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INCORPORATING LIFESTYLE IN THE DESIGN OF AFFORDABLE HOUSING IN SAUDI ARABIA KINGDOM

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ان عملية تصميم المساكن الميسرة في المملكة العربية السعودية عادة ما تكون محكومة بعامل وحيد وهو انقاص التكلفة ولاتأخذ بعين الاعتبار اسلوب معيشة المستخدم للمسكن. ان هذا التوجه قد يكون له أثار ضارة على مستخدم المسكن الميسرمنها التعديلات المكلفة المحتملة على العقار حتى يصبح مناسبا لاسلوب معيشة المستخدم. يجادل هذا البحث أن هناك حاجة لبناء معرفة معمقة و قوية حول اسلوب معيشة المستخدم للمسكن و ادراجها في عملية تصميم المساكن الميسرة. هذا الادراج يمكن أن يحسن عملية تصميم المساكن الميسرة و يزيد رضاء المستخدم و أن يكون له أثار ايجابية على المنطقة السكنية أو الحي السكني.

The design of affordable housing in Saudi Arabia is usually governed by cost reduction and does not take people's lifestyles into account. Such approach has a number of harmful consequences on the affordable housing user such as costly alterations to the original plan to suite the lifestyle. This research argues that there is a need to build a concrete knowledge about people's lifestyles and to incorporate it in the design of the affordable housing. This would improve the housing design, increase user satisfaction and may have positive effects on the whole affordable housing estate.

Keywords: user lifestyle, user participation, decision making, architectural design, product design

1. INTRODUCTION

The affordable housing concept is a Western concept which defines who is eligible to get for such type of housing. The definition is based on the annual income of the individual, the individual marital status and health status. This concept has been adopted in the Arabic region including Saudi Arabia Kingdom but a number of researchers point out that the concept was not clear and it was not adapted to suit the local lifestyle and traditions.

Furthermore, the affordable housing research and delivery of building product to the user in Saudi Arabia has followed a traditional approach since the need for such type of housing emerged in Saudi Arabia due to the population increase and variation in income level. This considers the cost reduction as a major factor and does not take other factors into account. The social traditions, lifestyle and norms of people in Saudi Arabia are not considered at present by all parties neither at the housing research level nor at the professional level i.e. the design and delivery of the affordable housing. On the professional side, the architectural design is usually made by a design firm assigned by the client or may be directly by the city council. The council sets broad guidelines of how to do the design in respect to the present building legislations, an allocated budget and certain period of time. Little has been done so far at the research level to appraise the importance of local lifestyle and traditions and how to integrate it in the design process.

Such disregard has irritating consequences to the user of private housing. These consequences would include: the user dissatisfaction about the house layout and his/her feeling that the layout is foreign as it does not reflect the lifestyle in Saudi Arabia. The layout is inflexible enough to accommodate the increase of family members or change of use. The sound and visual privacy is missing or at least inadequate. There is no space to accommodate the housemaid. The outdoor courtyard is not suitable for outdoor activities such as children play, gardening, or entertainment. The relation between spaces is ill defined as well.

This research argues that affordable housing would be better designed if people views are addressed in the architectural product design. These views would reveal which lifestyle type they have and what are their local traditions. The incorporation of these dimensions in the design of housing may reduce the overall cost of the final product, the lifetime cost such as running cost maintenance cost, alteration and renovation expenses. It would have a positive effect on the user life and property value as well. This is important as the designer has a duty to provide a sustainable and tailored design to the user needs and the user has the responsibility to use the property in a sustainable way as well.

This should enable architects and decision makers to design and deliver better affordable housing and more relevant to the user's needs. The argument raised by this research would set conceptual foundations that could be used by the future research to analyse the misconception and misconduct in the affordable housing design that exist at present in Saudi Arabia Kingdom.

2. LITERATURE REVIEW: AFFORDABLE HOUSING DESIGN AND THE END USER

The history of affordable co-ops starts during the 1920s and after World War II with the ethnic, union, and New York government financed co-ops. For over 75 years, housing cooperatives have been a source of affordable housing in the US. The main aim was to provide low cost houses for low income people. The affordable housing concept was adopted in the Arabic region but twisted to suite the local building laws. It was ill-defined[1] and it does not seem to reflect the real needs of users of such type of housing.

