PLANNING & BUILDING REGULATIONS IN SAUDI ARABIA IN RELATION TO PRIVACY AND ISLAMIC TRADITION

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GlOSSARY

Ahl- Alkhebra = Group of expected people

Al- Amalique = The giant

Allah = God

Al- Mohajereen = The new comer or migrant

Al- Mujtahedeen = The investigator

Amana = Leaderships

Anssar = People of Madina Who support the Prophet

Atfa = Dead road

Bab = gate

Bazzar = Market

Buyut = Numbers of Houses

Dar = Individual's house

Darar = Harm

Daruryat = Necessities

Dur = The granting of land to an individual

Fiqh = Discipline of Islamic Law

Fuqhah = Experted people in Fiqh

Hadith = Saying of the Prophet

Hajiyat = Needs

Harah = Quarter or district

Haramlic = Women part in the Arab house

Hijrah = Migration

Hoquq Al- Jewar = Neighbour's right

Horeyah = Freedom

Ijma = Con currence

Ijtehad = Invistegation in Sharea

Ilm Al Hadith = The saying of the Prophet

Istehsan = Preference

Jami = Mosque

Khelafa = leadership

Kitat = Pieces of land

Kittah = Piece of land

Madrassa = School

Mahala = Quarter

Mafasid = Social evils

Manazil = The place where group of people lives in

Masalih = Social goods

Masjed = Mosques

Maskan = Home or the place where a person lives in

Mashrabia = Traditional Arab window

Qasaba = Linear road

Qiyas = Analogical reasoning

Quran = The Holy Book in Islam

Roshan = Traditional Arab window

Sakan = From Sakina or peace or house

Saramlic = Men's part in the Arab house

Share = Islamic jurisprudence

Shufah = Pre-Emption

Silm = Peace

Sunah = Deeds of The Prophet

Suq = Market

Sur = Chapters of Quran

Sura = Chapter of Quran

Tarik = Road

Zoqaq Khir Nafid = Cul-de-sac

Zoqaq Nafid = Local road

Yathreb = Pre Islamic name of Madina.

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

Arabic Islamic cities were found between the period of Prophet Mohamed's "Hijra" from Makkah in the year 622 A.D until World War I 1918, Many studies were undertaken in order to examine these cities both in terms of their forms and functions.

But very little concern has been shown in how the Islamic rules and principles, not only as religion, but also as a way of life controled the formation of these cities. We can see no great differencebetween city like Madina located in the Arabian Peninsula and Fez in Morroco, in terms of their urban design form, structure, and morphology.

In the last few decades most of these cities faced dramatic expansion especially cities located in rich countries, such growth did not follow the Islamic rules and principles. Therefore the new extension of the Islamic cities do not have the same Islamic identification as the old one.

This dissertation will mainly examine and study the new districts in terms of the planning and building regulation, which controlled and formed the new parts.

1.2 PROPLEM IDENTIFICATION

Because of the high growth in the national economy of the Kingdom of Saudi Arabia in the early 1970s, which was caused by the sharp increase of international oil prices and its revenue to the government. This cause an enormous process of development and change, in practical terms this led to new needs and requirements in terms of jobs, cars, energy, and utilities. All these needs and requirement made the Kingdom of Saudi Arabia at that time an attractive center for many migrants to participate in the development of the country. As a result of that, thousands of housing units were required in the Saudi cities to accommodate the migrant people both from out side the Kingdom and from the rural areas. This enormous migration created considerable demand for housing which encouraged many developers to build housing projects and individual people were also encouraged by the effective government policy both in terms of land donation and interest free finance for private housing.

However, that led to enormous housing construction in new urban areas through out the Saudi cities, completely different from the traditional "Hara" in terms of urban form.

Unfortunately such new urban form was based on the land subdivision mainly divided on a grid system, and with a

requirment for the buildings to be set back from all boundaries.

Also this new urban form was designed with great respect to fulfill and follow the fundamentals of traffic engineering and roads standards, where very little or non respect was given to both people's needs for simply privacy and the magnificent traditional principles which involved many environmental control aspect. These new forms also were greatly dependent upon the latest construction technology and modern building materials.

People in the last few decades did not recognize that, the new urban form did not fulfill to a great extent their needs and desires in addition many social relations had been broken or lost during that period of time. This misconception was due to many reasons, the most important was the earlier mentioned economic situation. To take as an example Madina, being no exception from the others Saudi cities, had practiced the same situation, people now in Madina as in the other Saudi cities start looking and asking for some solution to their problems caused by the development of the new urban form. From my own experience of working in the Municipality of Madina, planning offices particulary in the department of buildings permits for two years, many people and architectes intimated that the existing planning and building regulation does not produce reasonable buildings both in terms of privacy and climatic

controls factors. I also found it very difficult to design reasonable building by following the existing regulations unless some exceptions were allowed. This happened when I started the design of a small complex which consists of three villas belonging to three brothers wishing to have traditional Arabic house with comfortable courtyard in the middle of each villa, The set back regulation made it impossible to design such a traditional house.

This dissertation aims to (a) examine and evaluate the existing planning and building regulations, (b) to compare these regulations with the Islamic principles. Additionally the dissertation will answer the questions, does the existing regulation fulfill the people needs ? ,and how do people react toward the result of these regulation ?

1.3 METHODOLOGY

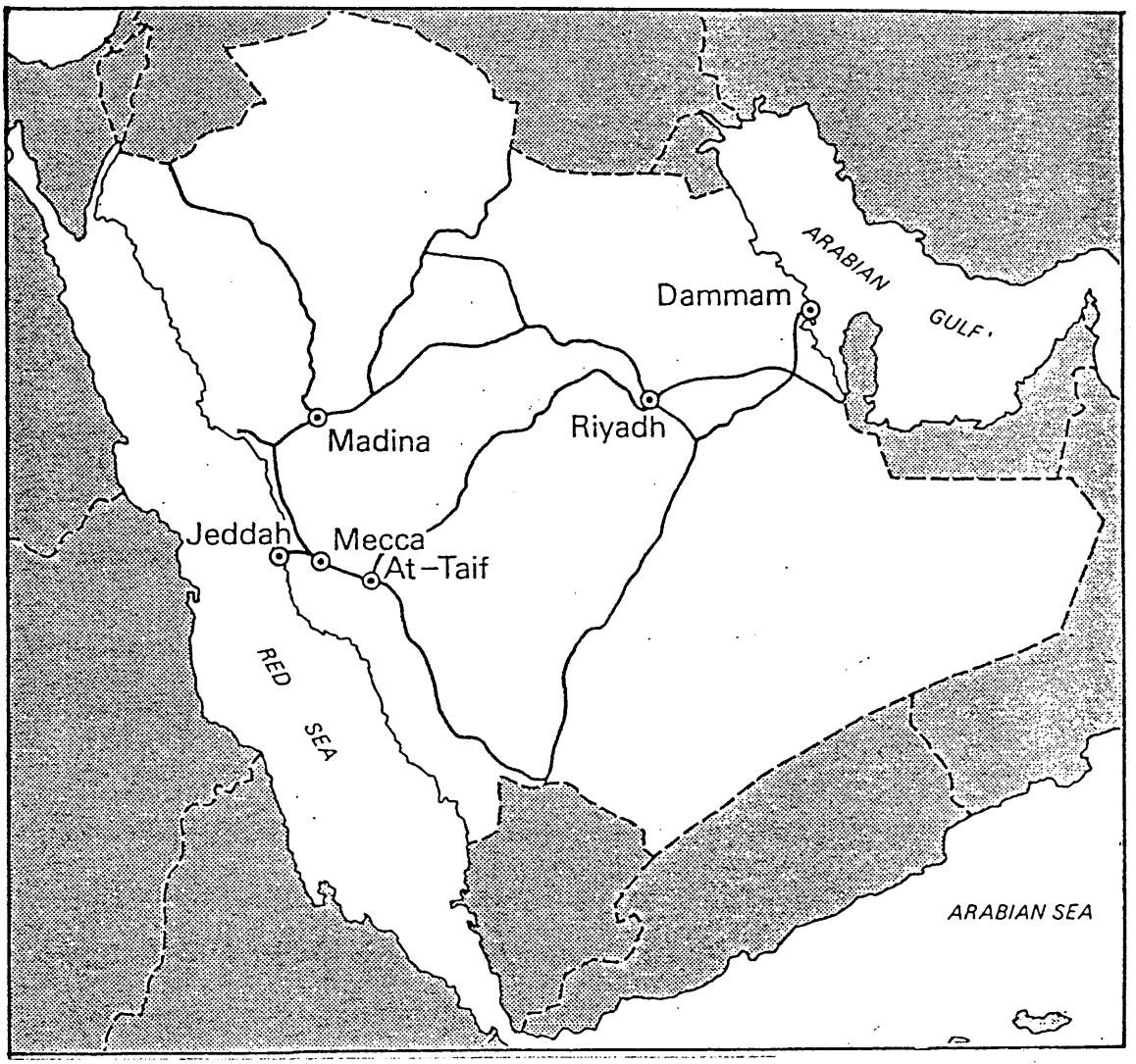
Reviewing the scope of the problem and the objective of the dissertation the following steps will be followed. (a) the first step will mainly determine and draw a general out line of the problem and how was it caused, hypothesis and methodology will be discussed in this step as well, then general back ground for the case study the city of Madina will be also highlighted. (b)second step will examine the Islamic principles towards planning and

building regulations, this will be carried out through the following steps (1) examining sources of legislation in Islam, (2) examining the Islamic principles related to the subject, (3) evaluating this legislation through the examination of some selected examples in the old part of the city of Madina. (c) third step will be like the second step but it will be applied to the new districts in the city of Madina where the new legislation is applied. (d) lastly some recommendation and the worked examples will be carried out.

1.4 HISTORCAL BACKGROUND

During the Fifth century the town of "Yathreb" the pre-Islamic name for Madina as some other towns emerged as an important station in the trade routes between the Roman empire in the north and Yeman in the south. It has been cited that the first people lived in Yathreb was Khanenale ebn Mela son of Prophet Noah.

It is also cited that the first people who build houses and planted the palm tree in "Yathreb" was "Al Amalique" the giants [1]. The city of Madina is located in green oasis in the western part of the Arabian peninsula (fig. 1.1). It is surrounded by Eear mountain and Al-Aqeeq valley from the south, Ohode and Thour mountains from the



Major Towns

Major Roads

International Boundary

Kilometres

0 600

0 400

Miles

Titel : Location of Madina

Source: Al-Shareef [2]

FIG 1.1

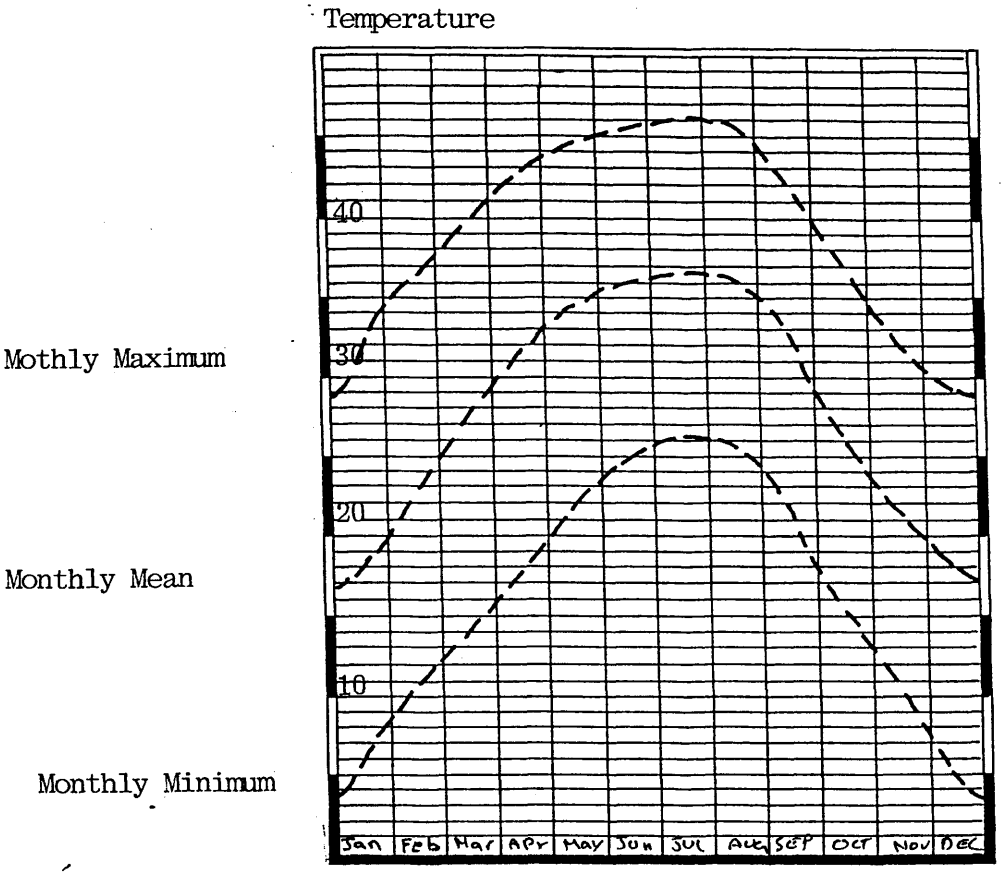
north, it is also surrounded by two great masses of lava rocks from the east and the west known as the eastern and western lava.

Conventionally Madina is characterized as a dry arid climate which is dry hot in summer and dry cold in winter. At the rates of high and low temperatures in Madina it ranges between 7-29 centigrade in winter and 26-44 centigrade in summer. As for humidity Madina is considered relatively dry, the percentage of relative humidity is 66 high and 10 low. The wind speed is around 32 km/hour prevailing from western direction fig. 1.2a, 1.2b.

The important part of the city history started after Prophet Muhammad emigration from Makkah in 622 A.D. After that emigration the city had a new function as a religious center during the Prophet life. A few years later it became a capital of a large empire. Yet the evolution of the city from a trade station on the trade routes to the capital of a grate empire did not take a long time, only 30 years. This could lead to the question: Whether the city location suit it's new and multiple functions? , The answer of these questions emerged very shortly as the fourth caliph after the Prophet's death Ali ebn Abi-Taleb chooses "Al-Kofa" in "Iraq" as the new capital, later and during the Omayade empire "Damascus" became the capital. Though it could be argued that the choice of Madina as the Islamic capital was essential as a temporary measure.

