The House of Al-Madina Al-Monawarah

(An Expression of Place Identity in Saudi Arabia)

Introduction

The city of Al-Madina Al-Monawarah – the second religious Islamic center represents one of Moslem cities that have been affected by socio/economic changes that took place during last decades. These changes had direct impact on the urban form of Al-Madina, and it's social structure as well.

Research Objective

This research aims to study how the house of Al-Madina Al-Monawarah expresses the socio/economic changes in new forms and patterns. The house will be used as a tool to have answers to the question: Does the information society bring a new pattern of segregation, and new methods of people's communication .

1. General Background of Al-Madina Al-Monawarah

Basic information about Al-Madina such as geographic on it's location, housing population and climate data on it's may be essential to understand the context within which the study lies.

1-1 Site:

Located on the west of the Kingdom of Saudi Arabia, 150 kilometres from the Red Sea, is Al-Madina Al-Monawarah city, on almost 600 meters above the sea level (Figure 1).

It includes a spacious area from vertical lines 36.30˚ to 42.15˚ east, and horizontal lines from 22.30˚ to 27.30˚ north. [1] From three sides, North, West North, and West, mountains surround Al-Madina, which give it a dry desert climate.
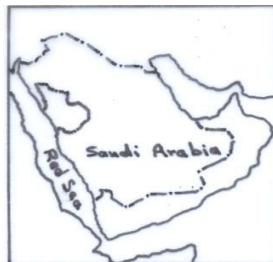
（Figure 1）

1-2 Population:

The population of Al-Madina Al-Monawarah has been increased specially in the last 30 years to reach 839000 people in 1999 [1]. This increase in population was also accompanied by a growth in the number of Al-Madina visitors (Pilgrims and Omra visitors). Statistics show that in 1977, the number of Pilgrims at Al-Madina during the period before and after Haj (about two months) reached 1,073,061 people, while the number of Omra visitors reached 1,720, 868 around the year. [4]

1-3 Urban Evolution:

The city of Al-Madina Al-Monawarah has traditionally centred around the Mosque of Prophet Mohammed (Peace Be Upon Him. In the early days, shops were also located nearby the homes, in a homogeneous urban fabric. The Madina pilgrims and visitors service represent the major part of the people's economic base.. During recent decades, a series of dramatic change have taken place, and accelerated the expansion of Al-Madina's urban settlement. These changes are:

- The economic growth that happened are due to the oil exploration, in addition to the rapid acceleration of oil price especially after the October war in 1973.

- The development of all means of communication, and transportation: automobiles, air plane, telephones and now space satellites and computer networks have made nearly everywhere accessible to anywhere else.

- The expansion of the Mosque of Prophet Mohammed (Peace Be Upon Him). It was enlarged from 10 000 m^2 in the year 1951 to be about 370 000 m^2 in the year 1993.

- The huge housing project in the center of Al-Madina, which aims, to generate housing units for 300 000 persons (Figure 2). To achieve this goal; the whole old city has been demolished (Figure 3).


(Figure2)   (Figure3)

1-4) New Social and Urban Pattern:

As consequence of these changes, new suburban centers have emerged from the old city. New patterns of social life has begun. Madinians have missed the coherent relationship with their old city. This also includes their participation in daily commercial activities which were left in most cases to cheap foreign nationals. As the economic status of most residents of these new sub-centers has improved, the new prestigious physical and spatial requirements have appeared. Correspondingly, the house as the unit of these new housing settlements has expressed itself through new forms and facets.

1-5 Types of Housing Units:

Housing types of Al-Madina could be figured through two main eras, the old era when the whole city was circulated by fences. The second era began after the demolishing of these walls and continues to the present.

1-5-1) The First Era: Al-Madina Al-Monawarah was distinguished with the multiple open areas with different sizes; the most important of which a large square named Al-Manakha, which split the city into two (Figure 4). Al-Madina Al-Monawarah combines in its traditional urban structure between two types, one of them is the alley style that is popular in most Islamic cities, and the second is the courtyard style that distinguishes its urban style. The difference between the two types is that the alley type consists of a main street called "Hara" with many side roads where houses are lined on both sides, while the court yard type consists of a main street similar to the alley, but with many openings that are actually gates leading to an open area surrounded by houses from all sides (Figure 5). Such courtyard had a very important role in Al-Madina Al-Monawarah's urban fabric through relieving the crowdness of the buildings that was a common style in Moslem cities[5] .

