Urban Growth and Development in Asia

Volume I: Making the Cities

Edited by GRAHAM P. CHAPMAN, ASHOK K. DUTT and ROBERT W. BRADNOCK

Asia includes more than half the world's population, but, apart from the Tiger economies and Japan, it is still overwhelmingly rural. In the last decade or so urbanisation has really begun to take off, and the shift of population to the cities represents one of the greatest population movements the planet has ever seen. By 2030 more than half of Asia's population will be urban, and between now and then more than 500 million people in Asia will have moved – looking for jobs, housing, food and water. They will be both part of a problem and most of the solution – building around them the cities they will live in.

This book begins with a panoramic survey by Nigel Harris of the drama of Asian Urbanisation, based on the inaugural plenary lecture he gave to the 5th Asian Urbanisation Conference held in London. In the following chapters many experts and practitioners from different countries and cities provide a stimulating portrayal of the processes and outcomes of one of the greatest shifts of population (not just absolutely but proportionately as well) ever to have occurred in human history.

SOAS STUDIES IN DEVELOPMENT GEOGRAPHY

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The School of Oriental and African Studies, University of London, has established an international reputation for its research into these regions. This series will publish high-quality, original research into all aspects of geography in the developing world, in particular, research linking together environmental and developmental issues. It will be of interest to geographers, development studies, political science, environmental studies and economics academics, as well as professionals working for international agencies, policy makers and NGO workers.

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Ali Bahammam

Editors' note:
Riyadh (see also Chapter 11) has within the recent past invented and experimented with its own urban forms, integrating aspects of an older life style with the materials which new wealth and technology have brought. The adaptation between life-style and buildings works both ways.

20.1 Introduction

The present site of Riyadh dates back to the pre-Islamic town of Hager, then the capital of Al-Yamamah. Riyadh itself was founded on the ruins of several communities about 1740. The city is located far inland in the middle of the region of Najd on the Arabian peninsula, and is situated on a plateau which rises about 600 meters above sea level. The climate of Riyadh is characterized by dry, relatively hot summers and dry, cold winters. Daytime air temperatures may range from 27°C to 49°C in July, but temperatures may drop to as low as 10°C between November and January at night. The average relative humidity is around 40% to 50% between November and February, during periods of colder temperatures and rainfall, and 15% to 16% during the summer from June to August i.e., during hot and dry periods. The annual average rainfall is 59 mm, occurring mostly during December to May, thus leaving June to November completely dry.

This is the geographical setting for what is now the national capital city of Saudi Arabia. This paper examines the historical and contemporary development of Riyadh with an emphasis on the evolution of its housing.

20.2 The Historical Development of Riyadh

The city assumed little prominence until Abd Al-Aziz Al-Saud became its independent governor in 1902 and began his campaign for the consolidation of modern Saudi Arabia. From that point on, Riyadh was the permanent residence of the king, and eventually became the Saudi capital. During the first thirty years of Abd Al-Aziz's reign, the city retained its size inside its fortifications as well as its traditional type of dwellings.Only after the con-

solidation of the kingdom and the end of the campaign in 1938 did the king himself take the first step towards affecting the city's physical development by deciding to move outside the old city of Riyadh. Two kilometers north of the center of town, he built Al-Murabba— a large complex of palaces and administrative buildings for himself and his entourage. It was built out of dried mud bricks and other local building materials. Each building or dwelling unit was built around one or more courtyards (Fig. 20.1). Thus, the departure of Al-Murabba from the traditional urban pattern lies mainly in the larger size of its components and the scale of the building program rather than in design and layout.

By building Al-Murabba, King Abd Al-Aziz established a precedent for Riyadh. People now felt they could live and build outside the city walls, thereby expanding the size of Riyadh and establishing the direction of its physical growth. The expansion meant that the walls would no longer be a barrier in the way of urban growth and that the preferred direction for development was northward toward Al-Murabba. Although the design concepts and the building processes remained the same as those of the traditional structures inside the old city of Riyadh, a new version of the traditional dwelling

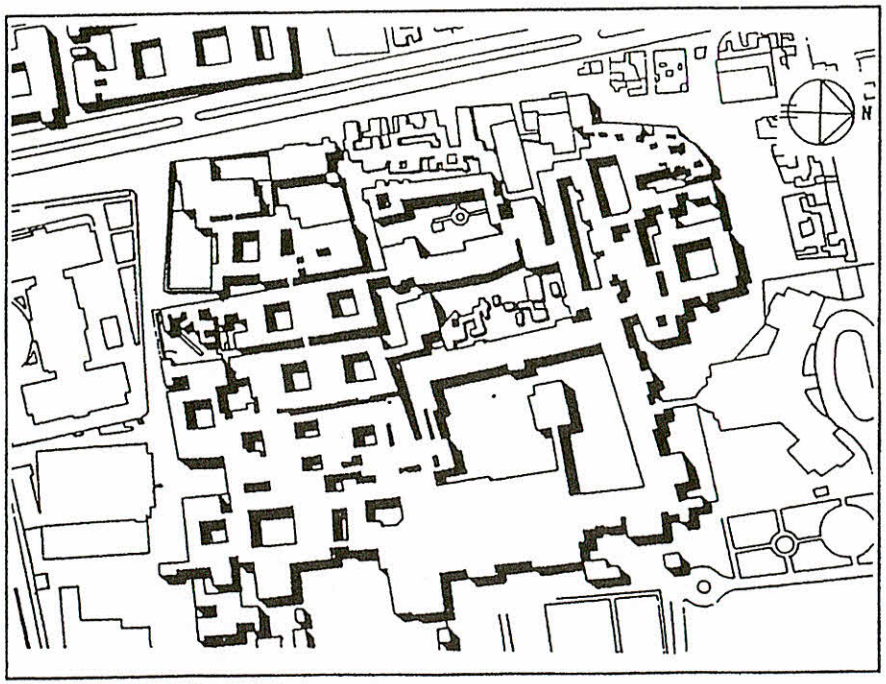

Figure 20.1 The courtyards of old Riyadh

and a new physical pattern evolved as a result of the availability of land and the introduction of the car as a new means of transportation.

When King Saud succeeded his father King Abd Al-Aziz to the throne in 1953, he made two decisions that were to have significant impact on the physical growth of Riyadh. The first was his decision to transfer all government agencies from Makkah to Riyadh and to begin a building program along the road to the [old] airport to house them. The second decision was to expand and rebuild Nasriyah, a country estate 3 km west of town, as his royal residence.

In the early 1940s, Nasriyah was a small estate owned by King Saud, then Crown Prince. However, when the decision was made in 1953 to make Nasriyah the royal residence, the grounds were extended to approximately 250 hectares and plans were drawn up to include modern, luxurious palaces, boulevards, and gardens laid out on a grid pattern (Al-Hathloul, 1981). It was the first to be built with new building materials and different planning and design concepts.

