changes in the social life and traditional cultures. The recent rapid developments in modern building technology have imported new styles and building idioms to the local architecture. Modernity can be described as the term which is totally connected with the concept of change, modification, or what is new. Modernism in architecture is a term that describes a new work which rejects the inheritance of the past and gets out from the well known traditional relations and rules. Contemporary architecture is a process to introduce modern forms, which is in conflict with tradition [2].The global fascination of contemporary architecture had led to an enormous loss of cultural and architectural knowledge.

Modern architecture inability to meet what is expected from it in social, cultural and ecological issues, had encouraged the emergence of multiple responses and actions seeking to find alternative solutions. Therefore, an international shift appeared towards rethinking in contemporary architecture, especially in the west. Demands for approaches that give more attention to the cultural tradition were set out at the beginning of the fifties by architect Hassan Fathy and Rifa Chadirji. A new generation of Arab architects carried out the responsibility of forming architectural trends related to calls for local identity and cultural vocabulary [1]. A particular space identity is formed when it is associated with a specific experience or assembly memories [5]. This current concern in cultural traditions and identity appeared as a result of "transformation of the Arab world and the recent shift in the global architecture culture" [1].

Briefly, the immersion of a modern model in architecture caused a great increasing neglect for traditional building design and its practices. The aim of this study to make it clear that local architecture could be embraced to be as "a framework for raising the question of identity and innovation" within the scope of the Arab-Islamic architecture. Thus, how it will contribute to gain more ecological and identity aware contemporary architecture. The emphasis of this work is on revitalizing the traditional house to fit contemporary needs since the house is the most intimate place for human being [7].

A. Vernacular architecture

An early shelter for human beings were built traditionally with their locality [6]. Vernacular architecture is the architecture of buildings related to a society adapted to the climate and to its people living processes [4], (Oliver, 1997). Every society is often described depending on its identity which is made up by its peoples' values. Every society's buildings designed by the local people and built by traditional methods and available materials in their locality. Designing traditional houses was mostly responding to the social-cultural features of their occupants since they were built by themselves. Then identifying a certain region houses leads to distinguish its occupants locality [6]. So, vernacular architecture is a product of the local culture which utilized "collective wisdom and experience of a society" [4], [10]. Then, vernacular buildings are the response of people actual needs at the same time ecological adaptive and climate responsive, as shown in figure (1) [11].

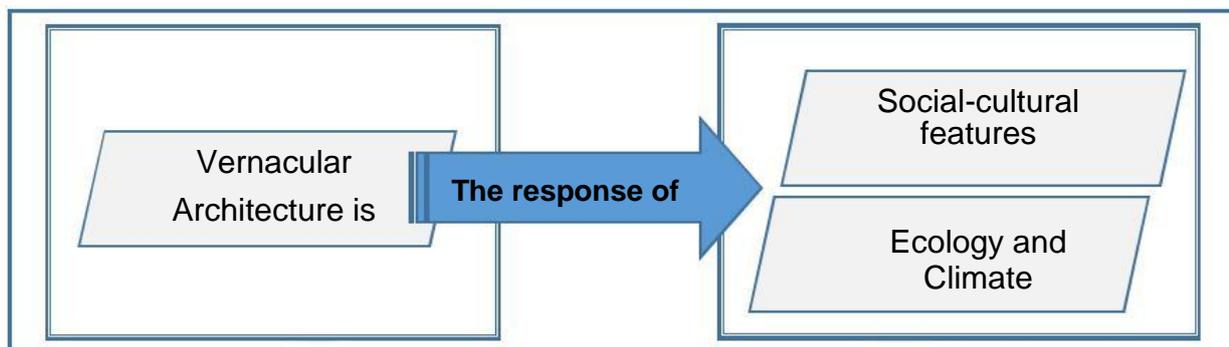


Figure 1: Vernacular architecture is the response of ecological and social-cultural features (Source: Author).

B. Social-cultural dimensions in housing design

Type of housing, which are built for a certain region determine the identity of the society itself. Social-cultural lifestyle and the daily life process of the inhabitants is considered as an important factor that determine settlement units' design [6]. Several studies outlined various social and cultural dimensions that affect designing dwellings. These factors were summarized as following:

- Family structure and number of members : The family entity sets "qualitative requirements", whereas its size determines the "quantitative requirements" such as type of spaces needed, room number wanted and the whole area required [6].
- Safety: Safety plays an important role in deciding the house exterior appearance, using of fences and defining activity zones [6].
- Privacy: It plays an important role in deciding functional organization and distribution. Arrangement of spatial items such as courtyards and internal circulation transitional joints is very important to insure hierarchy of spaces from public to private [6]. The suitable distribution of openings is a very significant matter to think about to gain the highest level of privacy related to all senses.

- Modesty: Humility is a cultural value in some regions. Modesty could be achieved by designing simple spaces according to their usage inside the house. These spaces could be used for different purposes at different times, such as using living rooms as dining rooms. Furthermore, to achieve modesty decorative elements should be removed inside and outside the house or the building [8].
- Religion: Form and spatial arrangements are influenced by religion [6]. In some cases, spaces inside residential units are oriented to 'Qibla' to concentrate on the spirituality of the place [10].