(Internal Fence)

(A)

(C)

(External Fence)

(Figure 4)

(Alley Style) (Courtyard Style)
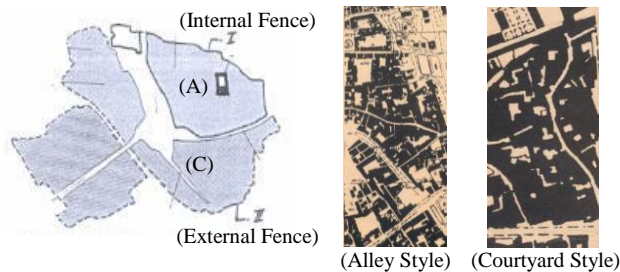
(Figure 5)

1-5-2 The Second Era: The socio-economic changes were reflected on the urban structure and the types of houses in Al-Madina Al-Monawarah. Housing can be divided into three main types, namely the traditional house, the private villas, and the housing building blocks. Through a comparison between the numbers and percentages of the distribution of these units during the year of 1971, 1978, 1990 shown in Table (1), we can deduct the following: [6]

Housing Type	1971	1978	1990
Traditional house	76.4%	45.8%	27.7%
Private villas	1.7%	3.1%	14.9%
Building Blocks	21.9%	51.1%	57.4%

Table (1): Percentage of distribution of housing units - Al-Madina Al-Monawarah

- There is a continuing decrease in the number and percentage of the traditional housing (Figure 6), where it represented 76.4% in 1971, and decreased to 45.8% and 27.7% in 1978 and 1990, respectively.

(Figure 6)

- There is an increase in the number and percentage of the private villas (Figure 7) where it was estimated at around 1.7% in 1971, and rose to 3.1% then increased to 14.9% in 1978 and 1990

(Figure 7)

- There is a clear rise in the percentages of the building-blocks housing units (Figure 8), where it represented 21.9% in 1971, and increased to 51.1% in 1978 and up to 57.4% in 1990.

(Figure 8)

It is noticed, from the above, the different relationship between the percentage of each housing model with the development of the social and income structures, that is evident from the large fall or decrease of the traditional housing type, against the increase in the villas and buildings. In additional to the difference in the percentage of increase of each type, largely favoring the villa's type.

2. The House of Al-Madina Al-Monawarah

Private houses and clusters of houses are the determining components of the urban fabric in Moslem cities, not only because of their sheer quantitative dominance but also because of their particular attitude of Islam towards formal civil institutions and its relatively low emphasis on monumental public building. It therefore seems appropriate to start the discussion of the Islamic structure with the analysis of the residential unit. In examining a place like a house within the urban context of Al-Madina, two major factors should be considered: the impact of the environment and the relationships between the design of the house and cultural influences.

Figure (9) summarizes this approach. It portrays the house as a reflection of several facets of culture and as a place that has many "windows" through which one can see how a culture relates to it's environment. [9]
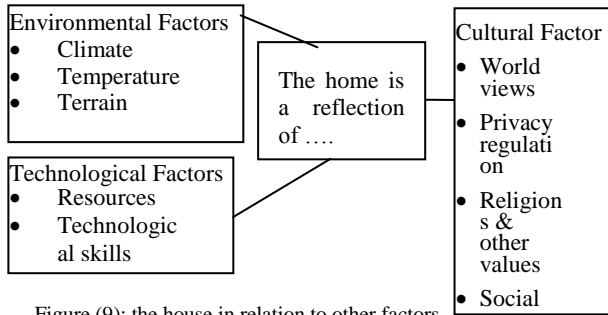
Figure (9): the house in relation to other factors

2-1) The Environment

2-1-1) Climate:

An obvious way in which houses reflect their surroundings is in relation to climate, which includes temperature, humidity, wind, rain, radiation and light. Within the local context of Al-Madina, temperature and high sun light should have special attention and priority.