It was essential because Islam was assulted in "Mekkah" the city home for Prophet Muhammad. Islam was also rejected in the city of "Taife". But the people in Yathreb welcomed and supported the Prophet. Madina did not continue as a capital of the Islamic world for many reasons, the most important one was political, the Omayed empire emerged and it's capital "Damascus" was in the geographic centre of the Islamic world at that time.

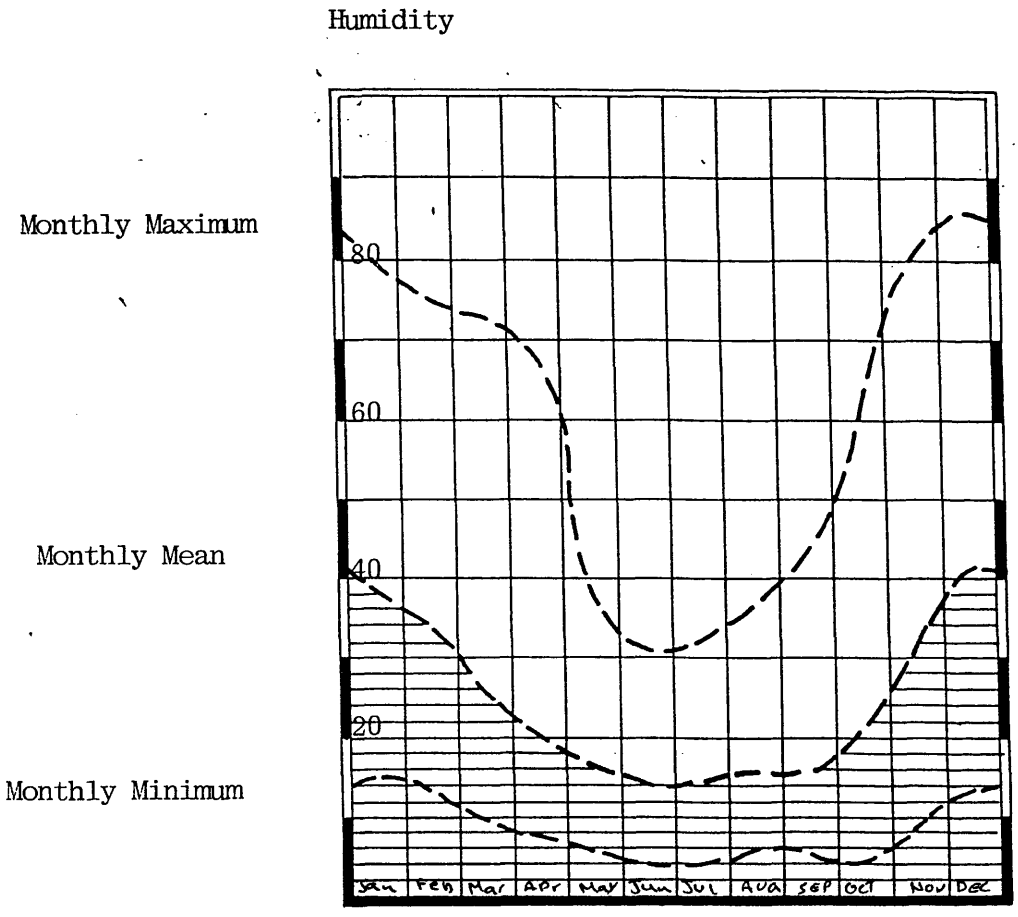
Therefore the city gradually lost some of it's functions but it is still distinguished as the second religious city in the Islamic world. That situation last until 1906 when the Hejaze rail way route between Istanbul and Madina was executed, From that time on, the city gradually developed and expanded exceeding it's wall which was built by the Othman empire 937-948. That situation lasted until 1932 when the existing Kingdom of Saudi Arabia was found, from that time on the city of Madina, as all the other cities in the Kingdom, faced dramatic development which changed the city's shape and form.



Titel : Average monthly Temperature of Madina 1984

Source: Saudi Arabian Meteological Department, Madina Station [3]

FIG 1.2a



Titel : Average monthly values of humidity 1984

Source: Saudi Arabian Meteological Department, Madina Station [3]

FIG 1.2b

1.5 NOTES FOR CHAPTER I

[1] Hafiz A. 1985 Fosul Men Tarikh El Madina

[2] Al-Shareef M. 1986 Islamic Tradition, An analysis Of It's Impact On The Islamic City, M.Sce Thesis, UWIST, Wales.

[3] Saudi Arabia Meteorological Department Station Madina 1984.

CHAPTER II

PLANNING & BUIDING PRINCIPLES IN ISLAM

2.1 SOURCES OF LEGISLATION IN ISLAM

Islam was the last religion on earth which occurred in the Arabian peninsula 14 centuries ago. That was by the mission of Prophet Mohammad "upon whom be blessing and peace" in Makkah.

The word Islam mainly came from "silm" or peace but in practice it means that all followers should abandon themself to God.

The missionary of Prophet Mohammad "upon whom be blessings and peace" carried out the fundamentals of Islam not only as religius matters praying, fasting pilgrimge, etc. But also as a way of life which involves secularal matters as well.

That was through the establishment of "Sharea" which in Arabic literally means the way which should be followed or the Islamic Jurisprudence.

Mainly there are four sources for "Sharea" in Islam which are cited below.

2.1.1 The Holy Quran

"Quran" precisely means the book to be read, "Quran" contains the sayings and instructions of God revealed to Prophet Mohammad "upon whom be blessing and peace". Quran

mainly consist of 114 "Sura" chapters, each one is divided into verses. These "Sura" mainly contain the general Islamic Legislation of all aspects of life, religious, secular, economic, politic, commerce, social, etc.

However, "Quran" is considered as the ultimat source of legislation in Islam, Muslims as believers should sharply refer to and follow what is indicated in Holy Quran, otherwise they are transgressors, culprit and delinquents. Holy Quran sayes

> "These are verses of the Quran- a Book that makes things clear; A Guid; and glad tidings for the believers" [1].

2.1.2 "Sunnah, Hadith"

The second source of Legislation in "Sharea" is "Sunna" which litrally means the way or the method. And in practice it means the sayings and deeds of Prophet Mohamed "upon whom be blessing and peace".

It mainly elaborates and explains the Holy Quran in a practical way, also it represents a technical manifestation by the prophet to his followers, to implement the rules of Holy Quran; Sunnah has been defined as

> "Most of all it is the model pattern of behavior. It demonstrates how the Prophet's thoughts and deeds were

> grounded in the external verities of the Quran as well as in the realities of the social and national enviroment in which he lived. The authority of Sunnah spring from explicit declaration in Quran"[2].

"Sunnah" is a principle rule for all Muslims to follow as cited in the Holly Quran

> "....So take what the Apostle assign to you and deny yourselves that which He with holds from you. And after God for God is strict in punishment" [3].

2.1.3 "Ijma"

In Arabic "Ijma" literally means consensus or concurrence. In practice it means general agreement in terms of decision or openinion by the community toward particular problems. It has been difined as

> "The decision of "Al-Mujtahedeen" or those who know better in the community" [4].

This source had been carried out from Holy Quran

> "if anyone contends with the Apostle even after guidance has been plainly conveyed to him, and follows a path other than that becoming to men of faith, we shall leave him in the path he has chosen and land him in hell, What an evil refuge" [5].

That was also supported by the saying of Prophet Mohamed

"upon whom blessing and peace" where He said

> "My people will never agree on an error" [6].

"Ijma" is the basic rule after the "Holy Quran" and "Sunnah". During the period of the four Khaliphs after the death of the Prophet critical legislative and political decisions were taken through "Ijma". Therefore, it was and is still considered as one of most important legal principles in Sharea.

2.1.4 "Qiyas"

The last source of legislation in "Sharea" is "Qiyas" which literally means in Arabic measuring or comparing. Practically it means the deduction of legal homology or similitude, ie; wine was prohibeted in the Holy Quran corrispondingly bad drugs such as Heroin are also prohibeted sence it has the same affect.

"Qiyas" gained it's legal basis from the Holy Quran;

> "And such are the parables We sent forth for mankind But only those understand them who have knowledge" [7].

2.2 ISLAMIC PRINCIPLES IN PLANNING & BUILDING DESIGN

According to the Islamic faith, "ALLAH" God create all the creatures to accomplish two important things, Worship of "ALLAH" God the Lord and reviving or developing the earth.

Human beings as the leader among other creatures have been distinguished by their brain and knowledge. They have been asked and are responsible for the reviving of the earth. Since God bestowed to them all available and required resources in the earth. This requirement of reviving the earth has it's legal basis in Islamic legislation "Sharea".

First Sharea defines the nature of the relationship between human beings and their environment. The relationship between man and the environment is classified as

> "A relationship of utilization, development and subjugation for man's benefit and for fulfillment of his interest" and
> "-A relationship of menditation on, and consideration of the universe and what it contains" [8].

However, God gave the man "Amana or Khelafa" which litrally means in Arabic the leadership, furthermore, God asked them to revive the earth, He gave them also

guidances in terms of rules and regulations which human beings should refer to and follow.

In Islam, there is no precise written legislation regarding planning and building design, but what is available are some interpretions from the above mentioned four sources of legislation. Later these interpretations were developed into a discipline of Islamic law called "FIqh" which in Arabic litrally means the human penetration or perception of "Sharea".

"Fiqh" mainly aims to obtain better understanding of two important aspect, "Masalih" or social good and "Mafasid" or social evils. They has been defined in term of planning as

> "The over all meaning of "Masalih & Mafasid"
> in planning, The allocation and design for public needs, such as the scarce resources, for example, water, the land use, crops and so forth should not be selected merely on the basis of the highest interest return, but it would be rather to facilitate the public need and interest.
> Furthermore, the concept of "Masalih & Mafasid" reflects the attempt of Islam in using the rationality of planning the urban area. This rationality appears in the fact of isolating the harmful things from the residential areas because it come under the title of "Mafasid". In the meanwhile, it encourages the allocation of different land use in accordance with the public need and interest" [9].

2.2.1 City Planning

Initially, the first Islamic rules in planning are dated back to the times during which the Prophet stayed in "Madina". "Madina" was called "Yathreb" before the Prophet's arrival to it, soon after his arrival the Prophet called "Yathreb" "Al-Madina Al-Monawara". The word Madina per se means city or town. Madina was the first town in the Islamic world, which was partially planned by the Prophet. However, the Prophet engagement in planning the city recalled the first attempt to the findings of planning rules in Islam. There were no clear ideas regarding pre-Islamic situation of the town in terms of city planning. That situation was describe as

> "Before 622 A.D, Madina was a group of independent settlements not united into one city until after the prophet Mohamed "Hijra" immigration" from Makkah. The original settlements, however,seem to have preserved their names as "Manazil" or residential area or "Buyut" houses of each tribe,and seem to have later taken the form of quarter within the city" [10].

Population of Madina had increased very sharply by migrants who migrated to Madina before and after the Prophet migration from "Makkah". Such substantial population growth of "Madina" made it an attractive center for other Arab tribes. Accordingly new development was essential to accommodate the newcomers and also to serve

the new function of the city as a religious center for the new religion Islam. That development process was carried out under the direct control of the Prophet himself. The first thing the Prophet did after his arrival was the choosing of the mosque. That was explained as

> "It is said that when the prophet entered Madina he did not want to decide by himself where to settle, and he therefore left it to his camel, asking the "Anssar" people of "Madina" not to make the camel kneel down in any of the place but leave her until she would stop and kneel down herself" [11].

However, we can not take this process of chosing the mosque location as planning principle but Moslim people believe that the Prophet's camel was ordered by God to kneel down in that location, it might be interpretated that some animals have the abelity to distinguish the micro claimte better than a human being. Though by that process the Prophet chosed his mosque location. That location also accommodated the prophet "Manazil" houses for his family.

However, that area was seen to be designated as the new central area for Madina, later the Prophet started the donation of surrounded land to the newcomers, the land was donated to the Prophet by "Al- Anssar" the original owner. The donation of land was practiced by the Prophet both to tribes and individuals. In the case of tribes donation,

the Prophet left the distribution of each "Kittah" or the devision of land into small "Kitat" to the leader of each tribe, Yaqut(d 1229 A.D) describe that as

> "When prophet arrived at Madina he granted the "dur" and quarter to the people. Thus he marked Kittah for Bani-Zahran in apart of the place behind the mosque, and he granted Abdullah and Utba the sons of Masud Al-Hudhali their well known Kittah near the mosque , and he granted Al-Zubair ibn Al-Awwam large spot, and granted Talha ibn Ubaydallah the site of his dur. When the Prophet was granting these fiefs to his companions, those which were non arable land, he granted them, while those Kitat which were settled, were donated to the Prophet by the Anssar, those he granted from these whatever he wished." [12].

From these statements it could be indicated that at that time Madina was set up into quarters, each was accommodating the members of specific tribe, furthermore Ibn-Shaba when he cited the quarter of "Al-Mohajereen" the newcomers he declared the presence of some local mosques in some of them [13].

Later on the Prophet allocated the place for "Suq" the main market, it was 150m from his mosque. Al-Shareef indicated that the Prophet said to one of his follower "this is your suq, it is not to be built on or acquired and no tax is to be levied on it".

From what is mentioned above the development process in Islamic city planning could be discussed in relation to

three majors features of the Islamic city; (1) the location of the central mosques "Jami mosque", (2) subdivision of "Kitat" into homogeneous quarters, and (3) the road pattern. The old part of the city of Madina is used below as an example.