Taking into account housing design factors differs depending on the society under study. And these factors degree of affecting design also varies. Social-cultural dimensions assist the designer to determine the suitable design, form, size and layout. Occasionally they give the architect an indication about the occupants usage of a house's spaces and their comfort degree within the house [6].

C. Ecological dimensions in housing design

Ecological housing design refers to houses that are built with environmental techniques. Ecological design calls for minimizing buildings' negative effects (even houses) upon ecosystem by achieving sustainable and environmentally conscious design methods. It also emphasizes using natural and sustainable materials and enhancing buildings' efficiency. Then, ecological design in architecture aims to grow from a solution for a design problem from the characteristics of the site and its urban context [9]. Sim Van der Ryn illustrates ecological design as a new procedure to evolve design solutions from the place. It cares about seeing and thinking about buildings in a way that reduces their environmentally destructive impacts. This is can be achieved by integrating buildings with their environmental contexts. Then ecology should be the cornerstone of any design to reduce buildings' impact on the natural world. It could be concluded that topography, water, local materials, climate, soils and all related ecological features should be considered in ecological design [13]. It also could be concluded that ecological design is an ecological systems which work together under the term of sustainability to merge human living community with its natural environment in the interests of both of them [3].

In ecological design, relationship between buildings and their surrounding environment should be taken in mind. Even if this environment is physical environment which includes climate and topography. Or structural one that involves from (spatial organization, building form, used material, landscape, and technical infrastructure), figure (2) [3].

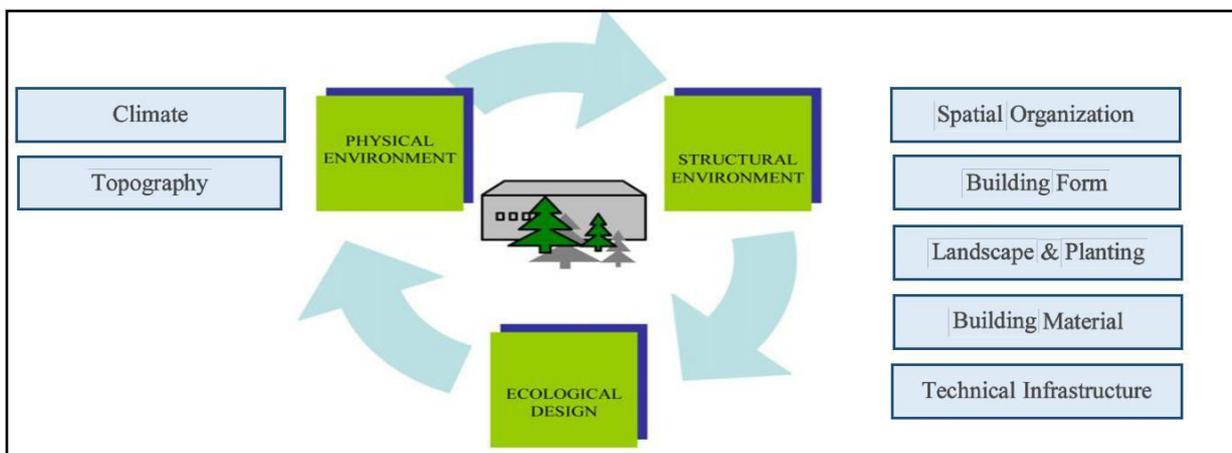


Figure 2: Ecological design, relationship between buildings and the environment [3].

Then, ecological building systems interact with the environment through their forms, solutions related to functions and decisions gets out from spaces as shown in figure (3). Therefore, architecture care about not only aesthetic features, but also structural and environmental features [3].

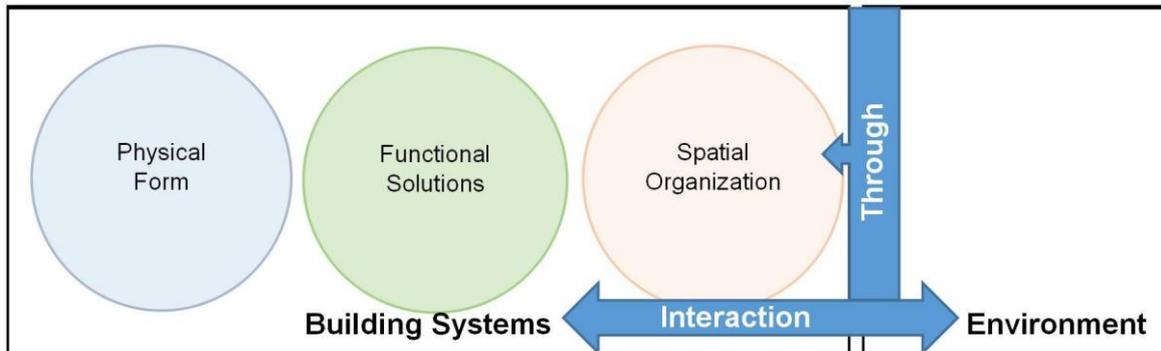


Figure 3: Components of structural environment [3].