The urban fabric of the old buildings inside the fences was formed of a block of adjacent walls, where the houses rose from two to three stories. While the narrow alleys of 1-3 meters led to the existence of large shadows in the movement areas at housing blocks. Houses were built with thick bearing walls erected from Bazelt stones in the lower floors, which helps the thermal isolation, and from bricks in the upper floors with wooden ceiling, while the face cover made from wood that cointinue to cover the whole length of the building. These wooden windows (Mashrabiatte) play a distinguished role in improving the climate inside the house through working as filters for the sun rays.

These buidings generally overlook the alleys with a small facades, while the buildings are extended deeply inside. This could be aimed at minimizing the exposure of buildings to the sun (Figures 10).

(Figure 10)

It was also noticed that same building gradually eises on the alleys which throws shadows on the walls to protect them from the sun. In addition this graduation of the buildings on both sides of the alley allows the movement of hot air in the alleys up which is replaced by cool air [8].

Some Luxiuriores houses enjoy internal courtyards with private gardens and water pools. While it's enclosed and introverted private space offered protection against desert storms. It provided some sort of a hollow container sunken into the building volume that created shade, which acted as a temperature regulator by storing cool air collected during the night .

Within the new city, houses are built from concrete structure and bricks for walls. Additional insulation materials were used to enhance the thermal isolation. All types of air conditioning units (window, split, chilled water,..) have been used as a tool for achieving the comfort zone. These units have become one of the architectural constraints in house design, especially its facades. A wooden Mashrabia with its beauty and visual richness as a functional element has been replaced with artificial poor ones (Figure 11,12).

(Figure 11, 12)

2-1-2) Resources and Technological Skills

The variation in the house designs is closely linked by Rapoport [10] to "technological and industrial development of the society". Whereas in technological developed societies house designs are diverse, as members of society enjoy a more satisfying economic, political, religious and social cultural status.

As such, another element in the house design variation is the "home construction process". The term "primitive" is used by Rapoport to describe the most basic level of house design and construction, where a minimal role is played by specialists in either the design or construction process. In fact, in this primitive level, all houses look similar to each other, and the responsibility for the common design and construction is widely shared by everyone, houses simply carry no noticeable variation or alternative designs.

Hence, the other two levels of home designs within the context of Al-Madina Al-Monawarah can be categorized as "preindustrial vernacular", for the old urban housing behind the fences. This involves a larger number of building designs, with more individual diversity that is actually built by professional construction specialists. Nevertheless, tradition is dominant on house designs as the house's variant designs do not reflect new or unique ideas, rather they reflect variations from the traditional designs based mainly on functional reasons such as terrain, wind and sun. Home owners participate in the building process, though skilled construction professionals are hired to do this job in this preindustrial vernacular category of house designs (Figure 13).

The third category of homes in the new city is "modern vernacular" where creativity plays a role in the variant designs of the new houses built by teams of construction specialists. Home designs range from simple to complex

and from small to large, with originality, rather than tradition, playing a central role in the choice; though tradition is not yet absent and similarities among houses is still evident. However, in the modern vernacular system, there is considerable variation of functions associated with cultural values and tradition, with the home owner playing only a minimal role in the construction process leaving all the work to be done by specialists including landscapers, carpenters, electricians, etc. As such, this increased specialization of function goes along with the differentiation of roles and technological development of a culture, as in industrialized societies (Figure 14).

(Figure 13)   (Figure 14)

Therefore, whatever the cause for the decline of environmentaly responsive housing may be, the clear result is that by the ends the twentieth century housing at Al-Madina Al-Monawarah has become a matter of personal preference, rather than a product of local tradition or resources. A relation between a house of Al-Madina and it's environment has disappeared.
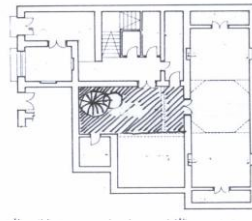
2-2 Culture

The role of culture in house designs most evident in some of its facets: Cosmology, Religion, and family and social culture.