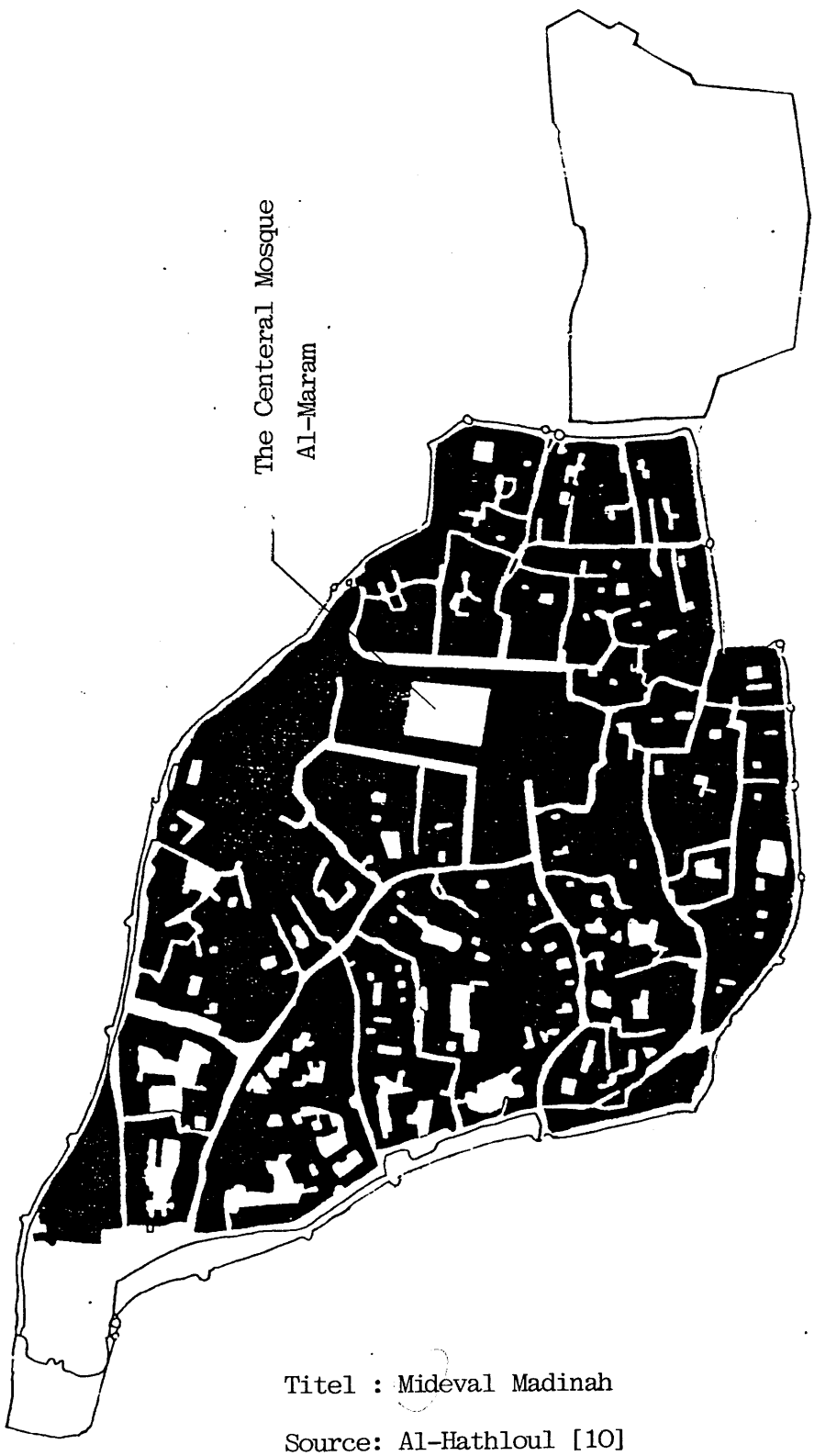
2.2.1.1 Main mosque location

The magnificent location of the main mosque or " Jami" mosque in the center of the city is shown in figure 2.1. "Jami" mosque deserves that location because its function was not purely religious function but also it was to include educational purposes for the Muslim people where they can learn their religion in the mosque, also it was considered as a guest hall for the people who come to see and talk with the Prophet. Furthermore, it was also the governmental and administrative center where many political and secular decisions were taken in the mosque by the prophet and the khaliphs after him.

To accomplish the previous functions that mosque required some open space around it.

Central mosque was described as

> "The congregational "Masjed Al-Jami" which in the past, as today, was the most obvious, largest monument in the city accessible to all Muslim, But this "Masjed Al-Jami", or simply "Jami" as it



Titel : Mideval Madinah

Source: Al-Hathloul [10]

FIG 2.1

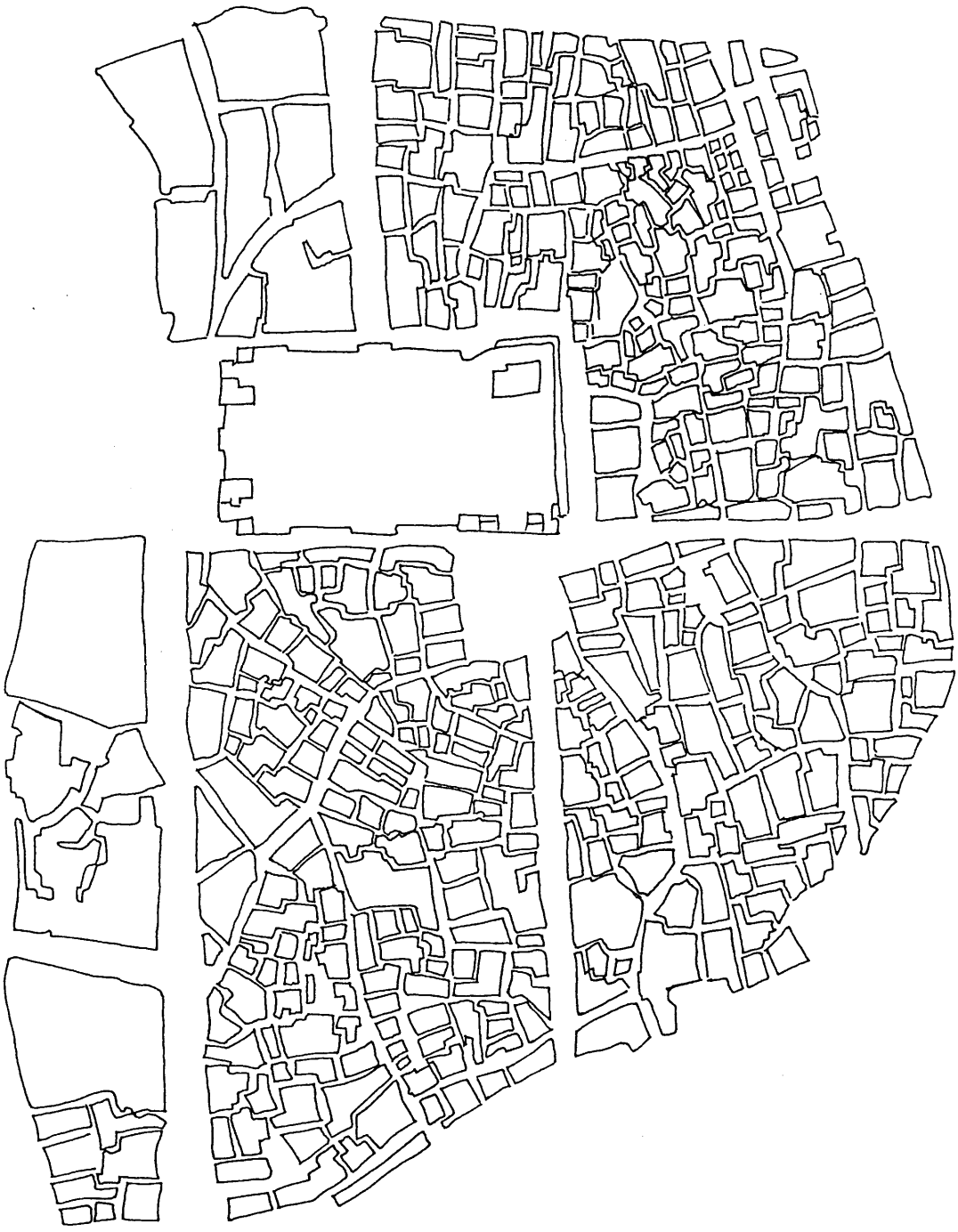
> become known from IV/10th or V/11th centuries onwards, was in many ways less a reflection of the symbol and the instrument of a broader authority, that of the caliph and his representatives" [14].

Later on and according to the expansion of the city which leads to the requirements for more public services the main mosque start losing some of it's functions and is replaced by other well designed institutional buildings such as "Madrasa" or school these are also very close to the main mosque.

2.2.1.2 "Kitah", "harah", quarters

As was mentioned early it seems that the tribe's and individual's "Kittah" formulated at the time as the city quarter in a homogeneous pattern fig. 2.2a, 2.2b, 2.2c. Land subdivision was left to the leader of each tribe until the buildings were so full of people that the district had to be closed, this procedure was described as

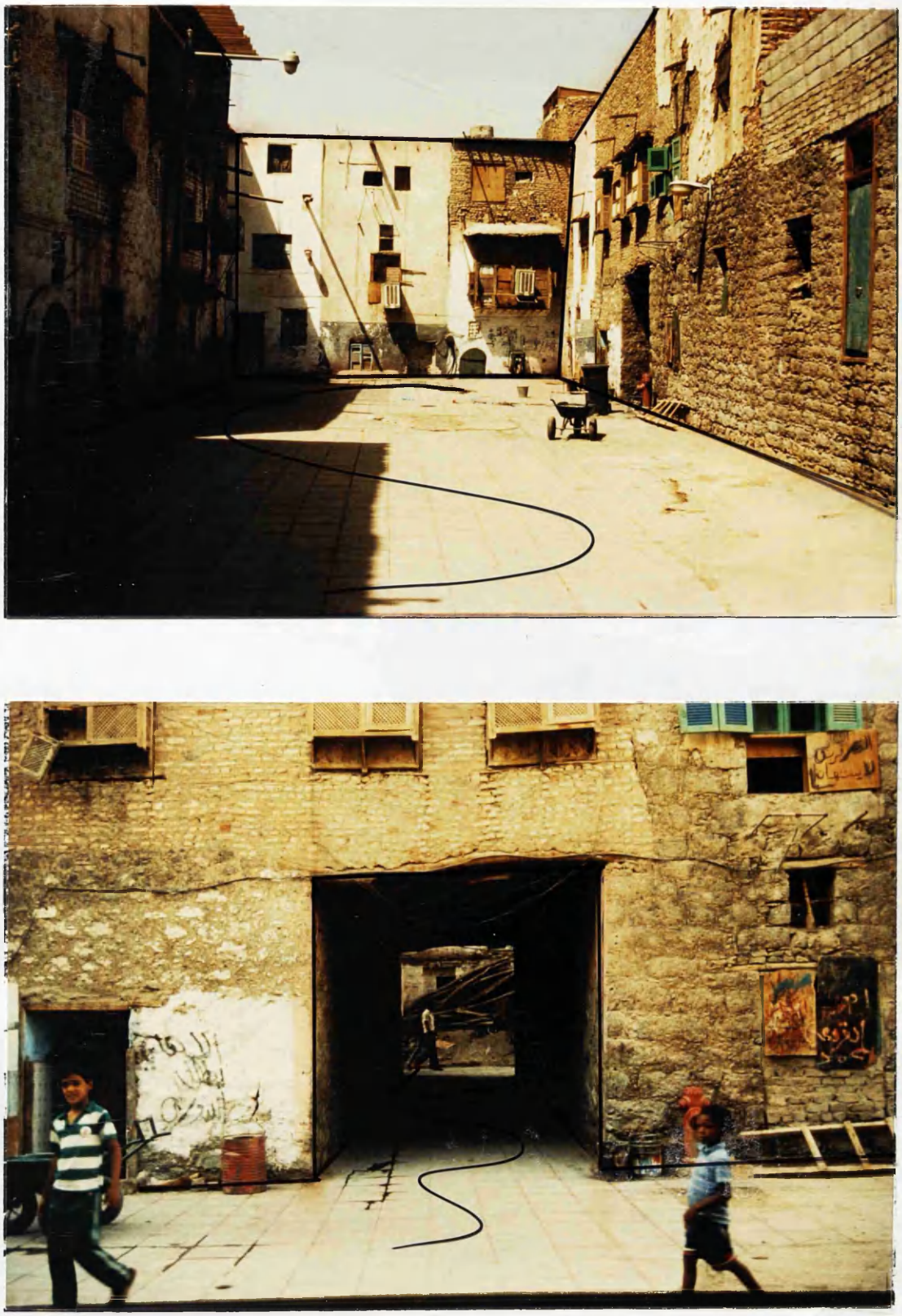
> "Land subdivision within the "Kitat" appears to have developed according to needs, this can be seen in Al-Suyuti's account of Al-Fustat..... he reported that when reinforcement arrived and people become numerous, each party made room for it's relatives, till the building was so full that the "kittah" of Jazah closed" [15].



Titel : Traditional quarters in old parts of Madinah

Source: Al-Shareef [9]

FIG 2.2a



Titel : Hara in old Madinah

Source: The author [49]

FIG 2.2b

Titel : Traditional Hara in old Madinah

Source: The author [49]

FIG 2.2c

Furthermore, the Islamic rules toward alteration within the quarter and subdivision of "dur" were under the two following principles "Shufah" or pre-emption which give eligible right to a neighbour to buy his neighbour's house or land if it is offered for sale. That enhanced to a great extent the homogeneous pattern within the quarter. Second principle was the rules of inheritance, where the very close relative of the persons such as son, father, brother
etc. has the right to inherit from them after death. Inheritance has very complecated rules which determen the amount and share of each member of the family. The Islamic jurisprudence scholar's believed that any property, land, buildings, etc. inherited by a group must be divided amongst them regardless of the shape and amount of this property,

> "The bath-house, the cistern, the house, the piece of land or the small shop in the market, are all to be divided among the inheritors...even if the share of each one can not be used" [16].

That could justify not only the compacted urban form within the quarter, but also the social solidarity among the people in the quarter. Self-sufficientcy is also another important feature in the Islamic cities quarters.

These districts developed independent facilities according to the occupant's needs ie; local mosque,

"Madrasa" school, local market, etc.

This demonstrates that the locational distribution of the quarters was following particular orders within the Islamic cities urban patterns. In the newly found cities such as Madina that order was influenced by the multi function mosque or "Jami" and the citadel, it is also affected by the main routes leading into and out of the city.

Moreover the particular needs of the quarter such as water resources, streams, canals, etc., influenced that order as well [17].

2.2.1.3 Streets & roads network

"Al-Madina Al-Monawara", as all Islamic cities, is characterized by it's complicated circulation system, dominated by narrow irregular roads coinciding with the human scale to serve pedestrian movement (fig. 2.3).

Development of that system was described as

> "In the Islamic Empire, ... The public ways developed after the residential cells were allocated"[18].

As mentioned previously the Islamic cities were shaped mainly by the allocation of the "Kittah" quarters in an

Titel : Narrow street in old parts of Madinah

Source: The author [49]

FIG 2.3

analogous groups or by tribes, that allocation formulated the pattern of roads which latter on was classified as "Qasaba" linear road, " Zoqaq Nafid" local road and "Atfa or Zoqaq Khir Nafid" dead road or cul-de-sac.

Qasaba was running from the city wall's gate through the city center to the opposite gate in the city wall. Along this main road was the "Jami" the main mosque and other important facilities as well [19]. "Zoqaq Nafid" was serving limit number of "Kittah" or quarter if not one, This type was explained as

> "One can think of these streets as frontiers between not necessarily friendly neighborhoods and, as is the case for frontier areas, they were places where, trade and interchanges could be conducted in neutral setting governed by rule of truce" [20].