II. METHODOLOGY

Then, the main challenge to architects is how to design modern buildings and houses at the same time preserve the local identity and to be contextually aware. Rasem Badran is one of the flags of Arab contemporary architecture and one of the most important thought leaders of Arab architecture. In this research, Rasem Badran selected houses in Jordan were analysed. It was to show how he revitalized the traditional house, not by making formal modifications, but by reconstituting the essential values to fit contemporary needs. Then, an interview was conducted with Badran to discuss what had been mentioned. And some recommendations were highlighted to take into consideration.

A. Rasem Badran selected case studies

A.1. Low income, multi family housing scheme, Amman, Jordan

Anti-grid order system, which is clearly visible in Badran's early residential designs. In this way in which he cleverly uses the geometric system of the shifted grid to allow entrances, courtyards and gardens [12]. Using shifted grid in designing low income housing helped to create modest houses from inside and simple forms from the outside as it helped to achieve the principle of equality between the community units.

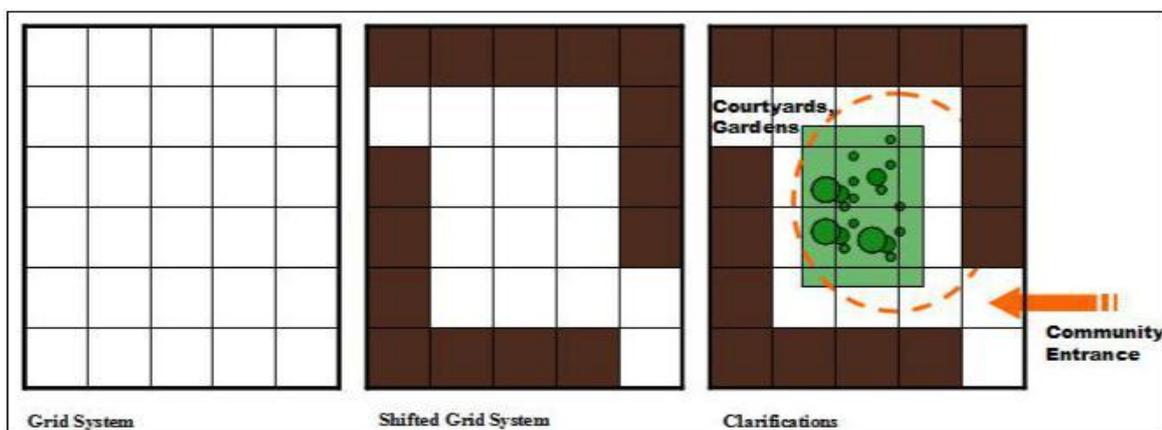


Figure 4: Concept of shifted grid system [12].

Insuring social interaction between family members and providing a safe open space to allow children to play in is one of Badrans' goals in using such a system, figure (5). Designing a semi-private domains between neighborhoods' origins went back to the courtyards placed in large houses for extended families [12].

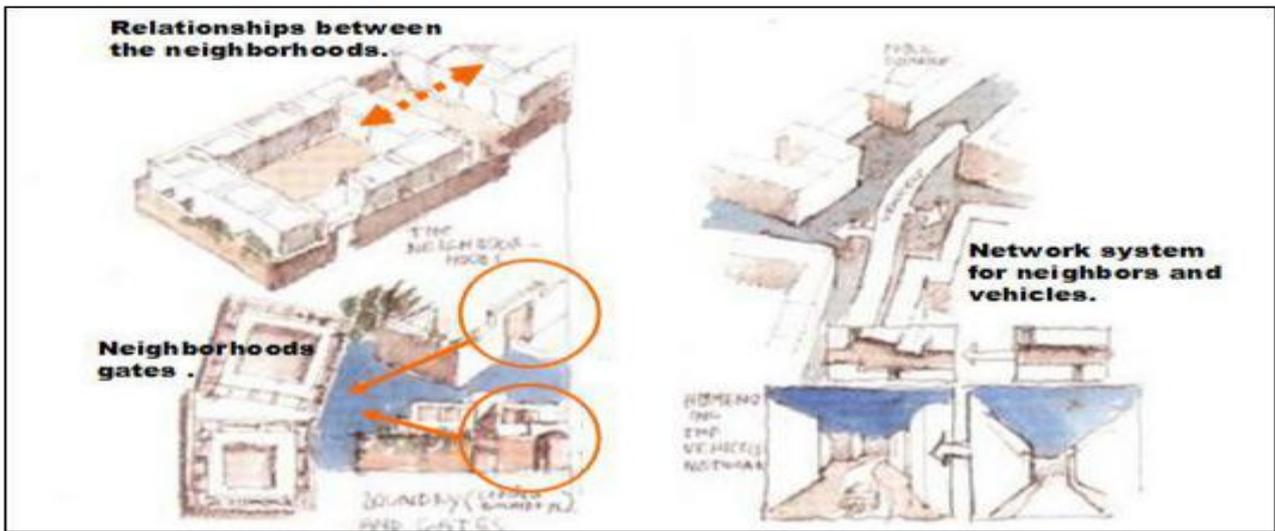


Figure 5: Badran’s thought to connect the low income neighborhoods [12].