From this point on, a conflict between old and new was consciously felt by the city's residents. In contrast to the traditional pattern, Nasriyah was orthogonally planned. Instead of traditional building materials and technology, cement blocks and reinforced concrete were used. As for its impact on Riyadh, it demonstrated an alternative way of planning, designing, and building techniques. Because it suggested new architectural possibilities, it had a clear effect on Al-Malaz, the first housing project. However, its immediate impact on the city inhabitants was the introduction of new, more durable, building materials as well as new building techniques that accelerated the construction process. Some of the inhabitants used the new materials and techniques instead of the local alternatives to build what came to be known later on as ***Al-bait Al-shabai*** - the transitional dwelling.

In 1953, when the government decided to move its agencies from Makkah to Riyadh and to build its ministries, the need arose for housing for the transferred government employees. The site of Al-Malaz, 4.5 km northeast of the city center was chosen, and a housing project was initiated by the Ministry of Finance to satisfy this purpose. In 1957, when the move took place, the project was in operation, and some sections of it had been completed.

Al-Malaz project consists of 754 detached, outward-looking dwelling units (villa type) and three apartment buildings. Al-Malaz also includes the required support facilities and services for what came to be known as the "New Riyadh". The physical pattern of the project follows a gridiron plan with a hierarchy of streets, rectangular blocks, and large lots which, in most cases, have a square shape (Fig. 20.2).

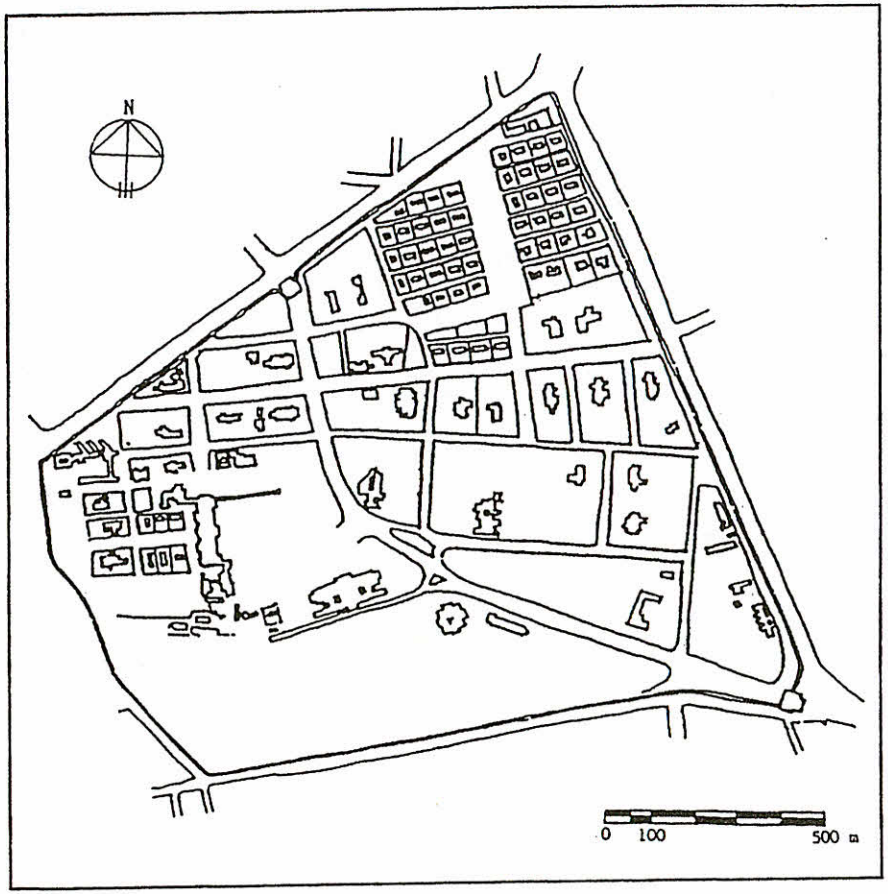

Figure 20.2 Part of the Al-Malaz project

The impact of Al-Malaz on the size of Riyadh can easily be seen. The project covers an area of about 500 hectares, and in fact is a city in itself, as the name "New Riyadh" implies. What was not foreseen at the time of its design, however, was the effect the project would have on the pattern of physical development in Riyadh and in the country as a whole. Al-Malaz introduced new patterns of street layout and new types of dwelling (Fig. 20.3). The gridiron street pattern and villa-type house both became models for the later physical development of every city and town in Saudi Arabia. Riyadh now covers an area of more than 800 square kilometers, with an estimated population of over 3 million people (ADA, 1996). Almost 80% of this expansive area are low-rise, low-density housing follows the grid pattern system and utilizes the villa-type dwelling.

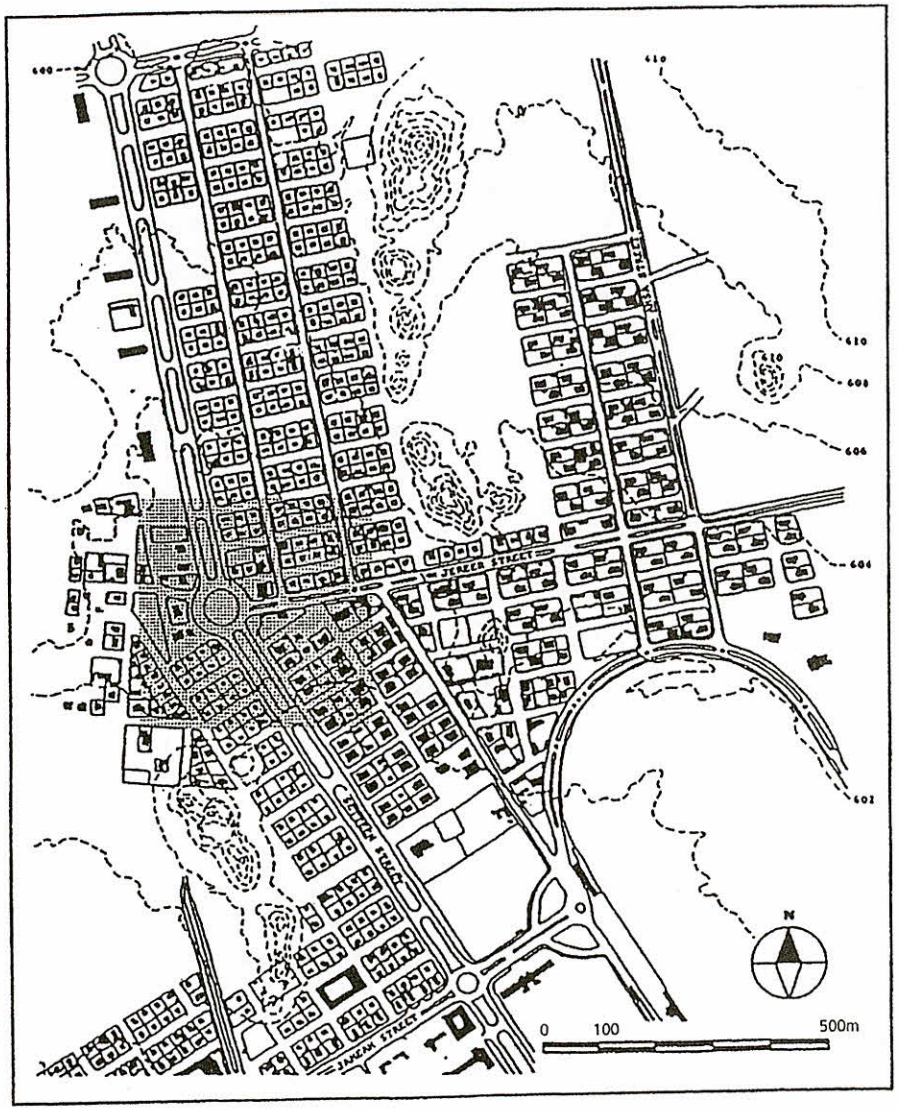

Figure 20.3 Part of the Al-Malaz project

20.3 Low-rise Housing

The evolution of Riyadh low-rise housing includes the traditional dwelling, the transitional dwelling, and the contemporary villa-type dwelling. The traditional dwelling was built from local materials according to the users'