2-2-1) Cosmology:

Altman cited that people perceive the world through different direction. Within Islamic cities, the vertical dimension becomes evident. The vertical dimension is evident in many societies, what can be said about the origions? Undoubtedly many factors contribute to sensibility to sheer presence of the sky, sun, moon, and stars points to visible and ever present vertical dimension. The unreachability of these objects enhances the attribution of symbolic and religious qualities to the vertical. [9]

Al Madinians, believe that heaven, earth and hell represent a vertical dimension of the universe which continue to be vivid and real throughout their lives. Through the courtyard, people see the endless sky and this makes it easy to speculate about heaven (Figure 15).

Contemporary house designs including residential flats and even private villas neglected the old attitude towards vertical dimension, as house design have become a closed space without such a relation to the sky (Fig. 16).

(Figure 15)   (Figure 16)

2.2.2) Religion

Biance S. cited that: compared with other religious traditions, the distinctive feature of Islam is that it has given birth to a comprehensive and integrated cultural system by totally embedding the religious practice in the daily life of the individual and the society. While Islam did not prescribe formal architectural concepts, it moulded the whole way of life by providing a matrix of behavioural archetypes which, by necessity, generated correlated physical patterns. [7] Through the old urban context of Al-Madina, one can figure the followings:

2.2.2.1) Equality and Solidarity

The structuring laws of both the houses and the city itself of Al-Madina were based on the principals of equality and solidarity among all human beings. All human beings, regardless of their relative status in worldly terms, are considered servants of God. This has, in turn, reduced to a considerable extent the relevance of earthly hierarchies by marking them as accidental and revocable distinctions. Accordingly, the resulting cellular structure of the house and the city was predicated on the "wholeness" of each self-contained unit, regardless of its relative position in the urban system. The outcome was the typical multi focal pattern defined by the countless "centers" of individual buildings rather than by a rational grid of streets and squares. The morphological homogeneity of that pattern allowed the multiple individual forms to merge into a lively and highly differentiated architectural unity .

2-2-2-2 The Human or Temporal Realm and Divine or Timeless Realm

It is a major concern of Islam to maintain a clear distinction between the two levels of existence, one being the human or temporal realm, the other being the divine or timeless realm. Nevertheless, both spheres are always seen in close interaction: while Islam emphasizes the uniqueness of God, it also affirms the fundamental oneness of his creation, which ultimately implies the unity of both worlds. [7] The courtyard of the house was the tool to achieve this goal by relating the two realms through the vertical dimension.

2-2-2-3) The Prayer:

Most of the institutional functions in Islamic cities were fulfilled by the Friday Mosque,   the prime public

building, which in line with the Islamic philosophy of life. This was the case in Al-Madina where the Mosque of Prophet Mohamed (Peace Be Upon Him). The sequence of the five daily prayers structures life of the community and consequently the course of commercial activities in the city. The physical act of prayer itself, with its prescribed bodily movement has distinct spatial implications.

As such, the network of all pedestrian roads depended on a group of narrow alleys intersecting with each other, comprised of courts with different sizes, that all lead to the direction of the city center, the Prophet Mosque, which has always been the distinguished visual mark for the City [6] (Figure 17).

(Figure 17)

2.2.2.4 Social Interaction and Good Neighborhood

It was noted by Rapoport that one of the functions of culture is to define groups in terms of "us" and "them". It is significant that people interact significantly easier with others if and when they can socially place them i.e. when they are not strangers to them, people interact most if they can remain us, or retreat to, a "private" area whether "belonging" to the individual or to the group. On the other hand, they interact least if they are grouped together without having such secure areas. [11]

The old city of Al-Madina surrounded by fences could be seen as groups of homogenous communities. Characterised as specific families, work and commercial trades, residential area were homogenous clusters with agreement on environmental quality, with ease in self-governance and informal rules of social control. This, in turn, facilitates work corporation, social involvement, and participation.