This type of road pattern usually ranges in terms of width from three to six meters, and is open to the main road "Qasaba". Lastly "Atfa" cul-de-sac characterized as being narrow bending alley pattern open to the local road, its width ranges between 1.9 to 3.7 meters [21]. This "Atfa" forms the interior path within the cells which served only to allow accesses to the individual dwelling units within the large residential block (fig. 2.1, 2.3) [22].

These types of alleys served a great deal to enhance the

social relation among the inhabitants in the same quarter. More over the pattern, hierarchy and function of the different types of roads in the Islamic city could be summarized as.

> "The network of public thoroughfares, which in Arabic have the following four interchanable terms:" Tarik al-Muslimeen, Tarik Nafid, Shari, and Nahj". The first three were used historically; however, the latter two have been widely used since the late nineteenth century in Tunisia. The system of through streets is composed of: (a) First order streets which make up the backbone of the system and connect all major city gates "Bab" with the core of the Madina where the major city mosque and surrounding "Suqs" are located. (b) Second-order streets which could be identified as major quarters "Mahalla" streets: these connect between the primary streets and are the main access routs within and between adjacent quarters. They tend to form shortcuts across the firest-order streets. (c) third-order streets which could identified as minor quarter streets. These provide access and linkages to areas within quarters "Mahalla" which are not serviced by the second-order streets. They tend to be used by people belonging to the quarter or other who require frequent contacts" [23].

However, it's worth refering to the Islamic principles for the circulation network of Islamic cities that could be extracted from some sayings of the Prophet, where some of them were dealing with the width of the thoroughfares and others were dealing with what activities are allowed and disallowed in the thoroughfare in order to control the

public behavior on it.

The basic concept regarding the road's width was to allow two fully loaded camels to pass, that was derived from the saying of Prophet Mohamed "upon whom be blessing and peace" in his Hadith

> "if you disagree about the width of the street make it seven cubits (each cubit is 46-50cm)"'Muslim via Abu-Huraira [24].

Further more there are some activities allowed to take place in the street others are not

> "Examples of disallowance in the streets: (1) Planting of trees in a public right-of-way. (2) Building columns or pillars in a public right-of-way. (3) The narrowing of a right-of-way for storage purposes by placing such items as wood, food and various loads. (4) Tying animals of burden on the street for a length of time. (5) In the "Suq" market area the following is disallowed: slaying an animal in front of a butcher's shop. (6) Disposing of items on the street, which might cause people to slip. (7) In narrow street (less than 7 cubits), not allowing downspouts and water outlet from walls to empty directly in the street. (8) Melting snow should not be allowed to settle in the street without sweeping, and the sweeping is the responsibility of all adjacent resident" [25].

The above mentioned three characteristics of the Islamic cities are considered as the basic principles during the Prophet era, but as time has gone on, Islamic cities have

dramatically expanding, accordingly the Islamic rules and principles were also developed to fulfill the needs and requirement and also to solve the problems raised during that development process, "Ijma" concurrence and "Qyass" similitude as source of "Sharea" jurisprudence developed new discipline of Islamic jurisprudence called "Fiqh" in the second century in Hijra/8th century A.D , "Fiqh" is the technical understanding of "Sharea". To reappraise the legal practices four schools of "Fiqh" were developed; Malik, Shafiee, Hanbali, and Hanafee. All these schools were based on the two main Islamic principles "Masalih" social good and "Mafasid" social evils. All these four schools agreed on the basic principles but some times they differ in the implementation in order to achieve the maximum "Masalih" and avoid "Mafasid".

This understanding of "Fiqh" led in terms of planning to some land use control to segregate what is considered to be part of "Masalih" social good like mosque, residential areas, market, public use, etc. From what is considered to be "Mafasid" or social evils like industrial areas, smelly market, etc.

Fiqh is also based on the Prophet's saying about harm to others, especially neighbors.

> "Do not harm others or yourself, and others should not harm you or themselves" [26].

From that saying a lot of principles were extracted such as the one which controlled the building height, where no one accordingly was allowed to rise his house in a way that could harm his neighbours in terms of sun light, breeze and privacy as well (fig. 2.4).

Furthermore, and according to that saying the allocation of openings of doors and windows were also controlled with great regard to the neighbor's doors and windows.

2.2.2 Buildings Design

As previously mentioned "ALLAH" the God the Lord asked human being for the reviving and developing of the earth. In order to do so He support them with his help and guidence. This section of the study will examine the Islamic principles regarding architecture in general and the design of residential unites "Sakan" in particular.

The early Arab house will be taken as a case study, some selected examples from the old part of Madina will be examined mainly in terms of design concept.

"Sakan"," Dar", and "Maskan" houses in Arabic litrally means peaceful, restful, and serene. The word "Sakan" mentioned in the Holy Quran more than forty five times [27].

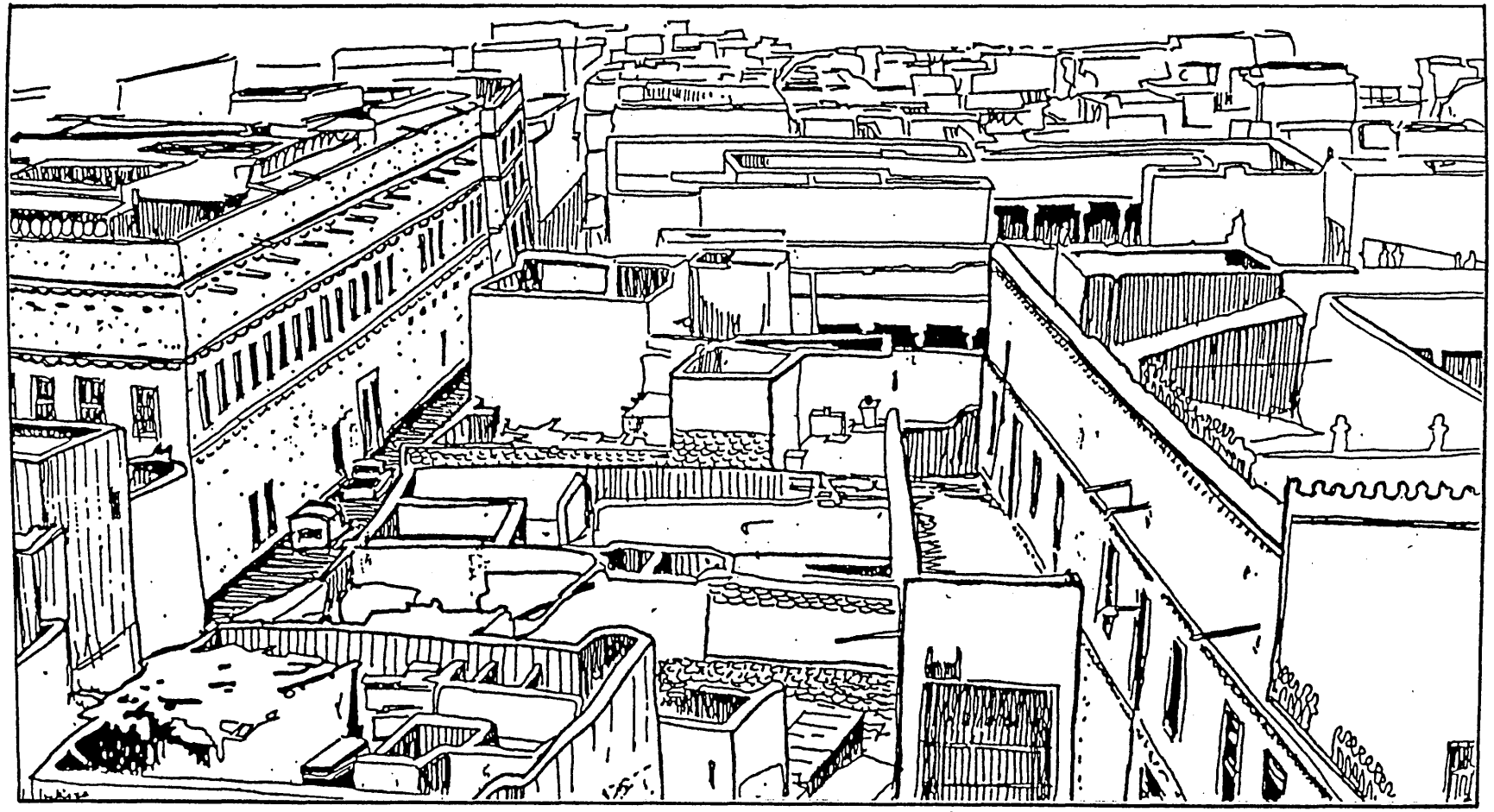


FIG 2.4

Titel : Similar buildings height in The Islamic city

Source: Al-Shareef [9]

That type of house was and still is known as the courtyard house (fig. 2.5), the concept of the courtyard was mainly derived from three important aspects which are as follows

2.2.2.1 Privacy

Privacy is an important principle in the Islamic rationalism and thinking. This aspect was considered as an essential active factor shaping the Arabic-Moslim house.

Warren and Fathi indicated the following statement about the Arab - Moslim house in Baghdad

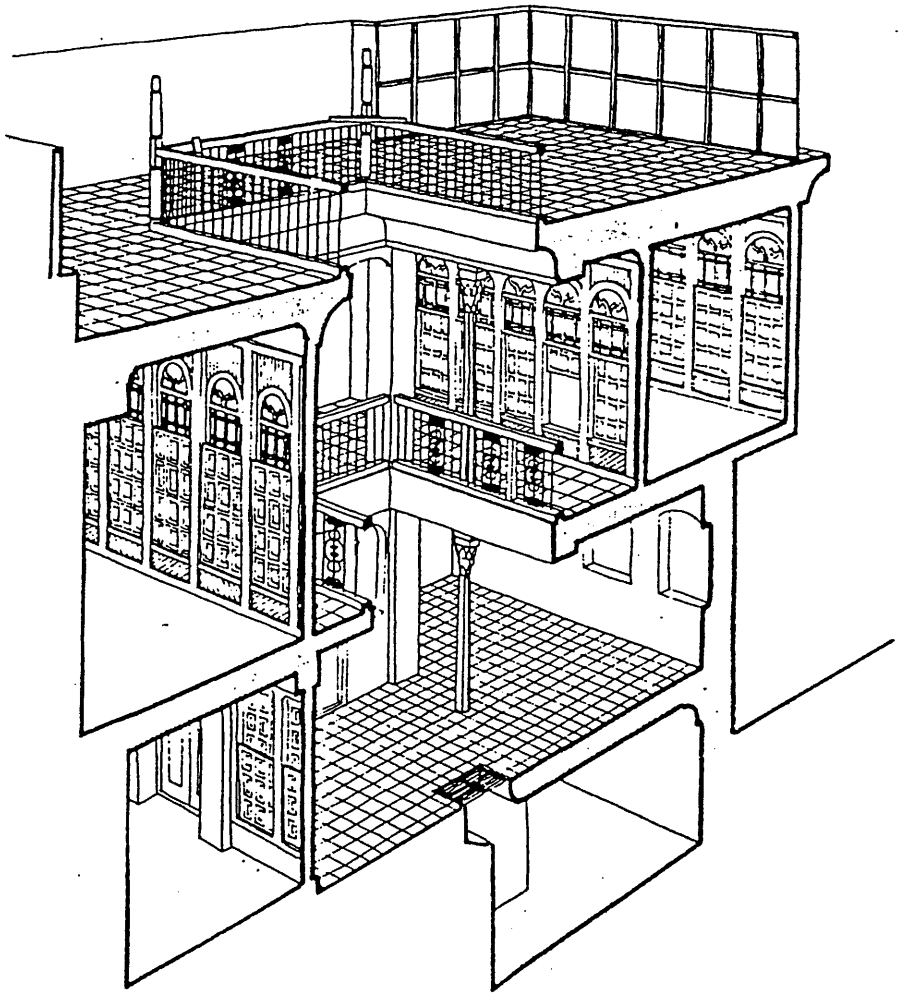
> "An overrding consideration in the design of the house was privacy and it is significant that the local word for a house "Maskan" derives from the root "Sikun" which literally means quite" [28].

More over this principle when applied did not resulted in the terms of privacy only but it had controlled many other elements such as treatment of windows opening and doors.

2.2.2.2 Hadith

The interpretations from the following Holy Hadith by the Prophet

> "Avoid sitting in the thoroughfares, they said it is difficult to avoid as it is our gathering place where we spend time



Titel : Courtyard house in Baghdad

Source: Warren and Fathi [28]

FIG 2.5

> talking. But if you insist then you should respect the right of throughfares. what these right they asked, Avoid stearing, do not create harm, salute back to those who salute you, bid to honour and forbid dishonour." Abo-Saeed Al-khodari [29].

Al-Bukharee who is considred as the leader in "Ilm-Al hadith" the sayings of the Prophet classified that saying in the courtyard chapter[30], it was the only one in the whole chapter. It could be understood from the saying that the clear desire of the Prophet was not to have people sitting in the streets but to reposetion this requirment to inside the houses instead of outdoors. This could be achieved by having good sitting areas in side the house such as a courtyard. The Prophet's own house is an example where it was designed around courtyard [31].

2.2.2.3 Social life

Due to the sharp separation between male and female in the Islamic life, an especial part of the Arab house was designated for female uses, it was called "Haramlic" other parts were designated for male uses which were called "Saramlic".[32].

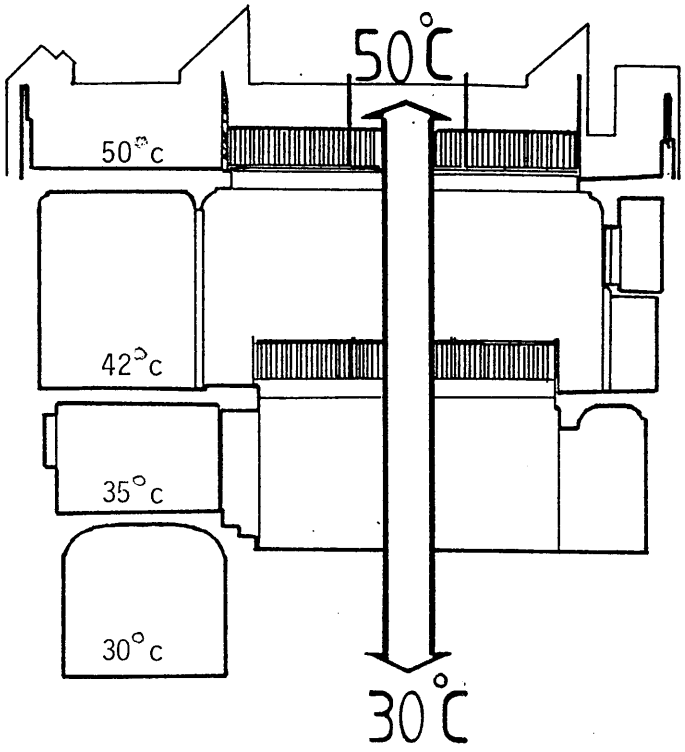
Perfect segregation between these two zones was essential, this was atchieved by (a) The use of multi levels within the same house where "Saramlic" occupied the ground level and "Haramlic" the upper one. (b) By dividing the house

into two zones, front one for "Saramlic" with the main entrance and back zone for "Haramlic" also with it's own entrance if possible.