Anti-grid order system was also used to insure a good ventilation and views to the low income, multi family house scheme, figure (6) [12].

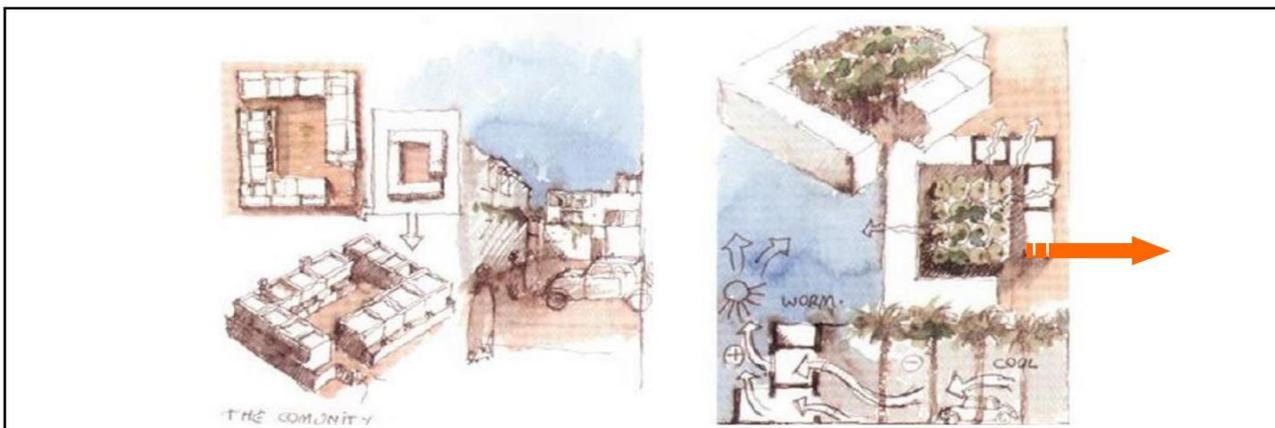


Figure 6: Insuring ventilation and good views to low income, multi family house scheme [12].

A.2. Al-Talhouni residence, Amman, Jordan.

Al-Talhouni house is a house in Amman, which makes a dialogue with a traditional clay house. Its concept was close to the architecture of the architect Hasan Fathi, who had designed a villa in Aghwar for Talhouni family, but passed away before it was completed. Badran translated the family’s ideas and aspirations into a design that imitates Arab and Islamic architecture through memory [7]. The house design presents a shifted grid module "the first evidence of the complicated culture layering of the east". At the same time using local stone and the architectural vocabulary of the Jordanian villages of the 19th [12]. Therefore, Al-Talhounis’ house design has a symbolic significance that met the

family's desire of having a stone house in Amman embodying the traditional roots and reflecting the dialogue between stone and clay [7].

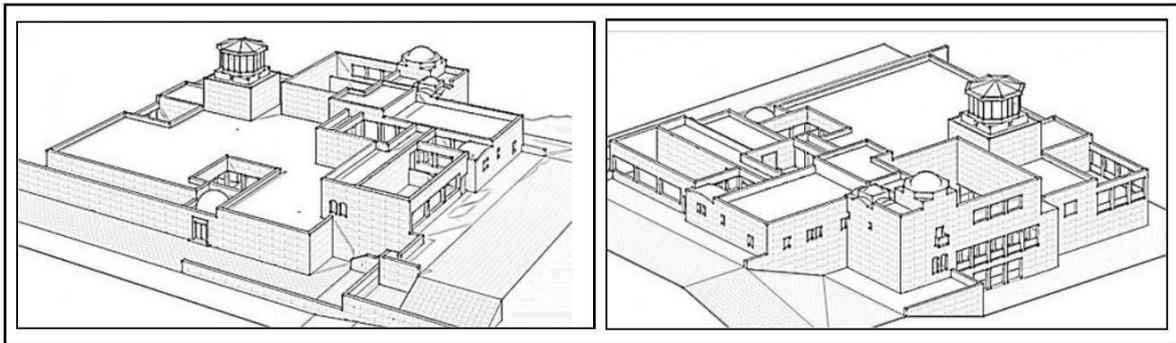


Figure 7: Al-Talhouni house exterior design [12].

The house comprised several courtyards for the different zones, private and public. These courtyards added different kinds of experience in addition to the privacy dimension and the introversion atmosphere to the house. They filled with lush vegetation and trees were put carefully to prevent direct sunlight, make shading area and make enclosures for sitting areas and the use of roof gardens. Each courtyard helps to provide ventilation and natural lighting necessary for voids. The orientation of each courtyard adjusted carefully to permit maximum airflow, with sectional properties adjusted accordingly as shown in figure (7) [12].