own needs and norms in an incremental building process over any conceivable time-scale by the local master builder with the help of the users themselves. The transitional dwelling was built from some new building materials by inexperienced contractors but was no more an incremental process, it was a final product , even if the design concept of the traditional dwelling was still applied. The contemporary villa-type dwelling unit is the product of a new building materials and techniques and a new design concept that satisfies municipal rules and regulations. These three major types of low-rise housing will be presented via a study of their design concept, the organisation of their spaces and elements, the rules and regulations that affect them, and their design and construction processes.

20.4 Traditional Housing

Riyadh's traditional housing can be classified into two types: *The former traditional housing* which was built inside the fortification wall before 1938, and *the later traditional housing* which was built after 1938 outside the city's fortification wall. The main differences between the two types are summarized in the following points:

- Most of the dwellings of the former type have irregular geometric plans. Their shapes were influenced by the organic growth of the neighborhood urban fabric (Fig. 20.4). Conversely, the majority of the dwellings of the latter type had clear rectangular shapes, and were larger.
- The neighborhood layout of the former type, as a part of the organic pattern of the town, was identified by solid masses of connected houses broken up by narrow roads which would branch out irregularly into alleyways and cul-de-sacs that provided access. Furthermore, the urban spaces of the former pattern were organized in a hierarchical sequence from public open spaces to main roads and to the semi-private cul-de-sacs. On the other hand, the introduction of the car as a new means of transportation very clearly affected the neighborhood layout of the later pattern. The streets of the later pattern are wider and straight, featuring long, large blocks of attached houses.

One of the best examples of the later traditional dwelling is King Abd Al-Aziz Palace, which was built as part of the Al-Murabba complex (Fig. 20.5). In general, the dwelling of the latter type has the same design concept and is composed of the same spaces and elements as the former type. Moreover, they were built out of the same local building material and with the same construction technique.

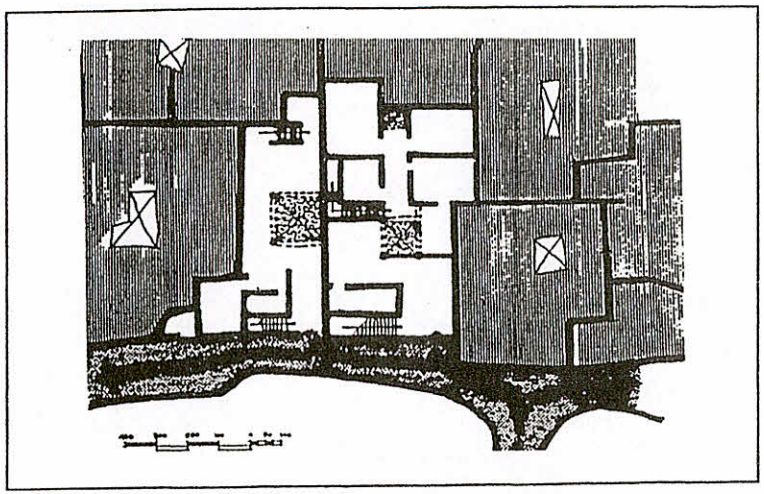

Figure 20.4 Irregular organic growth of traditional housing

Design Concept

Riyadh's traditional dwellings are inward-oriented buildings. This design concept embodies the best response to both the socio-cultural needs of the users and the harsh climatic conditions of the region. The dwelling consists of a lumpy adobe structure built around one or more rectangular courtyards with thick walls, small openings to the outside, and large openings to the inside. Traditional units, when grouped together, share as many as three walls with each other with only narrow streets in between, shading each other throughout the day and thus creating an environmentally consistent solution.

Organisation of the Traditional Dwelling

The internal organisation of the traditional dwelling is the result of an attempt to satisfy the privacy requirements of the society. The dwelling is divided into two main sections. The family living section, designed for use by the family, female guests, and the ***maharm*** (male relatives, who, according to Islamic teachings, cannot marry females in the house, e.g. their brothers, uncles). Generally, for reasons of privacy, this section is always located away from the entrance.

All rooms within this section of the house are used for a variety of functions, such as sleeping, eating, family socializing, and household work.