A number of theories emerged of how to build a knowledge that would be used in housing design to provide tailored design solution to people needs. Within this frame of lifestyle, researchers such as Bourdieu[2] stated the importance of getting information about the social status, Douglas[3] highlighted the significance of the attitudes research, and Hojrup[4] pointed out that information is required about professional status in order to define user requirements.

However, this does take into account neither the cultural and tradition aspects, nor the differences between different cultures as well. Habraken[5] highlighted that a designer should not make a design and enforce people into it. Instead, he should consider a number of concepts in his design that include people lifestyle and common conventions. Salama[6] highlighted the importance of not only getting information about the user, but also to integrate information about the user, family, future housing preferences and current houses characteristics together in order to build a complete picture of the user's lifestyle.

The research work that is undertaken on housing in Saudi Arabia showed the absence of the lifestyle from the existing housing properties. For example, Al-Kurdi[7,8] and Darweesh[9] researched the private properties and housing for labour in Saudi Arabia and pointed out to lifestyle aspects-which have not been considered in the present housing design-that are adhered with the life in Saudi Arabia such as: the visual and sound privacy, the need for outdoor space for children activities or entertainment and the need for flexibility in design. The absence of these aspects has enforced the owners to carry out a number of changes on their properties and adapt it to suite their local lifestyle.

This research argues that such modifications that occur in the private housing sector would take place in the affordable housing as the housing policies and guidelines for both housing types do not consider people lifestyle. It argues-for instance-that the definition of the level of sound and visualization privacy, the provision of adequate outdoor spaces and services that are required by users, should be addressed. Unnecessary alterations could be avoided in the affordable housing if well-defined guidelines on housing design were set and applied in the early stages of design.

On the other hand, the ownership and control rights during the property lifecycle in Saudi Arabia are partially derived from Western laws and do not take local traditions and norms into account. The authorities set general guidelines that should be followed by designers regarding the setback distance, distance between properties, block height restrictions and so on.

The application of local traditions and culture in housing at present has been discussed in detail by Akber[10,11]. He pointed out that local traditions and norms has defined the user's rights in terms of how to build, alter or extend his property. These local norms and traditions provide a flexible framework to the user of how to change his property without harming his neighbours and violating their rights.

Similar argument had been raised by Ahmed and Parry[12] who did a study on Mubarak city that is built according to present building law and regulations in Egypt, and compare it with existing low income random housing in Cairo. They found that Mubarak city constitutes of blocks which do not reflect people lifestyle and culture. Despite some disadvantages that exit in the low-income housing in Cairo, the researchers pointed out that resident corporate with their neighbours upon making decisions regarding alterations of their properties or building new blocks. These residents reach to the best solution that would satisfy everyone. The researchers found that such corporation is motivated from local people's beliefs and principals such as 'No Harm' principal which is derived from Islamic values. Ahmed and Parry[13,14] set a framework of user participation in design process in regards to local principals and demonstrated that such framework is more relevant to people needs in Egypt than the present building law.

Hillier[15,16] pointed out that spaces have qualities and characteristics that would affect people interaction and use of these spaces. He suggested two social dimensions of buildings and *"buildings operate socially in two ways: they constitute the social organisation of everyday life as the spatial configurations of space in which we live and move, and represent social organisation as physical configurations of forms and elements that we see. Space creates and controls the interfaces between different categories of people and their interaction*

with objects". Therefore, if spaces were designed wrongly, then natural patterns of social co-presence in space are not achieved.

The above studies suggest that when lifestyle inspired by local traditions and principals aspects, and other needs of the user were respected and considered by designers, the user was more satisfied about the architectural product. The abandon of the lifestyle aspects by the architect/ designer would produce poor, unpleasant, inflexible and uncomfortable architectural product. Such disregard would have a number of harmful consequences on building owner and users as explained above.