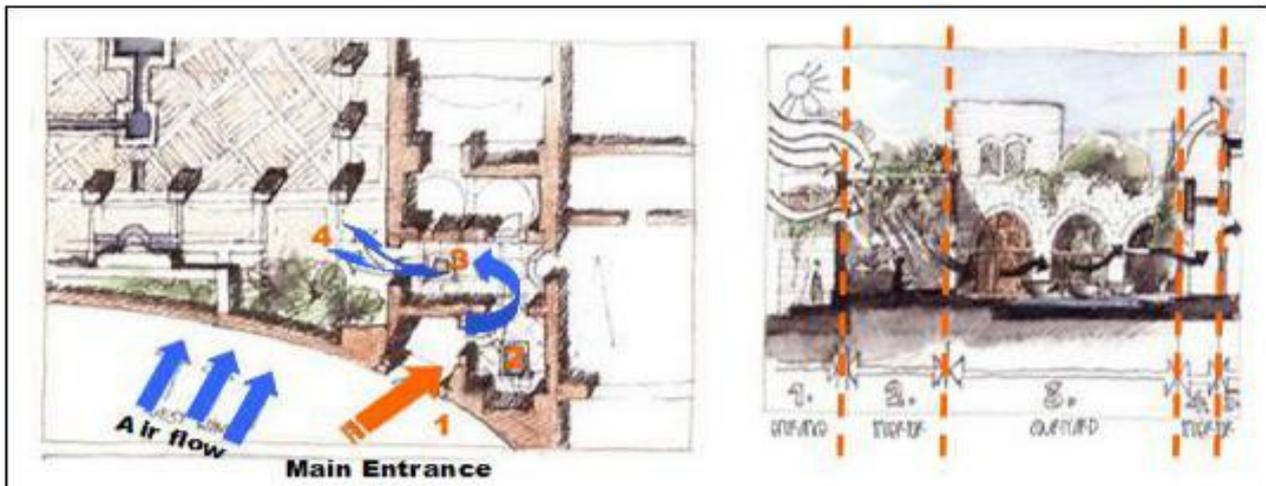


Figure 8: Flow of exterior enclosures and courtyards enhance airflow [12].

The water fountains designed by Rasem Badran's father, Jamal Badran, have an aesthetic value in addition to cooling the air.

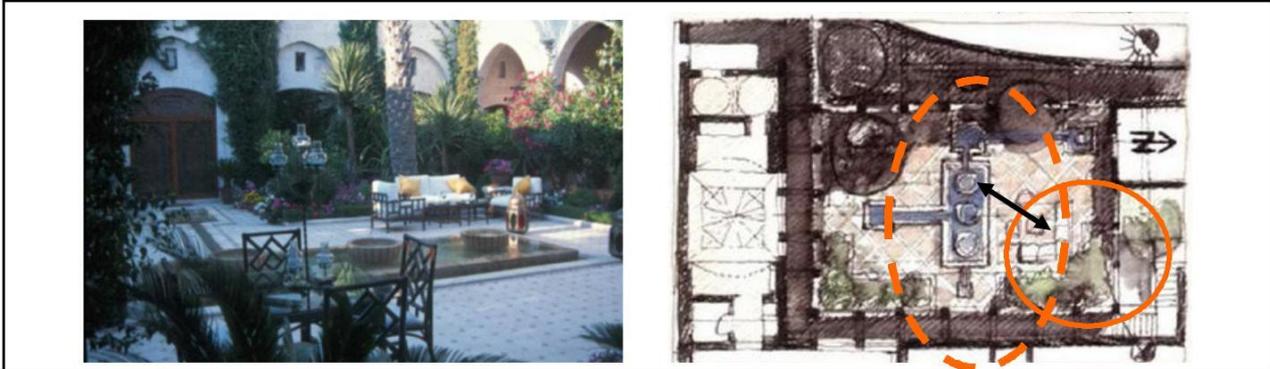


Figure 9: The beauty of nature and water fountains [12].

Al-Talhouni residence design characterized by using outstanding elements such as arcades, the Islamic ornament, interior domes and mashrabiya [7].



Figure 10: Using traditional elements in Al-Talhouni house design [12].

A.3. Madi residence, Amman, Jordan.

Madi residence overall form is conceived as an excrescence of its suburban site at the top of the hill. The openness of the interior, the integration of external squares with interior spaces and the use of diagonal shapes abroad refers to the life of tents in a modern style. This project was seemed to give rehabilitated imagery of the original life (WILLIAMSON, 1998).

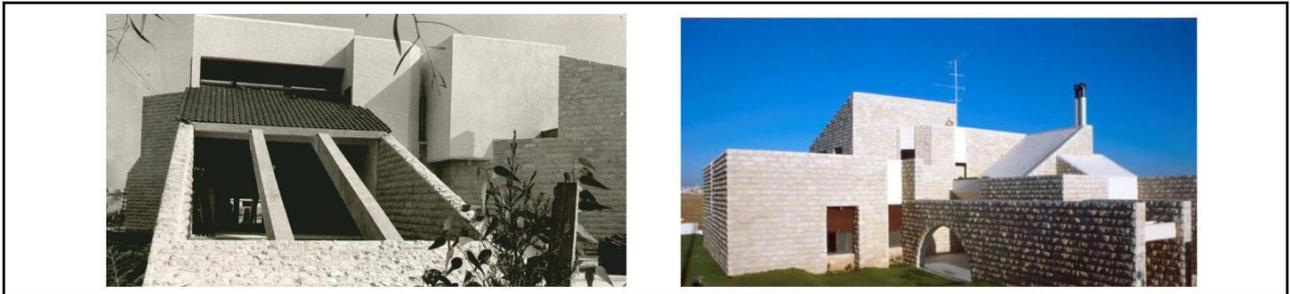


Figure 11: Madi residence exterior design [12].