As such, the courtyard, as an internal space for a group of residential units, was the second element helping to achieve homogeneity and enhancing social interaction (Figure 18).
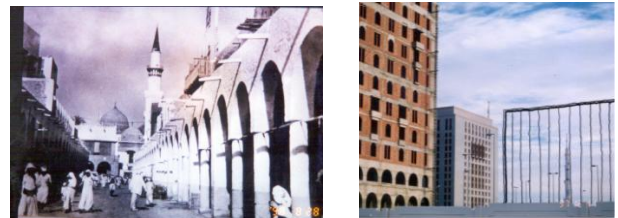

(Figure18)

The courtyard made it possible for residents to use the spaces in front of their homes to sit and gather with friends and neighbours for socializing or special events such as weddings and feasts. Women shared an isolated corner for their gatherings, while children enjoyed courtyards as protected play grounds.

Courtyards differed in their sizes and number of houses around them. In a field study by Dr. Al Hussayen, he found that the largest courtyard in Al-Madina reached 8700 m2 with 74 houses, compared to the smallest of 50 m2 and only 8 houses. Table (2) shows the increase in the number of small and medium courtyards for housing units which had, allowed a good chance for special gatherings and good relationships between neighbors or residents of the same courtyard, such relationships weaken with the large courtyards with sizes more than 3000 m2 [5]

Size	Sqm	No. of Houses	No. of courtyards	Percentage %
Small	50-1000	5 – 25	51	66
Medium	1000-1800	26 – 40	12	16
Large	1801-5000	41 – 70	14	18

(Table 2)

The new city has become a direct reflection for technology and economic consideration. The urban structure based mainly on a perpendicular grid that was designed to suit car movement. Consequently, the social structure has been affected, and fragmentation of people relations had emerged. The house-expresses this segregation in a form of separated entities. The urban form provides only the utilitarian need with neglect to the human values that reflect people's culture. This was the situation which includes even the Mosque of Prophet Mohamed (Peace Be Upon Him) and its major impact on the surrounding environment The huge extension within the new master plan offered the required function space for prayers, but the visual dominance of its minerettes on the urban form has been missed (Figure 19, 20).

(Figure 19, 20)

2-2-3 Family and Social Structure:

As most Moslem households, the social unit structure of Al-Madina home was based on the extended family concept, with several generations living in. Therefore, when a son grows up and gets married, the house undergoes new changes or division in order to accommodate the new situation and new added family member. Such changes could be by arranging a group of rooms as "house within the house" for the new couple, or adding a new story to the building.

Such architectural transformation processes linked to the social evolution of the family group are characteristic of most Muslim cities. They often involve changes in the access system by turning semi – public street sections into private or by building the air space above the street.

The use of primitive means of transportation affected the urban structures of the old Madina, where short distances played an important role in the social gathering and urban proximity that were accompanied by the phenomenon of the extended family. When transportation developed, it facilitated the long walking distances, and hence fragmented the families, where its members started to look for work, anywhere, to improve their economic conditions. This has, in turn, helped to disfigure the extended family concept and its positive effects on close family relationships in specific and social relationships in general.

This personal and independent life was expressed in the new house designs that fulfilled the family needs. Few examples which respect the family social relationship are still exist. This is through the presence of independent related families in different flats in one residential block.

It is also worth noting that the change in the family and social structures of Al-Madina society, has affected the house designs and mingled with the new social mix resulting from the effect of different, nationalities in Al-Madina hired to work and fulfill needed labour and expertise for the city development process.

Moreover, the use of the new communication equipment, such as satellite dishes and computers, has compensated for the human need for social relationships with others, and replaced it with a relationship with the equipment to spend the personal leisure time. New skyline of the residential cluster has appeared, (Figure 21).
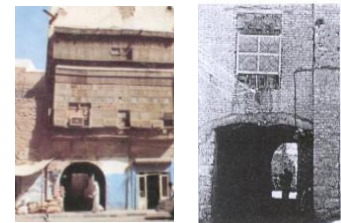

(Figure 21)

2.2.4 Privacy Regulation

Privacy is defined as an interpersonal bourdary regulation of human interaction. As such, it permits people to communicate or be open with others on some occasions and close off such interaction at others. Privacy is, therefore, a changing process wherely people attempt to manage and regulate their social interaction. By regulating the time of our accessibility to others, we can manage our social contacts according to our personal desires. [9]

Urban space is generally divided into domains distinguishing different rules and symbols, with a basic purpose of establishing boundaries between "us" and "them", "public" and "private", to ensure the desired levels of interaction and provide the appropriate protection. All these levels and boundaries differ from one group to another. Nevertheless, the Islamic legal practice was particularly strict regarding strangers invading the privacy of houses by looking in from the streets or adjacent buildings.