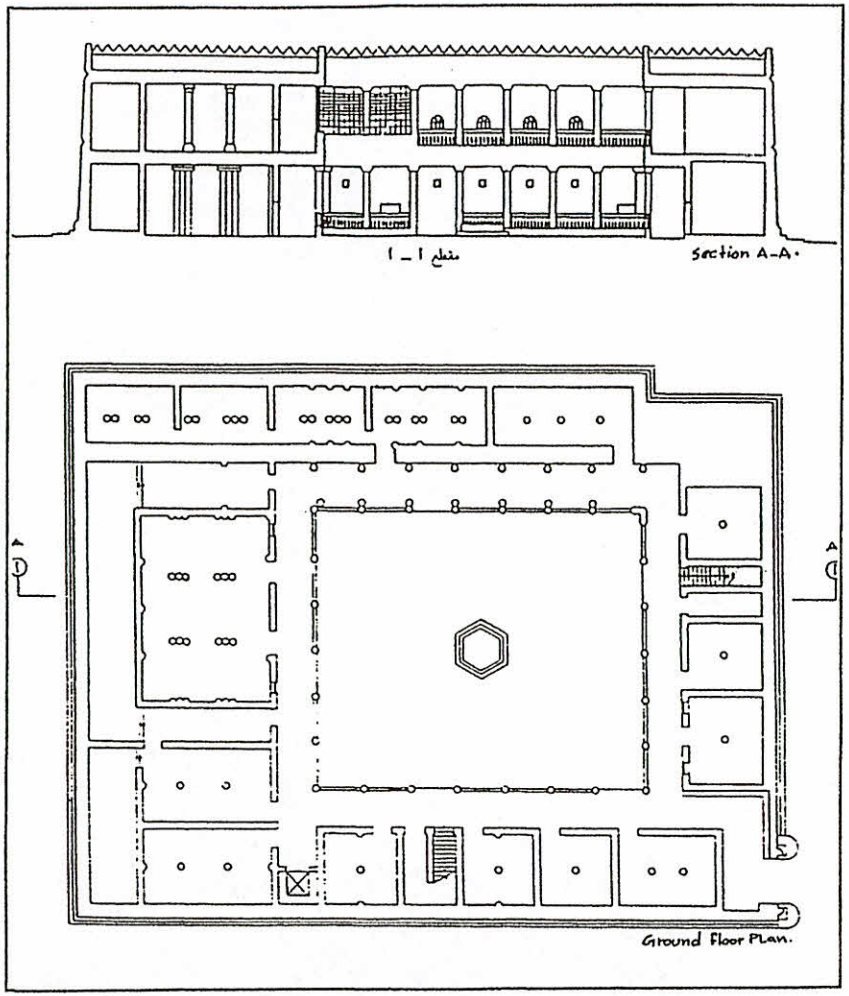

Figure 20.5 King Abd Al-Aziz Palace

The rooms in the traditional dwelling tend to have very little and simple furniture. The entire floor of any room is covered with oriental rugs or mats and, since everyone walks barefoot inside the rooms, the room is really like a large couch and one can sit, lie or walk about as one pleases. At night, a foldable mattress is placed on the floor for sleeping, which in the morning is folded away for daytime use of the room. Another daily function for some of these rooms is that of a place for eating. Meals are served on a circular or rectangular mat, which is set on the floor. Heavy, large furniture, which is difficult to move and which commits a space to a specific purpose does not exist in any room. Therefore, these rooms can meet various needs dictated by the immediate circumstances.

The inner rectangular-shaped courtyard has always been a part of the family section. It is the focal point of the house, usually surrounded by paths for circulation and the rooms of the family section. The inner courtyard performs an important function in the traditional dwelling. It answers the residents' socio-cultural needs and fits the climatic conditions of the region (Talib, 1984). It is an architectural device for maintaining privacy as well as providing an enjoyable extension of the house, especially during the pleasant morning and evening hours.

The second section within the traditional dwelling is designed for receiving male guests. This section is designed in such a way as to allow male guests easy access to the men's reception room without disturbing the privacy of the family section. This section contains the reception room, a separate bathroom, and, in some dwellings, a separate staircase leading to a separate section on the rooftop or upper terrace which is used as a sleeping area for guests during hot summer nights.

The men's reception room is the main element of the guest section. It is usually the largest room in the house. This room is used for many functions, such as a men's sitting and gathering room, as a male-guest bedroom, or as a dining room.[1] The reception room tends to be located adjacent and directly accessible to the entrance lobby. It is usually longitudinal and parallel to the street.

All rooms in the traditional dwelling have full potential for a variety of uses as a result of their simple and multipurpose furniture. All of the furniture that is used in the traditional dwelling can be rolled up and stored away when not in use. The absence of cumbersome furniture lends higher flexibility to the use of living spaces.

Traditional Rules and Regulations

The rules which governed the architecture of the traditional dwellings of Riyadh are the same Islamic rules as were applied in other Muslim towns and settlements. Islamic Teachings from the *Qur'an,* the Holy Book of Muslims, and the *Hadith*, the sayings of the Prophet, are the bases for these rules.

1 Most of the large traditional houses have an additional room (adjacent to the reception room) called muqallt. Although muqallt is a term used to designate an eating place, this room also serves other functions e.g., providing additional reception space or a bedroom for guests or visiting relatives, when it is not in use for eating.

In accordance with the tenets of their Islamic faith, Saudi families traditionally have built their dwellings with considerable care following special designs to respect the rights of the individual neighbors as well as the whole community.

In general, anyone was free to build as he or she wished as long as one was not causing any damage or harm to others. However, if constructing a new building or the expansion of an old one caused any physical damage to the neighboring buildings, caused intrusions on the neighboring households, or conflicted with the community's interest, the action is, by Islamic law, considered a *darar* i.e., a harm or damage to the individual and the community. Islamic law will then insist on the removal of the damage. When the Prophet says: "*La-darar-wa-la-dirar*"(Ibn Majah, 1953), he is prohibiting the cause of damage.

These rights were guaranteed in the urban areas by the power of the *gadi* (the Muslim Judge) and the *muhtasib* (the official in charge of exercising *hisbaah).* In its widest sense, the world *hisbaah* means ensuring that the precepts of the *shariah* (Islamic law), particularly those of a moral and religious nature, are observed within the town and especially in the market as part of Muslim obligations to society (Lewis et al, 1971)

In Islamic history, there are numerous cases in which judges and jurists stated that damage had been inflicted upon the community's interest, for example, a new structure blocked or narrowed public roads or infringed upon individual dwellings, if, for example, a new building was built higher than another or a new door put in front of or too close to a neighbor's door. In all those cases, removing the damage involved removing the cause of it (Ali Bahammam, 1987). However, such violations were rare in the traditional built environment of Riyadh because the local master builder understood and honoured all the rules as a part of his Islamic heritage.

Design and Construction Process

It is said that the traditional dwelling was never complete when built. It grew over a period of time around one or more courtyards. The flexibility for change and expansion of the original house can be clearly seen in the evolution of land configuration over a period of time as family size increased by marriage or by birth.

The building contract was negotiated directly between the user and the master builder *Al-astaad.* Any building done on the house would not start until both parties agreed upon the needs, requirements, costs, and general design schemes. Since the general design scheme was discussed orally, the

only lines drawn would be those of the construction site itself, showing the floor plan of the house as well as the interior organisation of the house, while the rest of the design gradually appeared as the construction progressed (Fadan, 1983). Traditionally, the building process begins with the construction of a boundary wall around a plot of land selected by the family. Well-defined land ownership laws did not exist in the past (Talib, 1984). Religiously speaking, land that is not owned by anyone can be claimed for ownership by building a wall around it (Akbar, 1980), as long as this act did not harm the interest of other members of the community. During the construction process, it was common practice to find the male members of the family and other male relatives helping the master builder and his team in order to speed up the construction operation.

Building Materials and Techniques

Adobe construction is the most salient characteristic of the traditional buildings. It is indigenous to the Riyadh region, where earth itself offers the best, readily available building material. Straw or animal manure are often added to the mixture of water and clay to give the mortar and bricks extra strength, and to make the walls more water resistant (Mousalli, 1997). These sun-dried brick walls have excellent thermal properties, owing to their high heat capacity. As much as 80% of the outside heat is absorbed, and only 20% transmitted (High Commission, 1978).

Despite its scarcity in the region, wood has always been used as roof beams, frames, doors, and windows. Limestone was sometimes used for constructing the building foundations in later buildings, while lime plaster was used to frame doors and windows and to protect the top edges of the roof parapet from rain damage.