Climatic factors took over the design thinking of Madi residence. Solid and void were designed thoughtfully to direct cooling winds and control sunlight rays entry [14]. The extended landscape gave a sense that the building was getting out of the land. Inclined surface was used to make benefit of rain water to the plants underneath it [12].

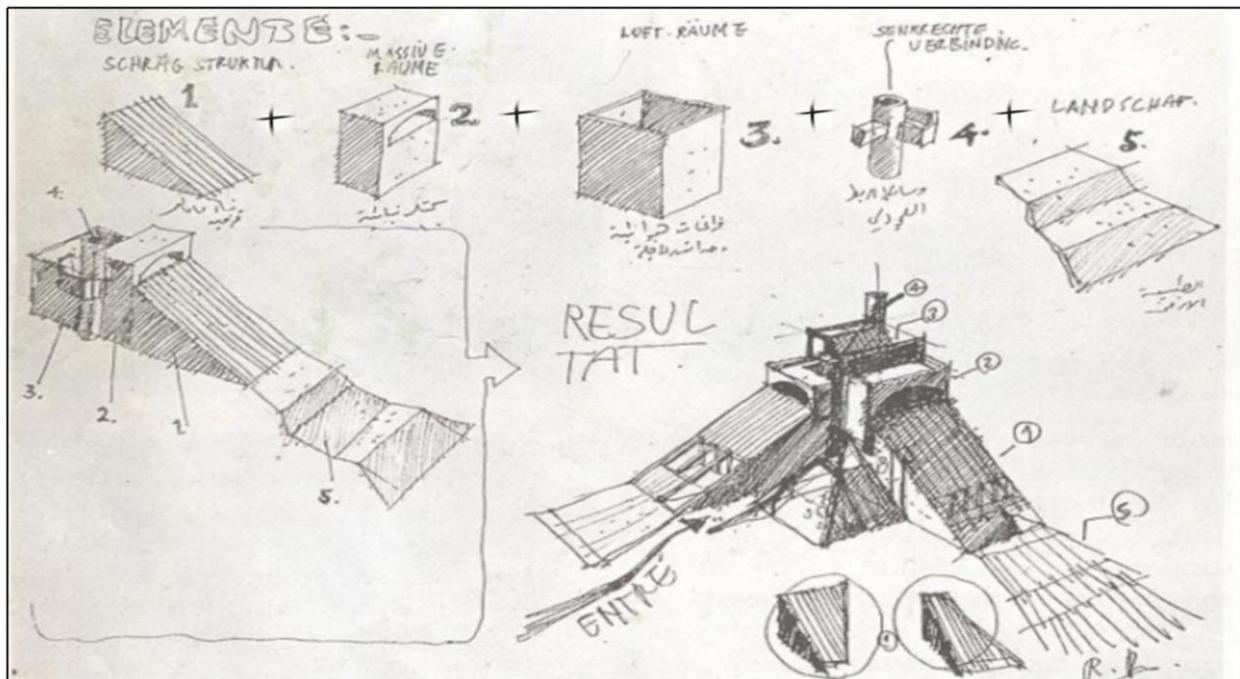


Figure 12: Madi residence design elements [12].

Courtyards were placed to ensure shaded living areas outside. In addition to being as joints that connect several parts of the house, making continuous experience within indoor and outdoor open spaces [14].