This research argues that the provision of right and optimum architectural product to the user cannot be achieved without taking into account the user present needs and the future preferences, interlink and incorporate them in the design process. This would guarantee that the architectural product is a humane, sustainable, adaptable and flexible. The user lifestyle should have the following dimensions:

- Physical dimension: is the need for comfortable space in terms of configuration, size, area, dimensions, shape, form etc
- Psychological dimension: the need for space that provides relaxation in terms of colour, isolation, type of link with other internal spaces and link with the outdoor spaces etc. Spaces should provide users with feeling of security and safety
- Social dimension: the need for space for an individual to socialise with family, relatives, guests, and neighbours
- Spiritual dimension: the need for a space for spiritual practice, worship and adoration

This paper aims to set a framework for the design of affordable housing that incorporates the lifestyle concept and can be used by designers in the early stages of the design process. The research objectives are defined through the following points:

- To set a framework for the incorporation of the user lifestyle into the initial design concept and throughout the property lifecycle;
- To define a framework for the representation of lifestyle through each element of the building/ property; and
- To set guidelines of how affordable housing in specific and other types of housing and residential developments in general should be designed to address people's future needs.

3. INCORPORATING USER LIFESTYLE IN THE INITIAL DESIGN AND THROUGH PROPERTY LIFECYCLE

This section discusses how to incorporate user's lifestyle into the property lifecycle since the early stages of design process. It is suggested that designers should consider the following aspects (Figure 1), user's lifestyle (*i.e.* local traditions and principals) requirements, client's needs and building regulation's requirements. These requirements also work as decision making filters that would be used to examine various design scenarios. The designer can check whether the proposed design would achieve these requirements and if not how to incorporate them in the design concept.

The above-mentioned aspects are likely to change during the lifecycle of the building. For instance, the user/ occupant would change his/ her lifestyle or the type of the user or occupant would change from normal to elderly or disabled. The owner would apply certain changes over time and possible renovation or alterations would occur.

The building regulations are under continuous modifications with regard to a number of social, environmental, and economic factors. The change of building regulations would enforce possible changes to be applied in housing properties. Thus, the framework should be flexible and dynamic enough to incorporate such future changes to the building that would take place (Figure 1).

4. REPRESENTATION OF USER LIFESTYLE THROUGH PROPERTY ELEMENTS

The research proposes that building elements should have certain characteristics that reflect and address the user lifestyle dimensions namely: the physical, physiological, social and spiritual. The characteristics of each element of the property that represent the user lifestyle aspects are shown in Figure 2.

A number of elements *i.e.* wall, partitions, roof or ceiling and floor, would form boundaries to a space. Within the boundaries a number of openings such as windows and doors would exit. Each of elements and each space hold a number of characteristics such as dimensions, use, location, shape and style etc (Figure 2).

The change of the features of the space or its boundaries or elements would reflect a different lifestyle. For instance, the space can be opened partially or fully into another space. The location of a space is a feature and is govern by the approximate distance of a space from another space. The distance of a space from another space can be categorized as an internal or an external. An internal distance is the distance between internal spaces such as distance between dining room and men guest room and distance between girl's bedrooms and boy's bedrooms and between them and their parent's bedroom. An external distance would be the distance between the outside (*i.e.* rear of front) gate and the servant/ driver room-if exist-, the distance between the family entertainment space in the garden and the male guests outdoor space. The distance would be defined as near or far away and an appropriate scale such as 1 to 10