2.2.2.4 Climate

The sharp climatic condition in the Arabian peninsula was also an essential factor in shaping the Arabic house. Where by applying the courtyard system, the residents of the house could enjoy a shaded area in their home most of the day time, although not at noon (fig. 2.6).

As mentioned above the concept of privacy was the most dominant and active factor in the design concept of the Arab house, other factors played their part in the design concept such as social life, building materials, climatic, and environmental adaptation in general but privacy was the dominant.



Titel : Heat control in the Courtyard

Source: Warren and Fathi [28]

FIG 2.6

2.2.3 The Arab House.

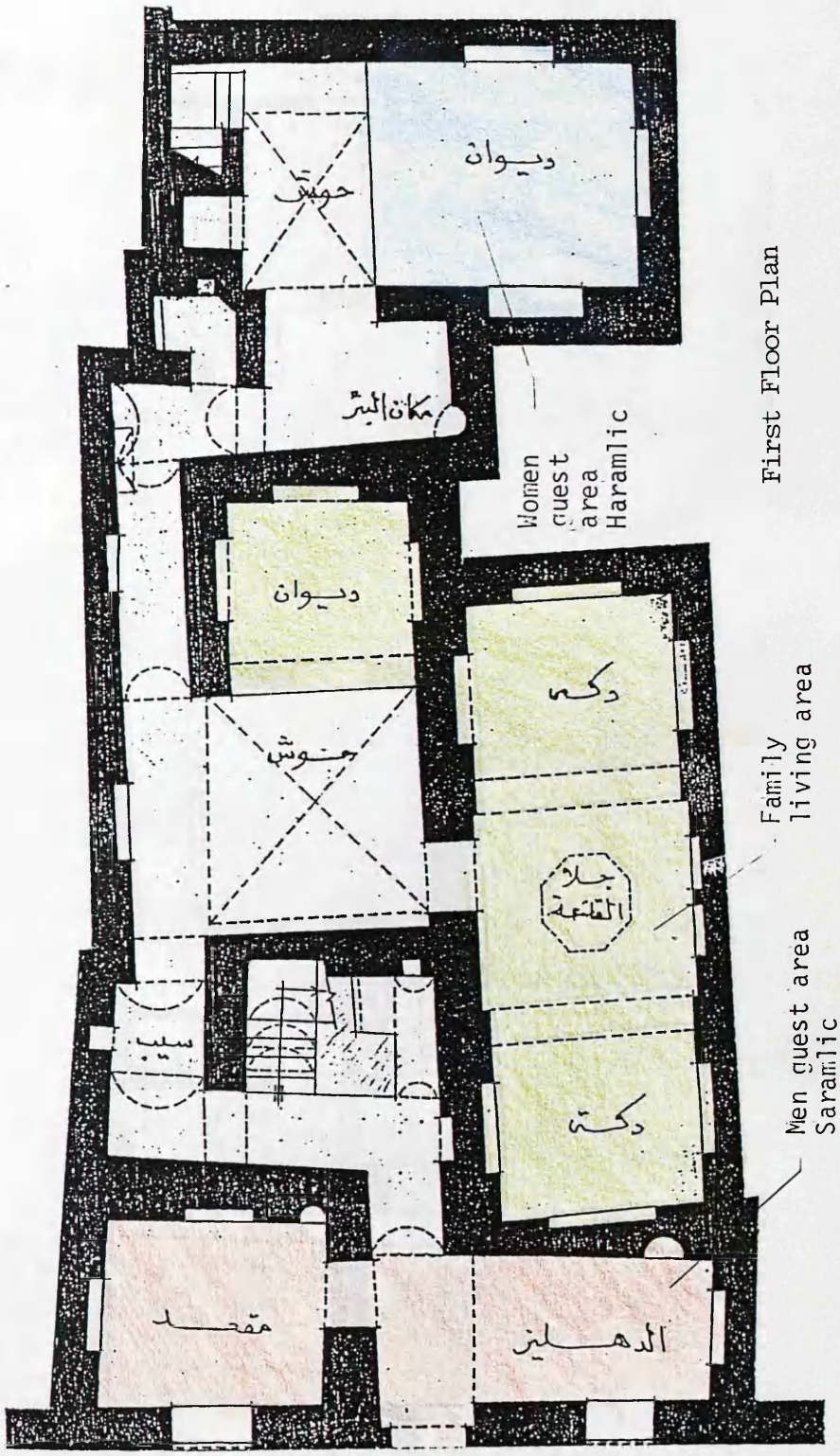
The traditional Arabic house was designed to accommodate multy generation families this produced the high social contact between the Muslim people. The design of the house was adaptable to accommodate three or four generations.

Furthermore and as was mentioned earlier that house was divided into two parts "Haramlic" and, "Saramlic", that separation affects the design and treatment of opening and circulation system (fig. 2.7a, 2.7b, 2.7c, 2.7d, 2.7e).

Bent enterance and covered windows "Mashrabia" were obvious. Mashrabia acts as screens preventing the passer by from looking in but enabeling the occupant to see out side , it also controls and reduces the amount of light entering a room thereby minimizing glare and dazzle (fig. 2.8).

Local materials such as clay, mud and bricks were the main building materials in the Arabic house, windows and doors were made of palm trunk and reeds [33].

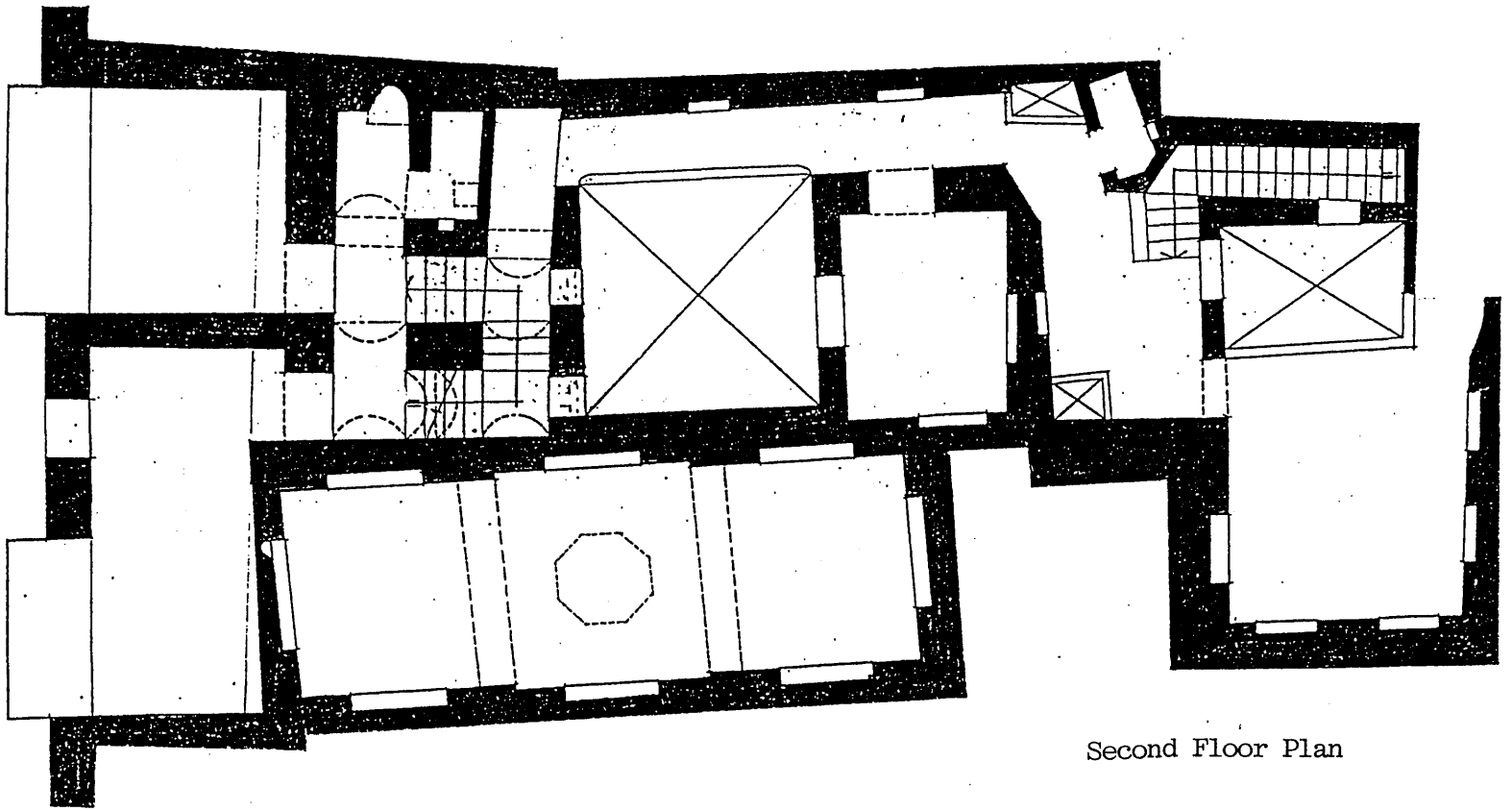
Later the use of stone if available was recorded. The heavy bearing walls and the palm trunk roof were the main structurel system. The heavy thick walls also act as an insulation material which reduce the the heat gain and increase time required for transmession especially in the



Titel : Traditional arab house in Madina

Source: Haj research center [50]

FIG 2.7a

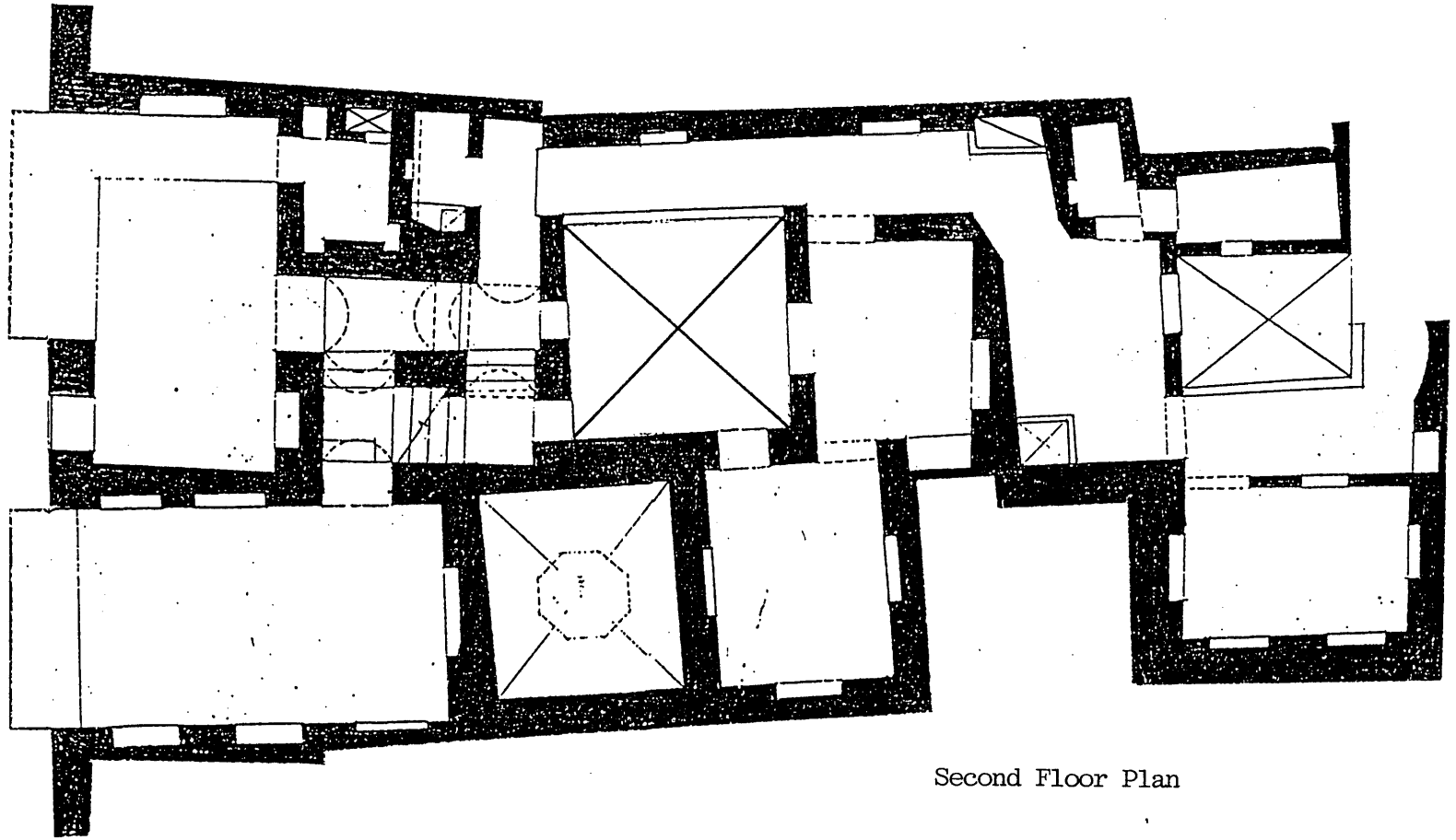


Second Floor Plan

FIG 2.7b

Titel : Traditional arab house in Madina

Source: Haj research center [50]