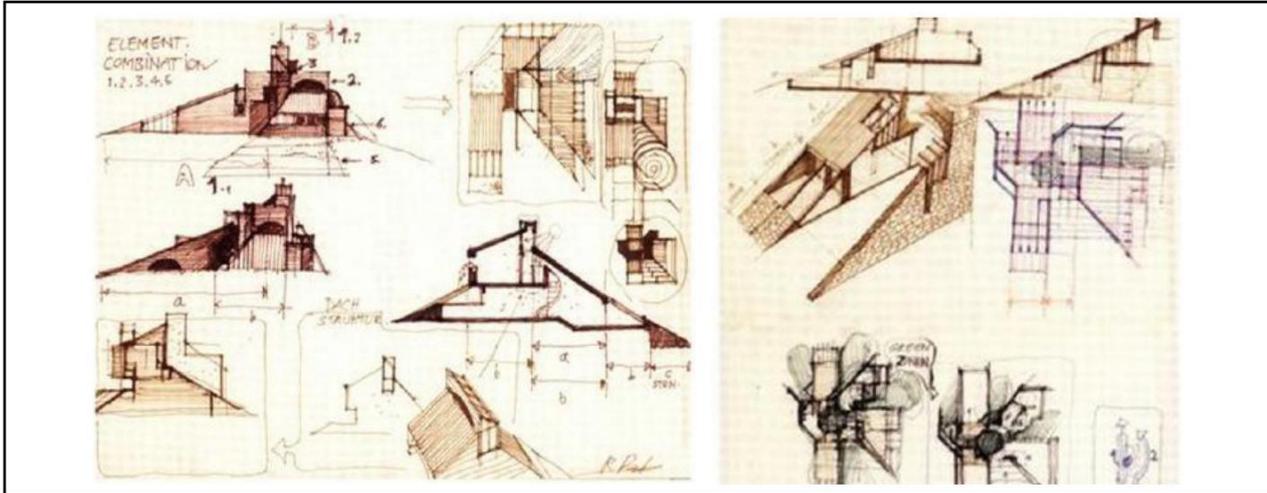


Figure 13: The openness of Madi residence interior design [12].

Complex concrete structure was used to create the openness of internal spaces. Expressing technology by using this structure gave a sense of dynamic and modern touch as shown in figure (14) [14]. Badran updated traditional forms and used local materials to combine the old and the modern [12]. The set of elements that made up the form of the house gave the impression that they were raised up at the same time rooted in the ground. By this manner Badran's house design responded to modernity requirements and did not give up the past [14]. In addition to achieving his goal of reforming the spiritual relationship of the space between residents and their society. This project emphasized on the significance of local environment and the cultural heritage in defining the whole design of a certain building [12].

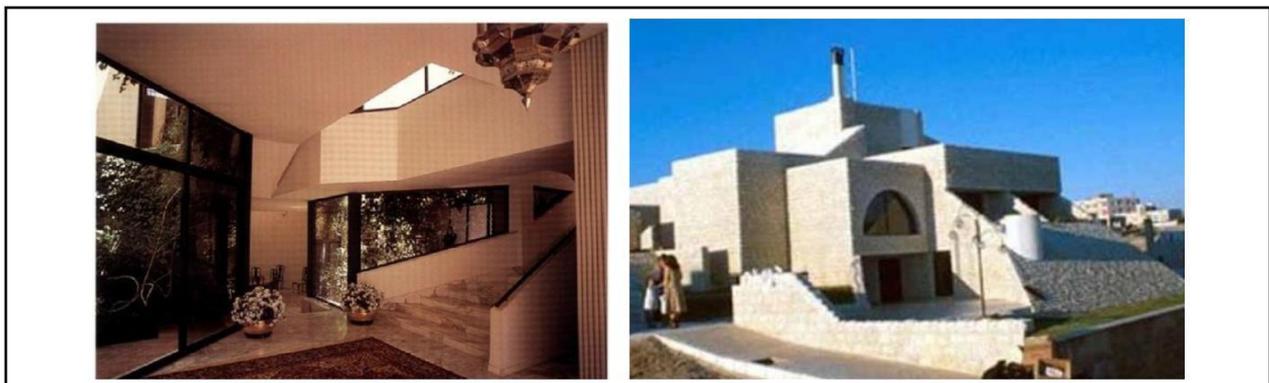


Figure 14: Using complex concrete structure and local materials on the interior and exterior combining the old and the new [12].

A.4. Villa Handal, Amman, Jordan.

The Villa Handal design responded to the regional climate. This house open spaces oriented to the north to block direct sun. And its walls were placed in a way that allowed cooling winds to pass through its spaces. A prime spine was introduced as a main circulation space to insure a sequence of entry privacy. Maintaining privacy to occupants' living spaces and bedrooms returned to cultural demands as an "old Arab principle" [14].

Villa Handal had a boxy appearance consistent in a harmonious way with its' context surrounding massing. Its design elements were similar to those in Villa Madi, such as sloping roofs and inclined surfaces. Several rooms were clustered around the main circulation spine affected by the village houses which are distributed around village road. Large arches opened to the outdoor spaces are similar to the structural arches used to build rural stone houses. Inner rooms' shape and spaces' distribution of the house were not complicated at all reflecting the spirit of simplicity in rural villages. The presence of several massing in the form of cubic blocks reminded of the old village houses, figure (15) [14].



Figure 15: Villa Handal several massing reflecting the image of the old village [12].