The house was covered by a flat roof built out of the following materials: 1) tamarix aphylla (*athel*) or palm tree trunks, 2) palm-branches *jarid*, 3) woven palm-leaf matting, and 4) a layer of mud. The floors of the second story as well as the roof were generally made by laying trunks parallel to each other, spaced about half a meter (1.5 foot) apart on properly raised walls. On top of these trunks and perpendicular to them, the palm branches were placed side by side. A woven palm-leaf matting was usually placed on top of these branches in order to hold the thick layer of mud. However, because of the short length and the low quality of the available wood trunks, the width of the room in most traditional houses rarely exceeded (2.5 meter) eight feet.

Although the use of traditional materials was the optimal solution of

challenging the constant harsh summer heat, the adobe structure was vulnerable to compression and weathering, one of the major problems being water leakage during rainy days and nights. Continuous renovation and maintenance was required requirement for the buildings' survival. Finally, the long construction period of the dwelling made the use of the traditional building materials even less advantageous.

All of the above problems and disadvantages were the motives behind the residents' welcoming the use of new, strong, and durable building materials. The new materials helped them speed up the building process and entailed less maintenance effort, and enabled larger rooms to be built. At the time, however, people did not realize the negative consequences of using new materials that were unsuitable for the climatic conditions of the region. Nonetheless, all in all, this was the beginning of a new stage of housing in the city.

20.5 Transitional Housing

The discovery of oil in Saudi Arabia caused a major migration of the population to Riyadh and to other urban areas. The relocation of large numbers of people from rural areas and from neighboring countries to Riyadh created a sudden enormous need for affordable housing in a very short time. In order to alleviate the housing shortage, people started to use the new durable building materials and new and faster techniques, which, by that time had already been introduced in the country, as a way of speeding up the construction process. These new materials included cement blocks, imported wood, and reinforced concrete. The combination of the use of new building materials with the traditional building conception is the most salient trait of the transitional dwelling.

Transitional housing can be found in many of the neighborhoods around the traditional central area of Riyadh. Manfouhah area, which is located south of the city center, is a good example of the transitional stage of housing. It is primarily a residential district with hardly any other use of the land. Its regular street pattern reflects its origin as a land subdivision sponsored by the municipality (Fig. 20.6) (SCET,1982).

Manfouhah, as most of the transitional neighborhoods, has high density housing as a result of small, single family houses occupying most of the lots. All lots have square shapes with an average size of 100 m^2. Most of the dwelling units are one story high, only few of them are two stories high, depending on the location of the neighborhood and the residents' wealth.

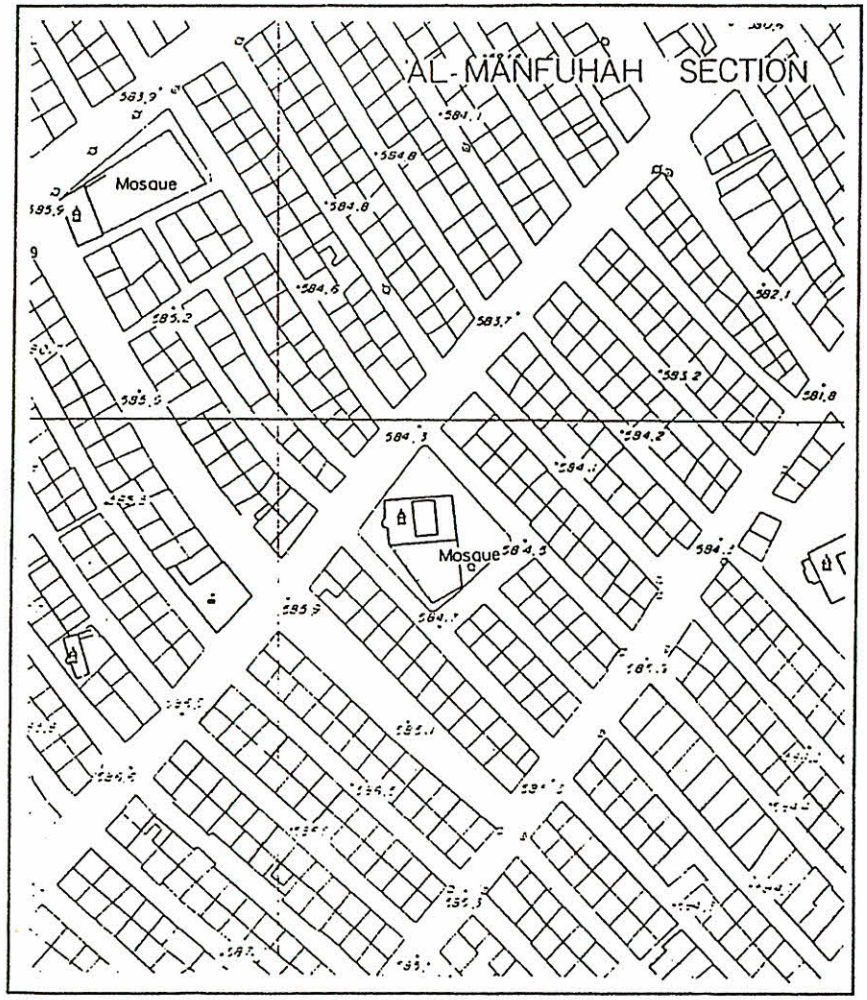

Figure 20.6 Subdivision of land at Al-Manfuhah

Design Concept

The transitional dwelling is still an inward oriented building similar to the traditional dwelling. It is an attached unit that consists of a number of rooms built around one open space. However, in a misapplication of the traditional concept, many of the inner open spaces are no more than a light well which is too small to serve the same functions as in the traditional court-

yard. All dwelling units of this type are no more than two stories high. They are grouped together in large blocks sharing as many as three walls with each other, shading each other throughout the hot summer days and preventing the exposure of large parts of the building to solar radiation (Fig. 20.7). This housing pattern helps create a comfortable indoor climate although some of the building materials on the outside walls and the roof of this type of dwelling are unsuitable since they feature bad thermal properties, as in the case of the older cement blocks.