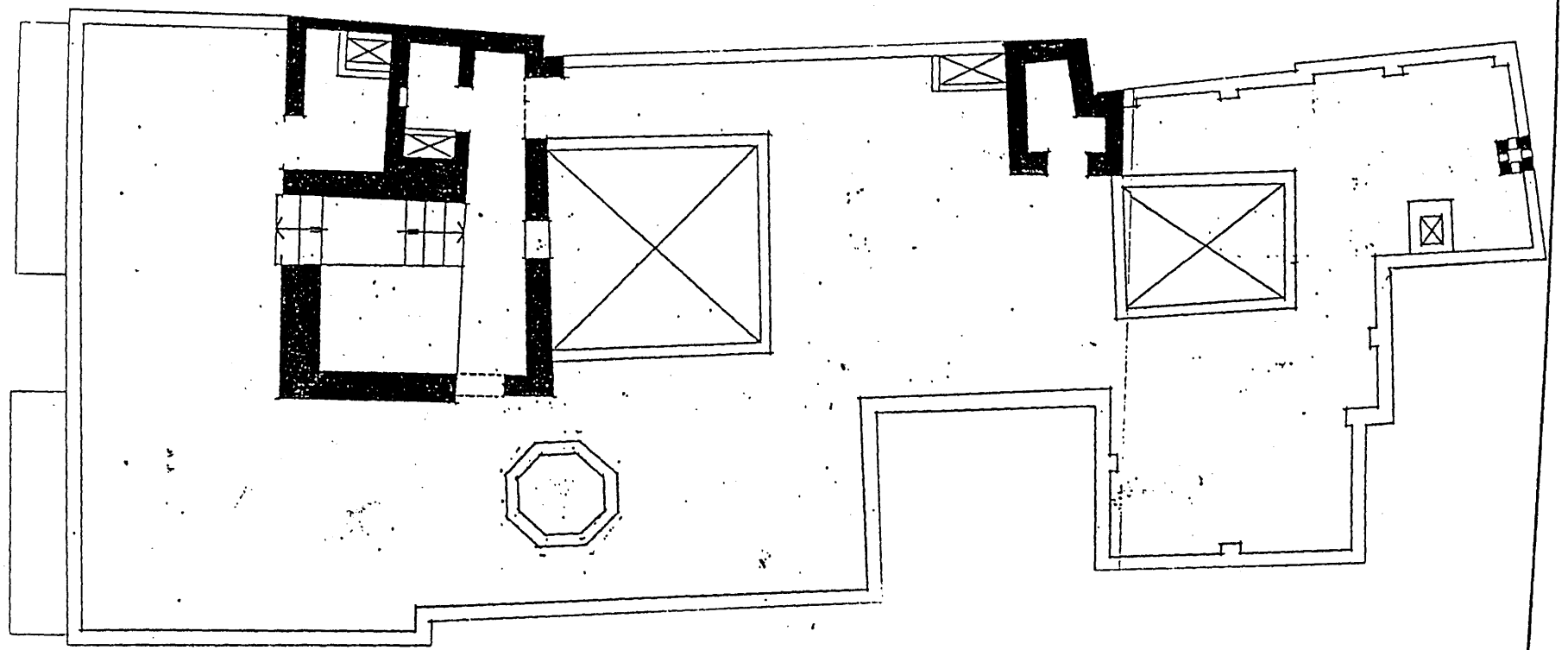


Second Floor Plan

FIG 2.7c

Titel : Traditional arab house in Madina

Source: Haj researhc center [50]

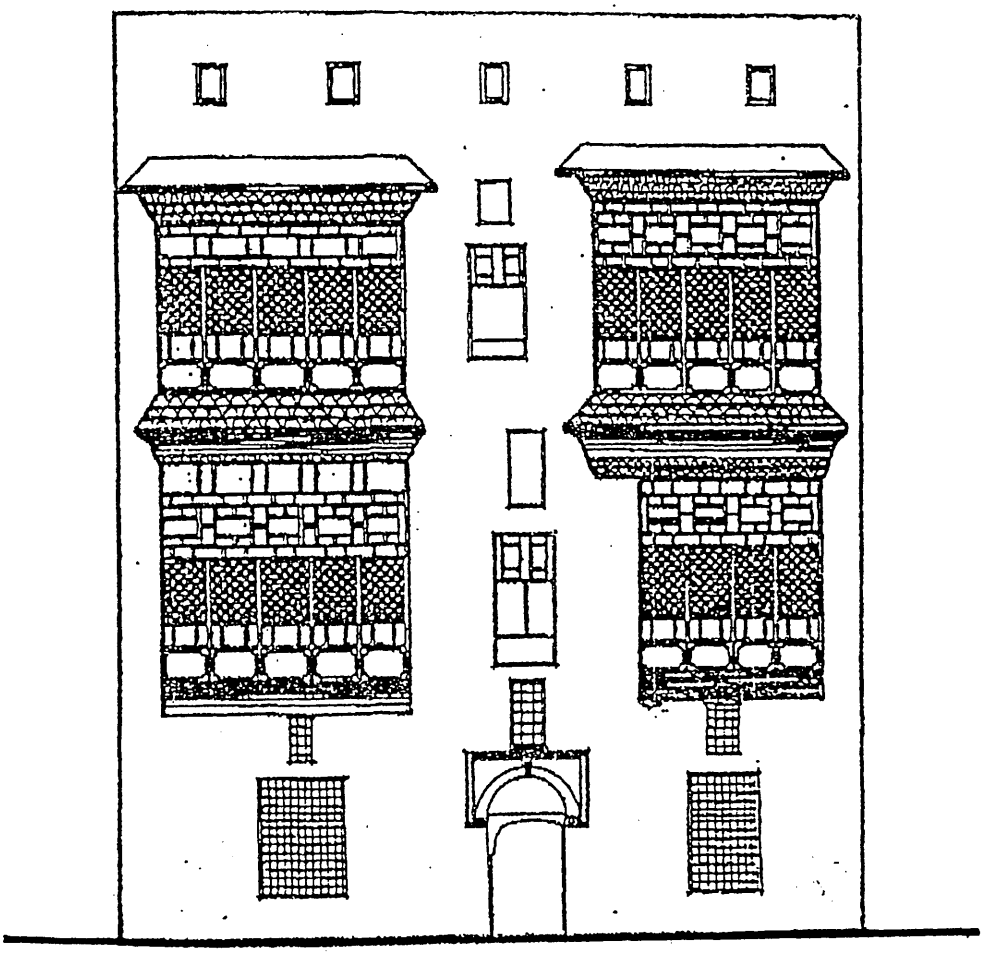


Roof Plan

FIG 2.7d

Titel : Traditional arab house in Madina

Source: Haj research center [50]



Elevation

Titel : Traditional arab house in Madina

Source: Haj research center [50]

FIG 2.7e

day time [34]. They also reduce the heat lose during the night time. The temperature transmession in such thick walls (79-100cm) is long enough to reduce the diurnal range of temperature considerably.

The Arab house involved many issues of climatic adaptation but the most important one was it's design concept with the indoor looking towards a courtyard this procedure minimized the inside temperature, and if the courtyard is planted or fountaind this also increased the humidity in the house to advantage. It has been found that

> "The courtyard always acts as a "temperature regulator" in the house fig. 2.6, and the use of trees in the courtyard was mainly to provide shade in summer" [35].

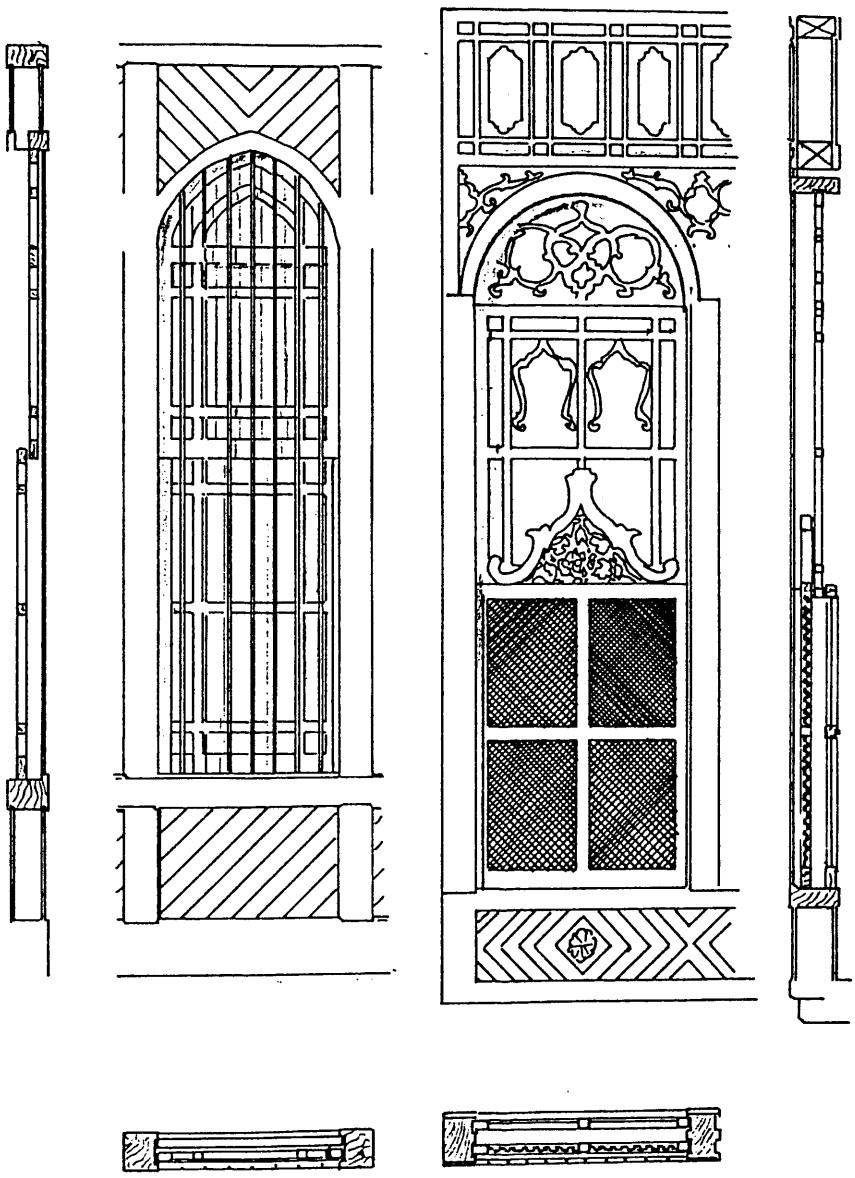
The use of two courtyards within one house existed, this was to enhance the ventilation system of the house. One of these courtyards was planted other was not. The planted courtyard remained shaded and cool, the unplanted and therfor, sunny became hot with a consequent in air presure which caused it to rise and start an air current between the two courtyards which were conected by under ground channels.

Al-Rabdi experimentally proved that, in order to reduce the interior temperature, heavy thick walls (50cm) were built around the house. He reported the interior

temperature was less by 4 c than the out side one in summer and it was higher by 3 c in winter [36].

Finally it is easely observable that the Arab house was divided into particular zones to serve particular requirement, for instance the residents used the roof for sleeping at night, further more they used the ground floor for the summer season and the upper floor for the winter season.

Orientation of the building was also carefuly designed and allocated to maximize shaded area in order to expose less amount of external wall to the sun and also to orient the breeze through the narrow alleys. The use of wind catchers was obvious where they forced the wind to pass through a wet service jar in order to dampen, cool it and absorb dust."Mashrabia" or "Roshan" (fig. 2.8) have been mentioned under privacy they also contribute to the climate factors by shading the the openning also by hanging small jars of water, the breeze was moderated through evaborative cooling, the amount of dust was also reduced.



Titel : Traditional Arabic Mashrabia

Source: Warren and Fathi [28]

FIG 2.8

2.2.4 "Masalih", "Mafasid", and "Darar"

The Islamic principles of building design were like a planning concept based upon the following three principles "Masalih", "Mafasid", and "Darad" or harm. These were manly abstracted from the following verse of the "Holy Quran" and the sayings of The Prophet

> "And diminish not the goods of people, and do not mischief in the earth working corruption" [37]
>
> "Do not harm others or yourself, and others should not harm you or themselfes." Ahmad and Ibn Majah [38].

Accordingly the relation between the neighboures was controlled in order to stop the councelling of any harm. Al-Hathluol classified as harmfull three items smoke, odor, and sound as vibration.

2.2.4.1 Smoke

Smoke was considered deleterious in Islam, that was according to the following verse from the Holy Quran

> "Then watch thou for the day that the sky will bring forth a kind of smoke plainly visible.
> Enveloping the people: this will be a penalty grievous" [39].

Two sorts of smoke were classified, the smoke of baking ovens, and kitchens, these were considered necessary and were therefore admitted; the smoke of bath-fires, furnaces mills and equivalent sources was not admitted [40].

In "Fiqh" many cases were reported concerning this matter, Ibn Al-Rami refers to the case of group of individuals sued to the Judge about the damage caused by the smoke of mills, Ibn Al-Rami indicated

> "The Judge asked us to inspect the mills, we found that it generating too much smoke in a way it was causing damage to the neighboures, Accordingly the Judge ordered the mills to be stop" [41

2.2.4.2 Odor

The basis of preventing unpleasant odor is the convention of The Prophet which indicated

> "He how eats from this tree should not come to our mosque; he annoy us by the garlic's smell". [42]

Therefore it was obvious that unpleasant odor which anoy people should be suppressed, AlHathlol cited the following case regarding this subject

> "Ibn Al-Rami related the story of an individual who built an Arwa for small animals behind his neighbour's house, The neighboures complained about the damage caused, and the Judge asked Ibn Al-Rami

> to investigate the case, By looking into the case he found that the Arwa was new so told the Judge. The Judge then order both the Arwa and the animal removed" [43].

2.2.4.3 Sound & vibration

Any vibration which causes damage to the structure of neighbour's house should be removed. Ibn Al-Rami indicated that people in Tunis built their gate in such a way that the door movement was causing damage to the attached neighbour's wall, After his investigation in the case the Judge ordered those people to remove their gate and stop harming the neighbours [44].

Muslim "Fughah" jurist argued weather sound should be considered as source of harm or not, for instance Ibn Al-Qattan quoted

> "One should not be prevented from hammering iron in his house, even if he will do so day and night, provided that his livelihood depended on it" [45].

But Abo Al-Rafi the Judge of Tunis also declared

> "One should be prevented from establishing a stable beside his neighbour's house because the animals movement prevents sleeping of neighbours" [46].

Lastly it could be summarized that measurement of harm was critically resolved by very excpert people "Ahl Al-Khebra". on the basis of harm to others, using the two principles "Mafasid" and "Masalih". Accordingly "Ahl Al-Khebra" distinguished among land uses in the city with regard to people needs and requirement also with regard to the three principles mentioned above. Therefore, the industrial and smelly activities were located out side the city walls.