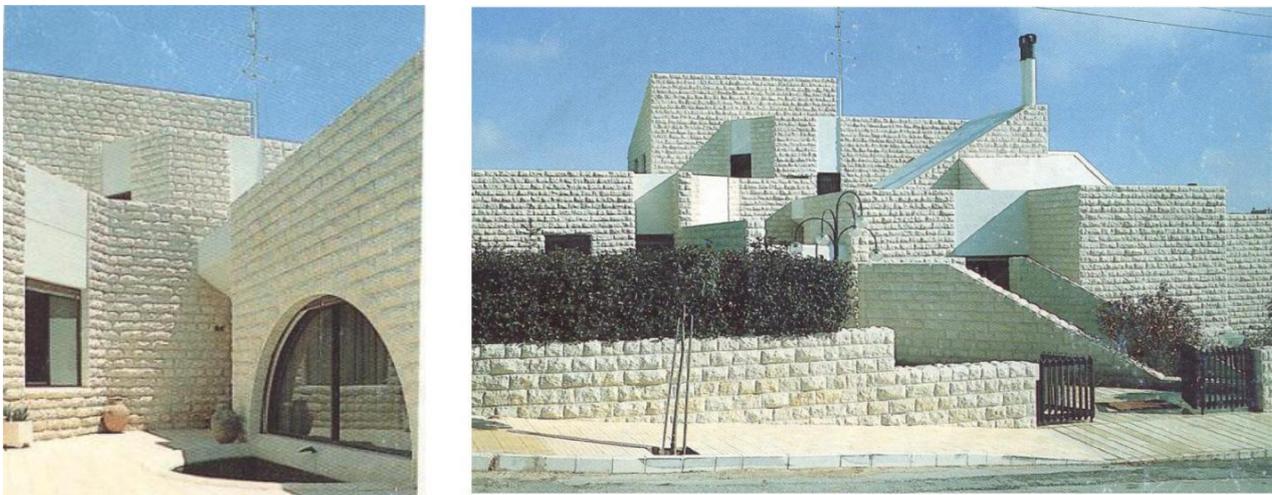


Figure 16: Design elements and using local stone [12].

A.5. Rasem Badran point of view

Architecture in Jordan and in Amman city, in particular, had been influenced by architecture of other countries. It had also affected by technology and modern-day output . There are many architects who had a significant impact on the architecture of the local city of Amman. Rasem Badran was met in order to explore how he could combine the past and the present in his architecture. And to investigate his vision in housing design and to know more about his practical experience in the field of designing private houses.

Rasem Badran declared that “architecture has to be an embodiment of human and moral concepts; designers should seek those special characteristics within the social environment that can offer the society an identity”. He argued that



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architecture is for people, it is the incorporation of their history, life and aspirations. It should not be dealt with as a sculpture or piece of art, reflecting the rationality of the designer, away from the needs and demands of the users. He added that architecture could build a society, strengthen its social values and take these values as the main framework in the design. On the other hand, the social-cultural and ecological aspects should be merged in design. He added that he was always looking for the place and the need of this place. And how to search for a language that get out from the nature of this site whether it is related to geography, climate, cultural heritage or social background. The cultural roots should appear in design works without losing the spirit of contemporary architecture.

Rasem Badran talked about his architecture that it was a confirmation of the place and on the value of the place. He confirmed that it was important to read the future and its relationship to reality and how designer work should affect the next unknown. He expressed his faith in re-reading the vocabulary of traditional architecture in a contemporary style, which would open the door to novelty and modernity. He confirmed that the social-cultural and ecological features were important issues and considered as the basis of any design. He added that his housing designs combined the privacy of the social life that prevailed in the traditional environment and the elegance of contemporary house architecture. He expressed that they were simple houses to reflect the morality of the Muslim, so that they did not harm the other. They were simple from outside, but they had a unique spatial experience from the outside to the inner space with a series of sensations and feelings. He concluded that those houses were considered as functional configurations that had a kind of discovery and a creation of a story and a dialogue between the house and the user.

III. DISCUSSION

As this study showed, there was a great effort to preserve the traditional architecture which is related to peoples' history, environment, social relations and cultural beliefs. This research expressed that attitudes and efforts were taken to revitalize the traditional architecture to preserve the local identity at the same time to adapt with contemporary demands.

It was observed from analyzing Rasem Badran selected private houses that their concepts were derived from traditional roots of Arab original life vocabulary. An anti grid system was used in multi-family housing units' design to achieve a kind of modesty and equality between those units which gathered by a central space to ensure a safe place for children play area and social interaction.

It was observed from these case studies that the courtyard was used to moderate climate in dry and hot areas. It was used as the center and the main unit of the house in these cases. It was considered as the core of the family social life. And It was also surrounded by rooms and detached from the outside to give family members a kind of privacy. It was also noticed that this kind of spatial organization of the traditional house also insured utilizing from natural lighting while it was shaded. Case studies' analysis explored that the use of a central court also allowed for a good ventilation and breeze to pass through the house.

Furthermore, it was noted that using local materials, limited openings and utilizing from trees planted on the site as shading device were mostly used in local houses to make energy effective buildings. Utilizing from walls and roof surfaces for shading was very important to avoid summer direct sun and decrease heat gain. In addition of using vegetation and water fountains as air freshener which added an aesthetic value and spiritual feeling to the space.

A review of Badrans' interview showed that revitalizing traditional houses and taking in consideration social-cultural background and traditional ecological elements and items adds many social rewards and values to contemporary houses. Badran outlined that the architecture which we should seek for, is the one considered as a unique formation of the combination between maintaining locality and giving a touch of novelty.

IV. CONCLUSION

This paper emphasized on the need to include elements of local architecture to ensure environmental and ecological aware modern houses. It also showed how to activate and reuse those elements in a way that accommodates with the



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Vol. 4, Issue 9 , September 2017

cultural values and inherited social dimensions and the concept of modernity. This study has confirmed on the importance of dealing with environmental data and taking the traditional reference in architecture as a philosophy in spatial and environmental design. And it has also expressed how to employ local architecture items in the spirit of novelty by using of appropriate design methods.

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