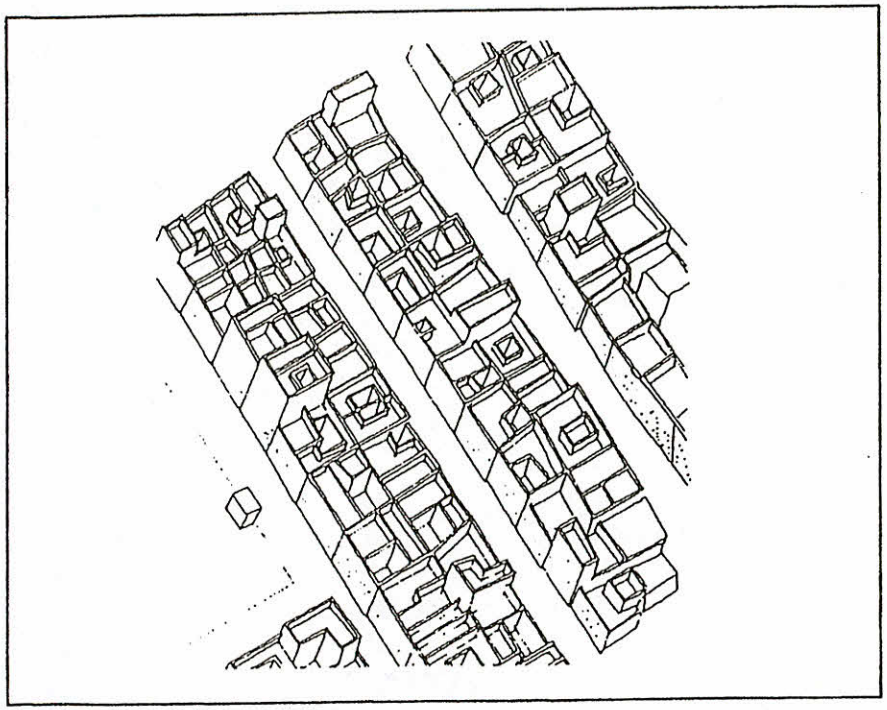

Figure 20.7 Shade from the sun

Organisation of the Transitional Dwelling

The internal organisation of the transitional type of dwelling unit is similar in concept to the traditional dwelling, but many of the elements of the traditional dwelling, such as the brown dates storage room and the animal service yard, cannot be found in this type of dwelling as a result of the smaller size of the lot and the different needs of the users. Except for the men's

reception room and a separate bathroom in some of the dwellings, the rest of the house is family domain. All rooms within the family section are furnished with simple and easy-to-move traditional style furniture, similar to the traditional type. These rooms were also used for a variety of functions, thus allowing for high efficiency and flexibility. The men's reception room is the largest room in the house. It has always been situated on the ground floor adjacent to the entrance hall and parallel to the street.

A lack of knowledge of the traditional rules and regulations among some foreign contractors and builders was one of the main reasons for problems with provisions for privacy; one example being the design of the entrance way as a direct access from the street to the center of the family section with no change of direction to block the view from the outside into the house. Large windows in the outside walls and the placement of external doors of the neighboring dwellings in front of each other are other examples of privacy clashes in the transitional type of dwellings.

Rules and Regulations

A number of municipal offices were already established in many of the large cities in Saudi Arabia by the time the transitional dwelling evolved. Therefore, people who wanted to build new dwellings in Riyadh were required to get construction permits from the municipal office. They have had to respect the number of floors permitted by the municipality for their district and to maintain the construction size of the building within the border of the lot. With the exception of these few municipal requirements and regulations, builders and contractors were free to build as they wished without any specific rules. However, the imitation of the traditional design concept implied the use of some of the traditional rules and regulations.

Design and Construction Process

Many of the contractors were foreign immigrants from neighboring countries, who had originally come to Saudi Arabia as low-skilled workers. After a few years of experience, however, they would often start their own business as contractors.[2] Many of them had much less experience with building practice than the master builders. Instead of a long-time vocational

2 *Those contractors were able to draw and read free hand sketches and translate them, with the help of their work team, into three-dimensional, physical form.*

commitment, the building profession became an easily-acquired occupation.

Building Materials and Techniques

Sun-dried mud bricks and the mud mortar were abandoned as construction materials. A large variety of local and imported, natural and manufactured, old and new building materials were in use in the transitional type of dwelling. Although it was mainly new materials, such as cement blocks, cement mortar, reinforced concrete, imported wood, and steel doors and windows that were being heavily used, some of the local traditional materials, such as limestone and local woods also still found application. Although the reinforced concrete slab roof could now be used for roofing, in some of the transitional dwellings of the transitional type, local and imported wood tended to be used for roofs in a similar way to traditional building methods.

Two different techniques are used in constructing the dwellings in the transitional stage of housing: 1) the traditional load bearing technique where the loads of the roof and floor of the dwelling are carried to the foundations by the walls, and 2) the new frame construction technique which had come along with the new building materials, and which had brought about a drastic change in the local building industry. Frame construction has become a new phenomenon in the construction of housing in Riyadh.

Finally, although the construction and finished quality of the majority of the transitional dwelling units are not outstanding, the use of the many newly-introduced building materials presented a stage in the housing development which affected the peoples' attitudes in favor of accepting the contemporary type of dwelling from the beginning.

20.6 Contemporary Housing

The contemporary stage of housing represents a completely different dwelling unit and street layout from traditional housing. The differences range from the tiny construction details of the building and the organisation of internal spaces to the external appearance of the single dwelling and the whole arrangement of the neighborhood. It is the adoption of a completely new type of dwelling unit along with a new residential neighborhood street layout, which called for new rules and regulations grounded in foreign concepts.

The detached, outward looking dwelling unit was first introduced in the cities of the Eastern province by ARAMCO (The Arabian-American Oil Company) in the forties (Fig. 20.8) (Fadan, 1983). However, this type of

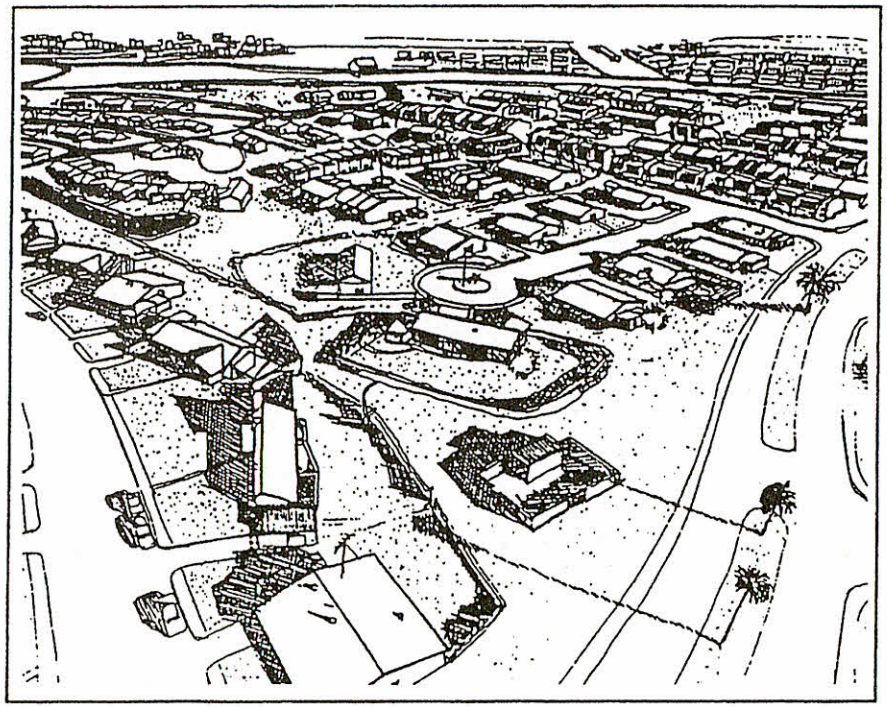

Figure 20.8 The imported concept of the detached villa

dwelling began to have a major impact on the whole country after the conclusion of Al-Malaz housing project in the city of Riyadh, for which 745 villa-type dwelling units had been built as part of the whole project.