2.2.5 Conclusion

To conclude planning in Islam is mainly based on the concept of service to "ALLAH" God, through the recognition of the possible good to his creatures. However comparing this concept with the contemporary planning which is based upon the language of money and evaluated by cost, benefits, profit, and loss, it could be recognized that within the same context the Islamic concept was achieved through (a) Maximizing total benefits or "Masalih", and (b) Minimizing total costs or "Mafasid", (c) "Darar" or harm. But the abstractions of "Masalih, Mafasid and Darar" do not correspond to the western view of benefits and costs. In Islam performances are measured in terms of their outcome with regard to all the absolute necessities "Daruryat: religion and morality" and "Hajiyat: social needs". Yet examining the layout of an Islamic city in

this context, we can easily see the main mosque which deserve the ultimate value of "Masalih" dominating the nucleus of the city with accessible routs to the surrounding areas, furthermore to maximize the public "Masalih" the main "Suq", "Bazzar" or market was located very close to the main mosque. These principles were also practised in the residential quarters which were designed in a homogencous pattern both physically and socially. Latter on the planning principles develop legislations involving buildings height, land uses, and circulation networks.

These developments of the legislation were through the four sources of legislation in Islam mainly to segregate "Masalih" from "Mafasid" in the Islamic city.

Regarding the Islamic principles towards the individual building or house, it was also based upon the previous principles of "Masalih & Mafasid" besides the principle of harm "Darer". That was utilize to mean that individuals should not harm each other and also they should not be harmed by others. Islam declare that a house is a source of peace, tranquility and quiet for habitants.

> "It is God who made your habitations:
> Homes of rest and quiet" [47].

Therefore, houses should provide the following

-Protection from cold and rain,
-Protection from heat and sweltering,and
-Protection from the eyes or privacy.[48]

Consequently Prophet Muhammad "upon whom be peace and blessing" approved some Pre-Islamic design principles or traditions since these had led to the achievement of these conditions. The Prophet also executed some of that tradition such as the courtyard concept in his own house.

That approvment of tradition by the Prophet should not therefore be applied all over the Islamic world ie; the courtyard concept should not be applied for example in Malesia.

Lastly from the concept of "Masalih & Mafasid" have devloped planning controles affecting building height, neighboures right, position of the building , and even design decesion over doors and windows opening. The controles are ment to reflect the four sources of legislation in Islam.

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[49] Photographed by the Auther.

[50] Drawing has been drafted by Haj Research Center Jeddah Saudi Arabia

CHAPTER III

PLANNING & BUILDING REGULATIONS IN SAUDI ARABIA

3.1 INTRODUCTION

The Kingdom of Saudi Arabia, with an area of about 870,000 sq.mile, occupies the largest part of the Arabian peninsula. The history of modern Saudi Arabia begins with Abdul Aziz Al-Saud, the family of Al-Saud had reigned over much of the Arabian peninsula in the late 18th and early 19th centuries [1]. Yet in 1932 the present Kingdom of Saudi Arabia was established, as a result of that establishment security and stability covers all the Saudi areas, that mainly led in ground to (a) The Kingdom's cities and towns were able to cross the limited range of their walls and extend beyond them, and (b) The emergence of new urban areas to settle the nomadic bedouins tribes, this was in the form of new quarters in the existing cites and also in the form of new towns as well [2]. However the recent development of the Saudi towns is connected with two periods, the first is the oil period which is connected with oil discovery, production, transference, and storage, the direct impact of this period appears clearly in the eastern region, the second period is what may be called the period of economic boom and culture progress, which is currently being experienced by the Kingdom and cover all social life in the country [3].

In this part of the thesis the existing planning and

building regulations and their impact on the Saudi towns will be examined, taking the new quarters of Al-Madina Al-Monawar as a case study.

3.2 SOURCES OF LEGISLATION IN SAUDI ARABIA

Legislation in Saudi Arabia has two bases (a) the "Sharia" Islamic law, and (b) the Government decrees and law issued in the light of Sharia [4].

The first source "Sharia" has been explained in the second chapter of this thesis, Government decrees and law issued by the authorized government agencies mainly to manipulate and manage public interest. These include "Ijtihad and Istihsan" [5]. "Ijtihad" litrally means the deduction of logical mentality to generate advanced principles in order to maintain an appropriate rules to new problems [6].

Further "Ijtihad" is not restricted to certain group of people and is worked out for the public good. Though "Ijtihad" is the claim of the Governor, executed on his instruction by the various government agencies [7].

"Istihsan" litrally means preference or first choice, in practice it means the preference of new principles to preserve public interest[8]. Additionaly "Istihsan" is based on the fact that principles of "Sharia" though based on custom, can be changed if that custom changes,

therefore, "Istihsan" could provide a system of civil law on non religious matters [9].

3.3 PLANNING MACHINERY IN SAUDI ARABIA

Planning in Saudi. Arabia is perceived in two level (a) the national level, and (b) the local level. Both levels had participated in the development process in the Kingdom which includes the urban development. The following will discuss very briefly both levels.

3.3.1 National Level

National planning in Saudi Arabia first existed to meet economic problems which occurred during 1955-7. That problem was mainly in the form of government budgetrary deficits, however development of several government agencies took place in order to devise national plans which were tackling pure economic matters. Yet by the establishment of the first national plan national planning began to tackle some urban related policies, ie; the establishment of the Real Estate Development Fund (REDF)in 1975 mainly to provide interst-free loans for private housing construction.

In 1975 the Ministry Of Planning (MOP) was formed to work with other Ministries concerned with development controls

such as the Ministry of Municipal and Rural Affairs, to enact national guide lines for urban planning. (MOP) taking planning as a task for determining the objectives of the three dimensions of Economic, Social, and Institutional setting. (MOP) produced an effective design methodology to achieve this. In this context the national planning scheme was mainly produced in the form of four 5 years national development plans worked as guide lines for other Ministries to follow in designing their national and local policies [10].

3.3.2 Local level

Local planning in the Kingdom is younger than the national planning, it first started in the late 1960's by the planning of the two cities of Makkah and Jeddah both, these cities were facing rapid expansion at that time.

However, in 1965 the government established Deputy Ministry of Interior for Municipal and Rural Affair (DMIMRA), to enhance the function of these cites. That was considered as a major step toward town planning in the Kingdom, (DMIMRA) worked in (a) regional and (b) local level.

At the regional level four regional planning offices were established, these offices were not executive regional authorities, but they act as source of communication for

technical data between the regional and local level of (DMIMRA). But the most important task was city planning where Master plans for the concerned cities were their final product. At the local level (DMIMRA) devised direct and indirect guidance, inquiries, and appraisals of cases arose from both the regional and local levels. Each local municipality was expected to follow the Master plan's instruction, policies, and development guidances.

Lastly in 1975 (DMIMRA) was promoted to the existing Ministry of Municipal and Rural Affairs (MMRA) mainly to accomplish the following duties (a) Affording the best for growth and development of the kingdom's towns and villages, and (b) Promoting local services and utilities [11].

3.4 PLANNING AND BUILDINGS LEGISLATION IN SAUDI ARABIA

Generally the planning and building legislation in most countries has common patterns which consist of various levels according to the administrative system of each country, In Saudi Arabia this legislation is devised and enacted by the central Government which enables the local authorities to prepare their own local regulation.

3.4.1 Law Of Roads & Buildings

The related law to planning and building legislation was promulgated on 1945 and called the Law of Roads & Buildings principally to manage physical planning and urban development. The law had been subjected to continuous enhancement the last one was issued in 1972 [12].

The law consist of 15 sections describing codes and standards related to roads and building, it is also involved in some administrative and finance matters.
But the most important sections for this thesis are no 3 and 5, these two sections could be precise as [13].

3.4.1.1 Section 3 Building line

1- Building authority may set a building line ie; building shall be set back at a distance of not more than 15m from the property line,

2-No construction is allowed in the set back area, arches and balconies might be allowed by the building authority,

3-The plots of land prepared for residential use are circumscribe by the following conditions

a-the area of the plot should not be less than 100m sq,
b-the frontage width of the area should not be less than 9m, and

c-the condition laid down in (1) above holds good for residential buildings, and

4-Buildings in poor condition should be demolish by the owners, Building authority in such case should notify the owner within reasonable periods of time.

3.4.1.2 section 5 Subdivision of land

1-Vacant and unused land may be subdivided into plots and lots for residential purposes,

2-The owner should apply for this subdivision, his application should be accompanied by a subdivision plan which should be evaluated by the planning department,

3-The subdivision plan should be in harmony with the Master plan of the town,

4-If the land lies out side the Master plan it should be linked with the Master plan area,

5-Owner of the land should not ask for compensation for public land allocated to service his subdivision ie; parks, roads, open space. Provide that this ratio dose not exceed 33% of the total area of the land, if it exceeds the ratio municipality should compensate him, and

6-Compensation for land allocated for a school, hospital, police station should not be paid to the owner by the municipality but by the concerned authorities if the above

ratio exceed 33% of the total area of the land.

3.4.2 Law Of Municipality And Villages

On 21-2-1397/1977 the law of Municipality and Villages was promulgated, principally to governs, the establishment of Municipalities which are the local authorities and also framing their duties, responsibilities, their powers, and relationship between the Municipal Council and the Ministry of Municipal and Rural Affairs (MOMRA). These laws also define the functions of the Municipalities such as development and improvement of their areas, provision of public health and social welfare facilities for inhabitants. It also requires the municipalities to accomplish other missions such as urban development of the city according to the official Master plan, awarding of permits and approvals for construction of buildings [14].

The above mentioned responsibilities and many others accomplished by the Municipal Council and the head of the Municipality associated by his staff and various experts. Accordingly these laws gave both (MOMRA) and the local authorities some power that occurs in terms of ministerial decrees and circulars principally elaborating and describing codes of practice related to Road and Building Law, or even establishing some new codes. In Madinah the High Committee for Madinah planning was set up to study

and evaluate the plan of the city, a sub committee was also set up to study and investigate the consultant's reports and other related issues prior to it's submission to the High Committee. On this context the High Committee made decisions on several issues mainly related to Buildings height, plot coverage, lot area, car parking provision, and other special cases. Meanwhile frequent circulars were issued by the (MOMRA) elaborating technical matters such as conditions for commercial use, soil test, recommendation for plant species used, gas storage in residential area, plumbing standards, and other civil engineers standards.

Decision by the High Committee and several circulars by the (MOMRA) both rgarding land subdivision approval by the (MOMRA) played a great role in shaping and outlining the urban form of the new residential quarters ie; the land subdivision lies out side the second ring road in Madinah was circumscribed by the following condition [15]

1-The building height in this area should not exceed 2 stories,

2-Additional floor could be allowed , provided that the area of this floor dose not exceed 25% of the total built up area, and it should not lie in the front of the building,

3-The total built up area allowed should not exceed 60% of

the total plot area,

4-Building should be setback at a distance of 1/5 the width of the front street, in all cases this distance should not exceed 6m and should not be less than 3m, also the building should be setback from all other boundaries a distance of not less than 2m, and

5-Extension room (usually for family servant, driver) could be allowed in the setback area provide that it's area does not exceed 15% of the total area, in all cases distance between these rooms and the main building should not be less than 2m, height of these room should not exceed 2.5m which equal to the height of the front villa wall.

Other general technical rules were also applied for all the building in Madinah such as [16]

1-Floor height for any residential building should not be less than 3m, in case of commercial use this height should not exceed 5.5m,

2-Balconies and other projection are allowed within a level of +4.5m from the ground level,

3-Parapet for the roof is allowed provide it's height does not exceed 2m,

4-Entrance, ramp, and stairs should not exceed the

property line,

5-All the buildings facade should follow the Islamic architecture tradition,

6-Stairs width should not be less than 1.2m,

7-IN the multiple use buildings ie; residential and commercial, separated entrance for each use should be provided,

8-Stairs and elevators in the basement of the building should not open to the car routs, "if the basement is use as car parking",

9- Area of any residential room should not be less than 15m sq and the minimum width of the room is 3.6m, for the Arabian w.c minimum area is 3m sq and the minimum width is 1.5m, minimum area of bath room is 4m sq and the minimum width is 2m, for the kitchen minimum area is 10m sq and the minimum width is 2.6m,

10-All the residential rooms should obtain sun light and air from the outside, or a shaft of not less than 10m sq should be provided, several room could share the same shaft but no w.c or kitchen is allowed, same principle could be applied for bath room and kitchen but in the case of kitchen the shaft area is 6m sq and 4m sq for bath room,

11-other technical manifestations for plumbing and electrical matters were also described but do not effect the issu under descusion here.

3.5 LAND SUBDIVISION

According to the oil exploration in 1930 in the Eastern Province in the Kingdom, the city of Dammam and Al-Khobar as most other cities developed and expanded extremely rapidly. The Arabian American Oil Company "ARAMCO" played a major role in that development, since the pre-oil community was not close enough to provide housing and related facilities to the developing industry, "ARAMCO" found it obligatory to build it's own camp, by the end of 1950 three major camps had been built to accommodate 22,000 workers. However, the early growth of Dammam and Al-Khobar in the late 1930's and early 1940's did not follow any systematic fashion, any accessible land was taken over by people and basic shelter was erected following the traditional pattern of Arabic city [17].

In 1947 as a result of the substantily development of the city of Dammam and Al-Khobar the Government came to realize the need for controlled layout for both, therefore the Governor of the Eastern province request some help from "ARAMCO", in response to that request "ARAMCO" had

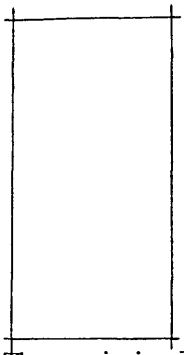
it's surveyors prepared land subdivision plan and layed down the street and blocks on the ground mainly in a gridiron pattern [18].

Yet the built up area of Dammam at that time was 170 acres following traditional pattern, "ARAMCO" land subdivision covers 400 acres following a grid pattern with blocks of (90m x 180m) with north-south orientation, streets width ranged from 20m-30m.

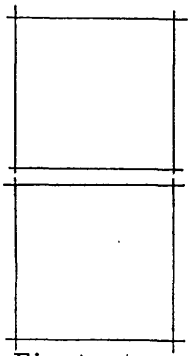
In 1950 a new sea port terminal was built in the city of Dammam and the railroad was extended to Reyadh the capital, that translated on the ground as a haphazard demand for land development in the city. This was described by Dr. Al-Hathlol as

> "Probably because the blocks were not originally subdivided into plots, land speculation was oriented toward entire block, which were acquired either by purchase or by grant, that had a major effect on the original plan.
> To meet the need for more blocks, the town responded by reducing the original size of the block. First reducing the size to around 90m. Square was sub divided into four plots of approximately 45m"[19]. fig. 3.1.