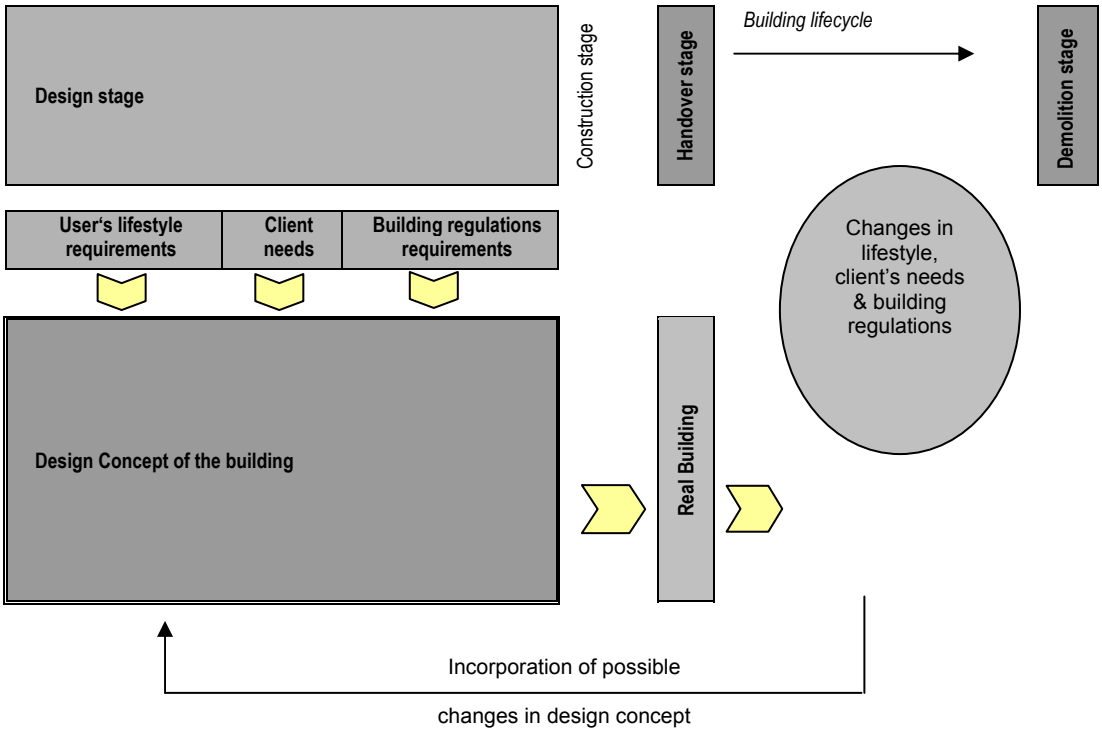

Figure 1. The proposed framework for the incorporation of user's lifestyle into the design process and throughout the property lifecycle