When the government decided to build Al-Malaz housing project, there were no local architects and the local master builders were ignored because of their lack of experience in building such large projects in a short time. Direct involvement of foreign architects in the Al-Malaz project influenced the design concept of dwelling, cluster, and neighborhood. A new type of housing was introduced, one more related to Western suburban housing than to Saudi traditional housing.

Since its introduction, the villa-type house has become the prevalent type of dwelling. During the last five development plans, thousands of these models were built in Riyadh and all across the country and thousands more are scheduled to be built. Two major factors have caused the continuous use of this model: one, current municipal regulations and two, the strict conditions of the Real Estate Development Fund (REDF), which have

provided long term, interest free loans to Saudi landowners for the express purpose of private homes construction.[3] The REDF loans have ensured conformity to the municipal building regulations. To provide the loan, the REDF requires two copies of the building permit be submitted together with the application as part of the legal documents.

Design Concept

The contemporary dwelling is a detached, outward-oriented box. It has wide glass window openings in the four outer façades. It also has a maximum wall area exposed to direct solar radiation (Fig. 20.9). This outward design concept is at cross purposes with the hot, arid climate of the region. The private inner courtyard of the traditional and transitional dwellings has disappeared, only to be replaced by open spaces surrounding the building and to be enclosed by an eye level wall. These outdoor spaces fail to answer the

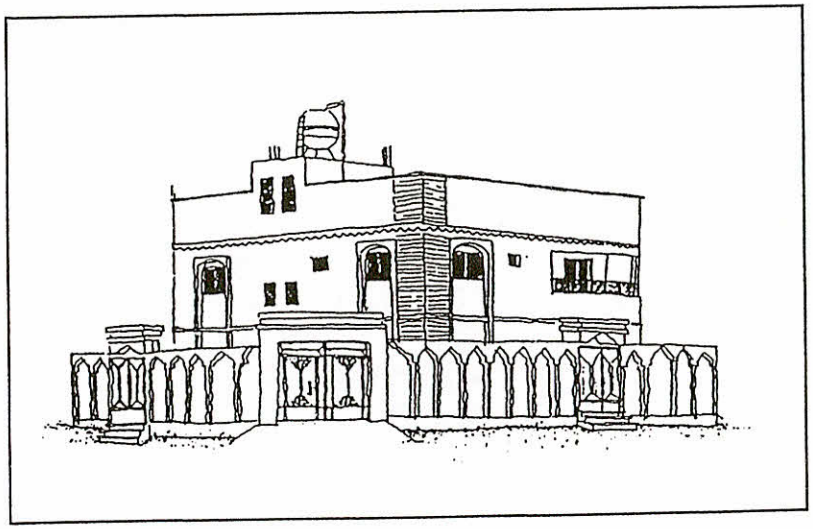

Figure 20.9 A contemporary detached villa

3 Financial assistance to the private sector was one of the housing policies of the Saudi Government . In 1975/76, at the time the second development plan was beginning to be implemented, the REDF was granting earmarked interest-free loans to private individuals and private organisations for real estate in general loans of SR 300,000 ($ 80,000). The loan must be repaid in 25 annual installments. In addition, there is a reduction of 20% of the principal installment if repaid regularly and on time.3 By the end of the fiscal year 1995/96, REDF had provided loans for the construction of more than 550,000 dwelling units.

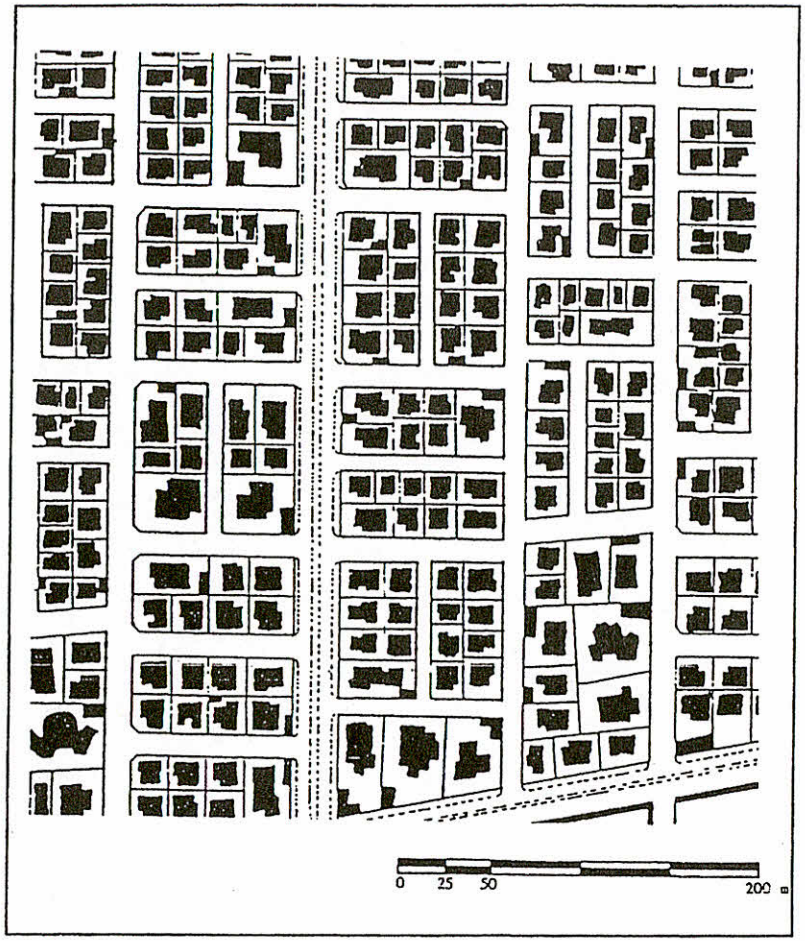

Figure 20.10 Neighbourhood grid-iron

residents' need for privacy and do not take into account the harsh climatic conditions of the region. Finally, almost all contemporary neighbouhoods follow the gridiron plan with a hierarchy of streets, rectangular blocks, and square shaped lots (Fig. 20.10).

Organisation of the Contemporary Dwelling

The rooms of the contemporary dwelling are arranged in one closed block. The early models of the contemporary dwelling was divided only

into a living section and a sleeping section. However, most of the later models are two stories high, where the first floor is divided into two domains with two separate entrances; the men's entrance which opens to the male guest domain i.e., the men's reception room, the guest dining room, and the guest separate bathroom on the one hand; and the family entrance which opens to the family living section and the women's reception room on the other hand.

Unlike those of the traditional dwelling, the rooms of the contemporary dwelling are designated for specific domestic uses. Most of the rooms incorporate hard-to-move furniture committed to a special function in each room, which restricts the potential range of uses for the room.

The Contemporary Rules and Regulations

Municipal rules and regulations have played a major role in the rapid spread throughout Riyadh of the villa as the contemporary model of dwelling. After the Al-Malaz project, the setback requirements of the amended municipal zoning regulations were made into a law. One of the reasons why setbacks and special building line requirements have developed are the anticipation of future street-widening and the accommodation of aesthetic interests.