Within urban structure of the old city of Al-Madina, the physical coherence between the various components was based on the graded articulation of a chain of polarities between "included" and "excluded" spaces, "inside" and "outside". The courtyard of a house, for instance, was outside with regard to the rooms around it, but inside with regard to the house.

The residential alley was outside with respect to the house, but inside with respect to the residential quarter, which was also enclosed by walls and gates (Fig. 22,23).

(Figure 22,23)

The closely knit house with joint walls provide a nearly closed public access environment for the residential area, that are divided into successive hierarchial sections. While dense residential quarters tend to swallow the street space and convert it into private access corridors, the sanctuary of the house is not directly exposed to outside influence. Dead end alleys and a progressive sequence of gates are the tools for achieving the protection that preserves the community and social sphere and in turn prevent friction or interaction with the public realm.

However, in houses, the Mashrabia plays a destinctive role in implementing the privacy from the public to the private domain (Figure 24).

(Figure 24)

The urban form of the new city is based on creating different plots and subdivisions formulated directly according to traffic patterns. In tracing the privacy within this form, it is useful to look at housing territories on a hierarchy of levels ranging from private to public. Streets and side-walks as public spaces that are equally used by both residents and non residents.

Street space is a public property used by everyone with no preference to the area residents. As such, those residents no longer feel their ownership of the public space, but only have privacy within their own homes (Figure25,26).

(Figure25,26).

The private space is clearly seen within a house by its own residents, where privacy, as a cultural component, is still respected and required within the contemporary house structure. This could be seen in the segregation between guest and family rooms in addition to the private room used specially for women meetings. Moreover high walls are commonly used in private villas to prevent the visual intrusion of outsiders (Figure 27).

(Figure 27).

3- Conclusion:

The goal of this research was to study how the house of Al-Madina Al-Monawarah, expresses the socio-economic changes in new forms and patterns. However, it is noticed that the research outcome can also be applicable to everyday environmental design problems in different cultures, since cultures all over the world undergo stages of transition from small stable societies to large technologically developed ones however, all cities and urban structures in such societies are affected on the long term with their social and economic changes, as they take place gradually without sudden changes as those happening in Al-Madina Al-Monawarah. There, fast and sudden economic development took place among its residents, who increased tremendously, in addition to the increased numbers of Pilgrims and Omra visitors.

This research has clarified the contradiction between the traditional and modern approaches of house designs in Al-Madina Al-Monawarah. As economic and technological developments have direct implications on the cultural / environmental relations, the problem faced here is how can new houses and communities be designed in a way that will be compatible with the social and ethnic heritage without creating any turbulence in cultures. Here it is assumed that the growing of globalization and standardization in home design could encourage the social segregation.

Urban Planners and Designers should appreciate the potential of creating urbanity. The urban fabric, as a whole, should create the possibility of accidental contact, confrontation and discoveries of the different. It is, therefore, essential for any designer to understand the sensitive or relative culture / environment and its gradual application in the design process, which can be facilitated by broadening the base of user or home owner participation in the process. As such, this research supports an open-ended design, rather than sticking to a limited framework. But, it is still argued that there are four main urban components that are related to Al-Madina's culture: Privacy, people tendency to live in homogenous groups, good neighbourhood, and finally the dominance of the Mosque upon the urban fabric and visual image.

It is also very important to provide environmental education to new generations. This education will help them in their adjustment to new environment settings, facilities, and changes, by showing them that these are in fact responsive to their cultural values, practices and above all needs.

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