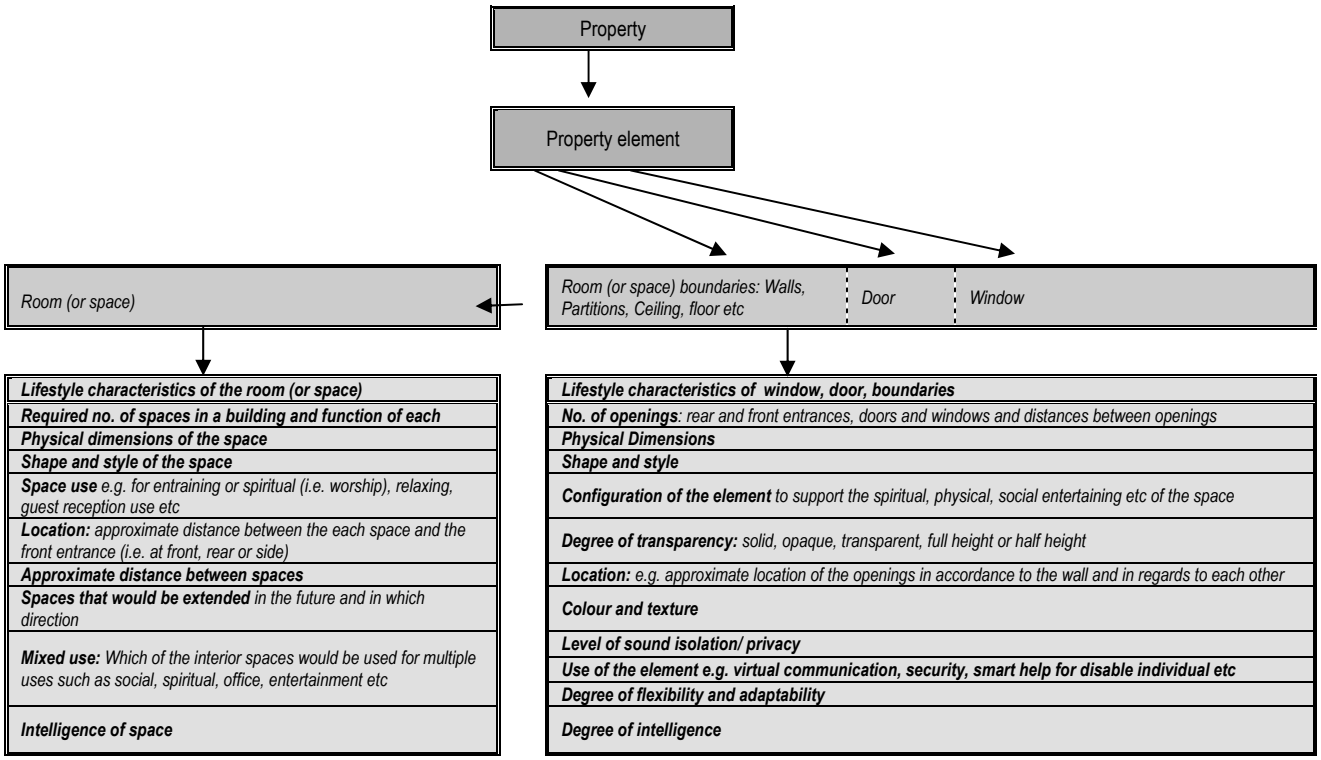

Figure 2. The framework of the representation of user lifestyle characteristics through property elements

can be used by the designer to define the distance between spaces. The distance of an internal space from the front entrance can be defined in the same manner. The privacy of a space would be defined according to the type of its boundaries. For instance, a space with large, transparent openings and boundaries, which has low sound isolation value, can be defined as a space with little privacy and vice versa.

Working patterns have become much more flexible over the last couple decades. Many people now work from home on a laptop computer, connected to their colleagues via e-mail, video conferencing, web site and fax. There is a need to build flexibility into the structure of buildings so they can continue to be useful as circumstances alter. Therefore, building elements such as partitions and walls should be flexible and adaptable according to the change in the user lifestyle or change in occupancy pattern. Such features could be defined at a scale that would range from very rigid to very adaptable and flexible.

The ability of the user to control the space and boundaries is vital in the future homes and can be considered as one of the lifestyle characteristics. The user should be able to interact with the building fabric and systems that are implemented in the fabric. He/ she should control the degree of connection and interaction with the outside world using smart automated devices such: automated shutters, automated sun shading devices etc. This would impossible without embedding intelligence in space and boundaries and model the intelligence in initial design concept. The implementation of smart features into building elements will assist any user including the disabled user to maintain the way of life or the lifestyle that he wishes to maintain[18].

The framework that has been discussed so far is general and could be used anywhere around the world for any type of housing. To apply this framework in Saudi Arabia Kingdom, some of the building element's features would have high values such as the distance between boys and girls bedrooms and the distance between male guest's outdoor space and the outdoor family entertainment space. These high values would represent high level of privacy, visual and sound isolation.

Finally, embedding the lifestyle characteristics into the building elements would help the architect to define the present needs of the building user and to predict future needs as well. It would also help the client to get better knowledge about the total cost of the building that is designed according to the present user lifestyle and compare between various design scenarios.

5. CONCLUSIONS

The paper discussed an important feature, which is the user/occupant lifestyle, and how to implement it in the initial design concept at early stages of design of the affordable housing. This would help the architect to address genuine needs of the property user's in the early stage of design and to discuss different design scenarios with other project team members including the owner/client. The implementation of user lifestyle in the initial design concept would prevent some of the harmful consequences to take place during the property lifecycle such as possible waste of time and effort of the owner/user who would like to adapt the building in regards to his/her lifestyle. It also would make the building's user/owner more satisfied about the end product. However, this would be a subject of future research that would investigate the degree of the user/owner satisfaction in regards to the implementation of their lifestyle in initial design concept. The satisfaction of the user would be best achieved through the participation of property's user/'s, the owner/client and the neighbours with the architect in the design process.

The future research that incorporates the user lifestyle framework in housing is urgently needed in Saudi Arabia Kingdom. It would provide designers with guidelines of what is important to consider and help the authorities to reconsider their housing policies in regards of the housing design. The research overlaps other research that is carried out on different types of housing in Saudi Arabia and around the world and would be beneficial to these types of housing as well.

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