In the city of Riyadh, as in other Saudi cities, the setback and building line requirements cannot be logically justified; the wide streets, the open view, and the green gardens on both sides have proven to be a violation of traditional Saudi privacy. Consequently, home-owners have erected above-eye-level masonry fences (which must not be higher than 3 meters due to municipal regulations) on both sides of the street. In some cases, however, an additional high fence out of steel frame and canvas, plastic, or metal-corrugated sheets has been added onto the masonry fence. The purpose is to safeguard privacy and block the open view into the premises (Fig. 20.11).

By the late 1960s, the municipality of Riyadh, as well as other municipal town planning offices in Saudi Arabia, had enforced several regulations pertaining to building on a plot of land, namely:

- A built-up area generally should not exceed sixty percent of the land area, including attachments;
- Front setback should be equal to one-fifth of the width of the road and should not exceed six meters;
- Side and rear setbacks should not be less than two meters, and extensions should not be permitted within this area.

These regulations and others were issued in the form of a circular by the Deputy Minister of Interior (A-Hathloul, 1981)

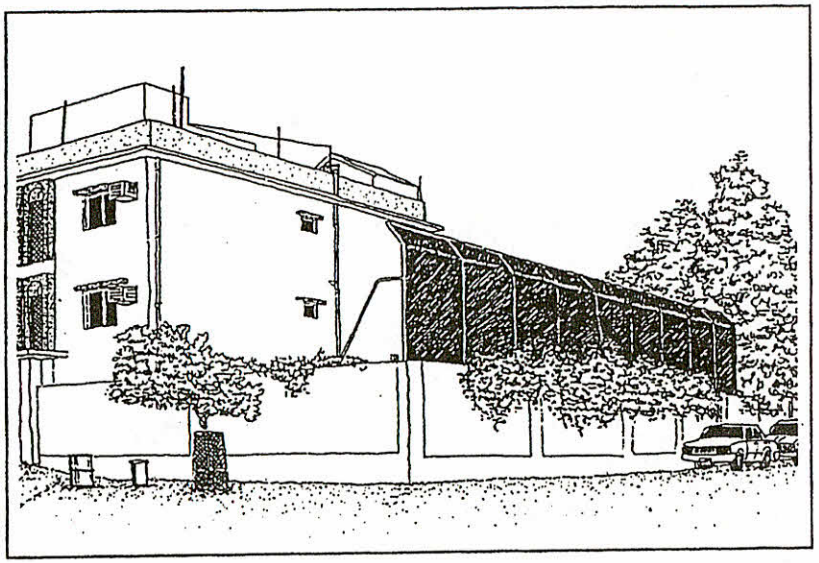

Figure 20.11 Metal screen to add privacy to a walled compound

20.7 Riyadh Master Plans

In the late 1960s, the government of Saudi Arabia felt the need to control the growth of urban areas. Riyadh was the fastest growing city in the country and, at the same time, the country's capital. It was therefore the first city to attract the attention of authorities and, in 1968, the task of planning the capital was assigned to Doxiadis Associates of Athens. They were to formulate a master plan and program that would guide the development of the city.

In 1971, the final master plan for Riyadh was submitted; it followed the existing building regulations. Except for buildings already put up, the Doxiadis proposals reaffirmed the existing setback requirements in practice since the late 1960s in all residential areas of the city. This mater plan has set the base for a low-rise low-density housing growth which encourage the horizontal expansion of the city.

By the mid 1970s, Riyadh grew beyond the boundaries laid out in the Doxiadis plan—a result of the economic boom and concomitant pressure for development experienced by Saudi Arabia after 1973. In 1976 the task of revising the Doxiadis master plan and preparing execution and action master plans and development studies for Riyadh was assigned to SCET International/SEDES of Paris.

By this time, it had become clear that some of the proposals and regulations of the Doxiadis plan did not fulfill the socio-cultural needs of Saudi

society. SCET proposed revised zoning regulations, one of whose aims was to protect the privacy of individual homes and private grounds (SCET, 1982).[4]

In 1989 the Council of Ministers' issued a resolution which established a metropolitan boundary for Riyadh the outer limits of which are referred to as the Urban Environs. Within the Urban Environs two phase limits— Urban Limits Phase 1 and Urban Limits Phase 2— Were delineated.[5] In 1996 Arriyadh Development Authority (ADA) started the Metropolitan Development Strategy for Arriyadh (MEDSTAR). MEDSTAR is a process-oriented approach to planning and development for the future of the city. It is not a static master planning approach whereby a long-term plan is prepared without consideration for potential future change of the city. MEDSTAR seeks to build consensus for a Planning Vision for Arriyadh, to identify actions to enable planners to monitor and respond to change, and to seek government support in the establishment of policies, structure plans, and plan implementation mechanisms by way of using regulatory an budgeting powers. As an end product, MEDSTAR is expected, when completed, to provide a 50-year Vision for Riyadh, a 25-year Strategic Planning Framework, a 10-year Implementation Program, and a Plan Implementation Strategy (ADA,1996).

However, as of summer 1997, the municipality of Riyadh continues to apply the grid land subdivision and the setback requirements in all low-rise residential areas of the city as formulated in the 1971 Doxiadis master plan.

20.8 Conclusions

Any society can in part be characterised by its predominant cultural and religious norms, by its wealth and the strength of its outside contacts, and by the technologies which history and geography have introduced to it. In this case there has been a clear progression from housing norms which

4 To achieve this objective, the regulations were to bring about two major changes: (1) Side and rear setback requirements in residential areas were abolished; and (2) Owners who wanted setbacks were permitted window openings from the second floor up, however certain conditions and standards had to be followed to protect the privacy of neighbors. The property owner either had to maintain a certain distance between any window and the property line of the neighbors, or the windows had to be designed to prevent direct sight lines into neighboring premises.

5 Urban Limits Phase 1 encompasses an area of approximately 632 km2, which are set aside for urban development up to the year 1995. Urban Limits Phase 2 encompasses an area, exclusive of Urban Limits Phase 1, of approximately 1,194 km2, which are set aside for urban development from 1995 up to the year 2005. Lastly, land that falls between the Urban Limits Phase 2 and Urban Environs boundary (approximately 3,120 km2 exclusive of Urban Limits Phases 1 and 2) is set aside for future development after the year 2005. The total land area including the Urban Environs is 4,900 km2 (490,000 hectares).

fitted both a traditional Muslim society and the fierce climate of central Saudi Arabia. But Saudi Arabia's resources have attracted foreign investment and given it great wealth, while also introducing it to new technologies. These new technologies have not arrived without some of the cultural baggage of their homelands attached – and whether it is at the scale of the house or the scale of the city, they have caused change in traditional design conceptions. The changes are both positive – large rooms and freer spaces – and negative – the loss of privacy, the internal court, and adaptation to the climate.

In the future perhaps instead of seeing a one-way evolution away from traditional styles trhough trnasitional ones, to imported styles, there can be a synthesis of the best of the two, which would create a housing stock once again accommodated to the new society (but old climate) of urban Saudi Arabia.

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