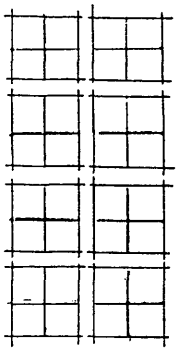
However the same planning principles were also applied in Al-Khobar, ARAMCO Ownership Project, and Al-Moraba the Royal complex in Riyadh the capital. But the most important event regarding the application of these principles occurred in Al-Malaz housing project in



The original lot
of 90m x 180m



First step
90m x 90m



Second and third
step of 45m x 45m
and 20m x 20m

Al Khobar aerial photograph

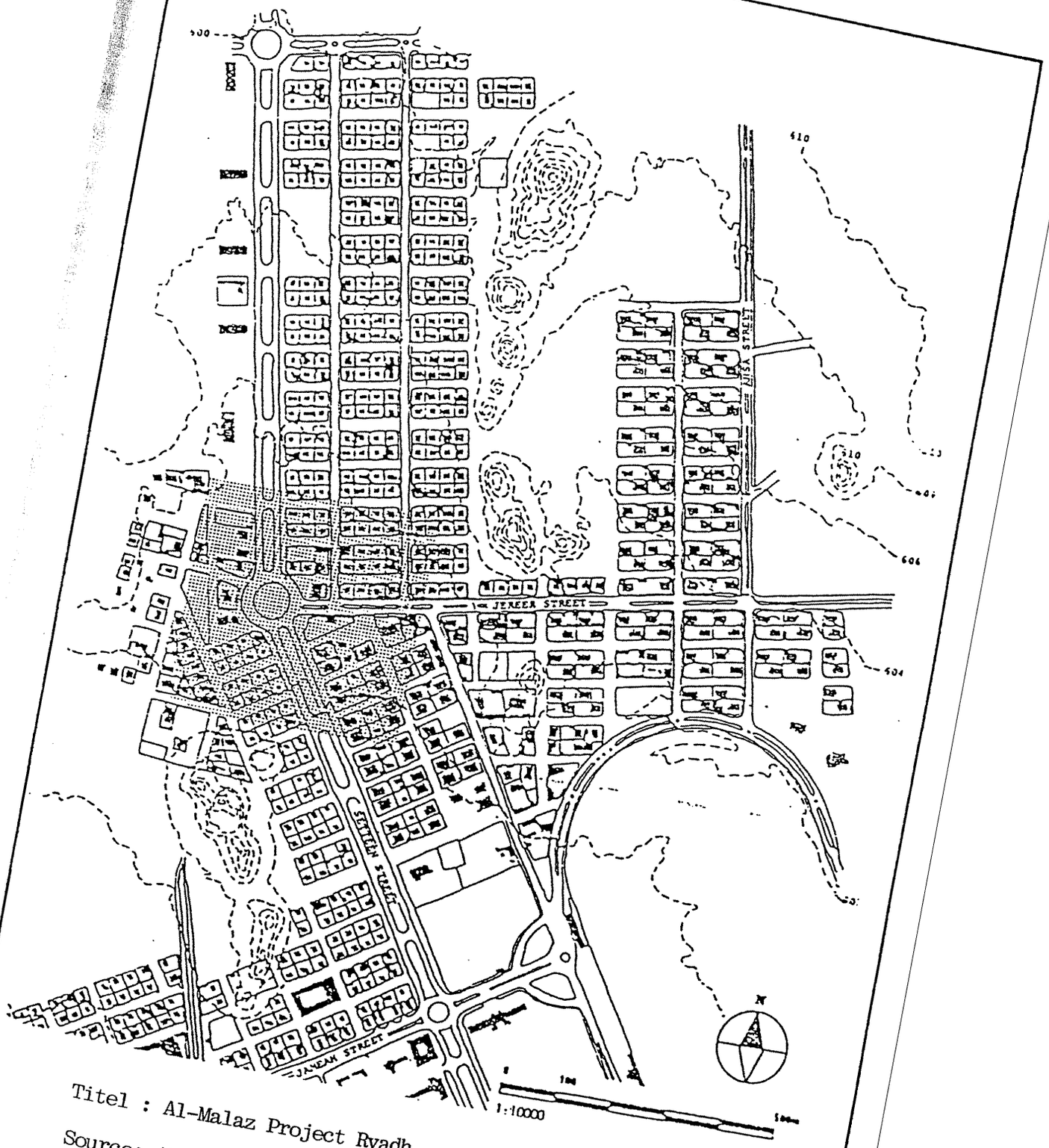
Titel : Land speculation

Source: Al-Hathloul [17]

FIG 3.1

Riyadh, where in 1953 King Saud decided to remove the country capital from Mekka in the west to Riyadh, through that decision huge housing projects had to be built by the government mainly to accommodate the transferred government, therefore the site of Al-Malaz north-east the city centre was chosen. Al-Malaz project consisted of 754 detached housing units, 180 apartment, public garden, a municipal hall, schools, market, clinics, sport facilities, and zoo. All these activities were arranged in a gridiron plan with rectangular blocks and large lots basically ranged in size as 25m x 25m, 25m x 37.5m, and 25m x 50m to be build in a villa type with set back requirement, the hierarchy of streets also existed with three types of road, thoroughfares of 30m in width, main street of 20m in width, and secondary street of 10m-15m in width (fig. 3.2).

Al-Malaz project was considered to be an example by the government of how new neighbourhood should be planned. That statement was enhanced by the use of the motor vehicle which at later date become the only transportation system. However Al-Malaz project was seen as a symbol for modernity, this model was to be the government orthodoxy, through Ministerial decrees, and circulars and so to be applied all over the other cities in the Kingdom [20].



Titel : Al-Malaz Project Ryadh

Source: Al-Hathloul [17]

FIG 3.2

3.6 NOTES FOR CHAPTER III

[1] Daghistani, A. 1983 Kingdom Of S.Arabia A Century Of Progress, pp.7-10.

[2] Mandora, I. 1984 An Investigation Of The Lack Of Identity In Present Neighbourhood In Jeddah, Unpublished M.Arc Dissertation. pp.41-48

[3] Ibid

[4] Hajara, H. 1982 Puplic Land Distiribution In Saudi Arabia, Longman, London.

[5] Aziz A, H. 1985 Review And Analysis Of Land Use Regulation In Jeddah, Saudi Arabia, M.Sce Thesis in planning, UWIST, Wales, p.92.

[6] Liewellyn 1984, Islamic Jurisprudence And Environmental Planning, Jurnal Of Research In Islamic Economics, Vol 1, No 2, pp.25-49.

[7] op.cit 5, p.93.

[8] Ibid

[9] Op.cit 4

[10] Waleed A. 1985,Land Problems and Land Policy in Madina, Saudi Arabia, unpiblished M.Sc. Thesis, Department of Town Planning, UWIST, Wales.

[11] Ibid

[12] Municipality Of Madina Consultant T.R. No.7

[13] Auther Translation for THe Law of Roads &

Buildings, Source Madina Municipality.

[14] Op.cit 12

[15] Auther' Translation for The Higher Committee Decision of Medina, Source Madina Municipality.

[16] Ibid

[17] Al-Hathloul S. 1981 Tradition Continuity And Change In The Physical Environment The Arab-Muslim City, Unpublished Ph.D. Thesis, M.I.T, Massachusetts, pp.144.

[18] Ibid

[19] Ibid, p.146.

[20] Ibid, pp.162-166.

CHAPTER IV

OBSERVATIONS

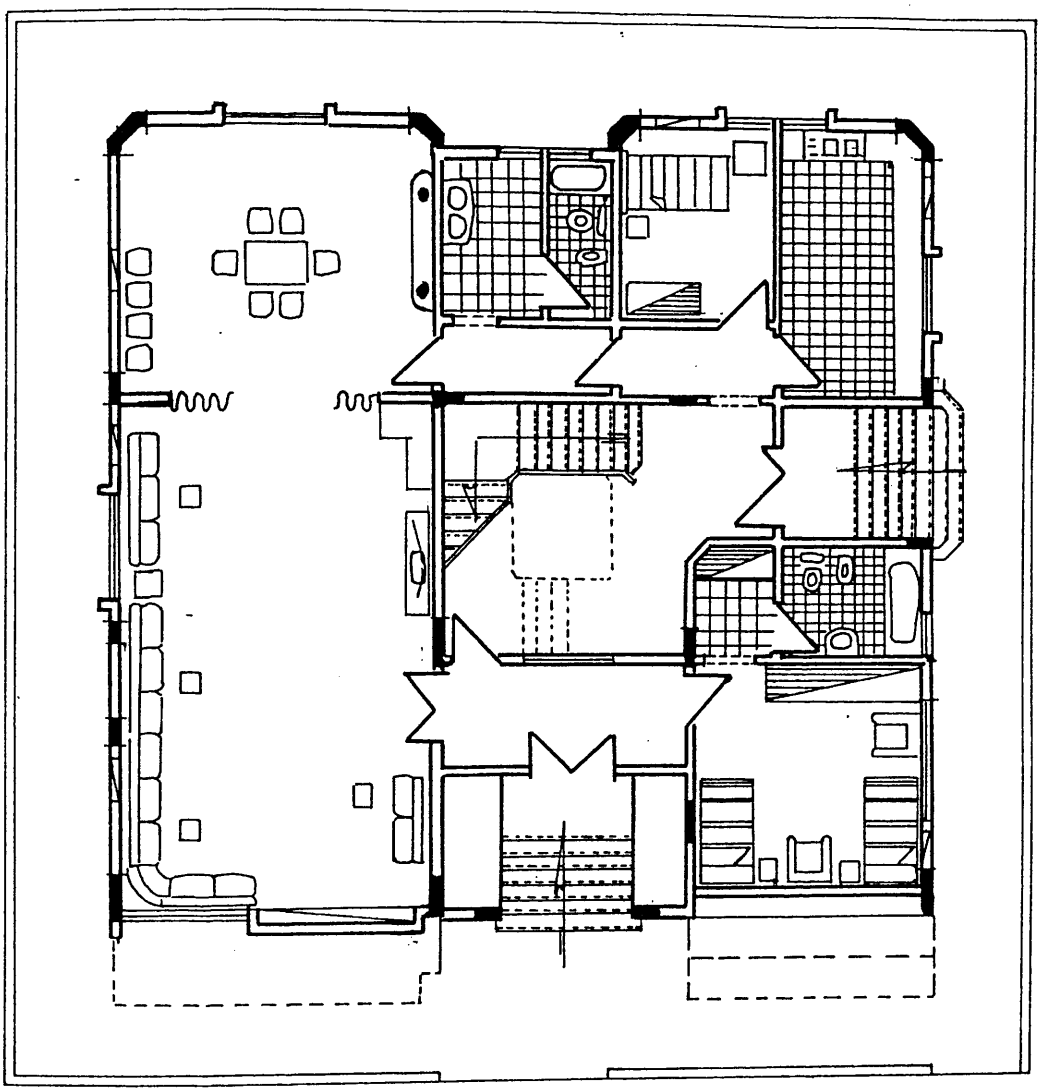
4.1 Introduction

Visual privacy one of the most important factor determining the design of the private home in Saudi Arabia as in all the Islamic countries. Therefor any planning and building regulations are expected to provide a legal framework for safeguarding the privacy of each home and thereby ensuring the use of property by it's owner.

Yet when the Road and Building Law first instituted the setback regulation in the Kingdom, it seemed that it attempted to achieve the followings (1) requirement of meeting future street widening, (2) aesthetic value, (3) tendency for modernity, (4) developing new dewelling type the villa (fig. 4.1a, 4.1b, 4.1c), (5) maintains uniform arrangement of building, and (6) improving the general appearance of the street.

These were applied to very large lot size of (90m x 180m) where the probability of congestion and high density could not exist, but when the lot size get smaller and even down to (20m x 20m) and the multi story apartment type of dewelling is produced, unexpected responses were made by the people.

This was in the form of huge fence wall on both the side and rear yard and also on both side of the street, other measures which assured the protection of visual privacy

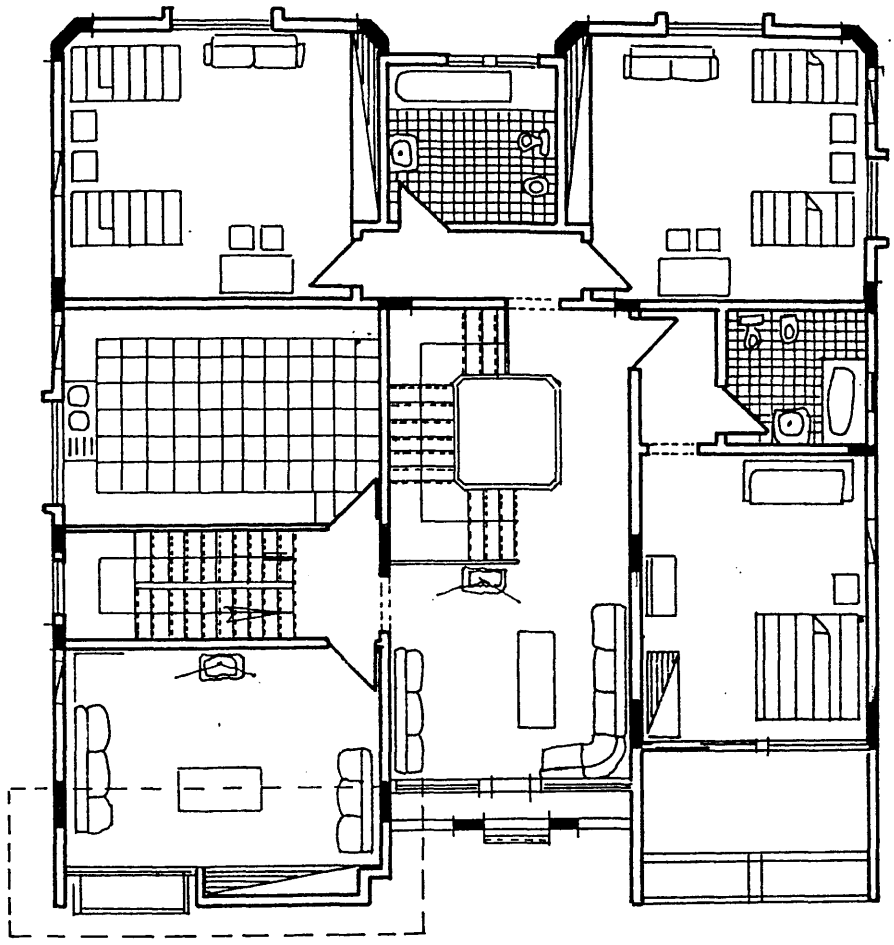


Ground Floor plan

Titel : Typical villa design in Madinah

Source: Madinah Municipality [2]

FIG 4.1a

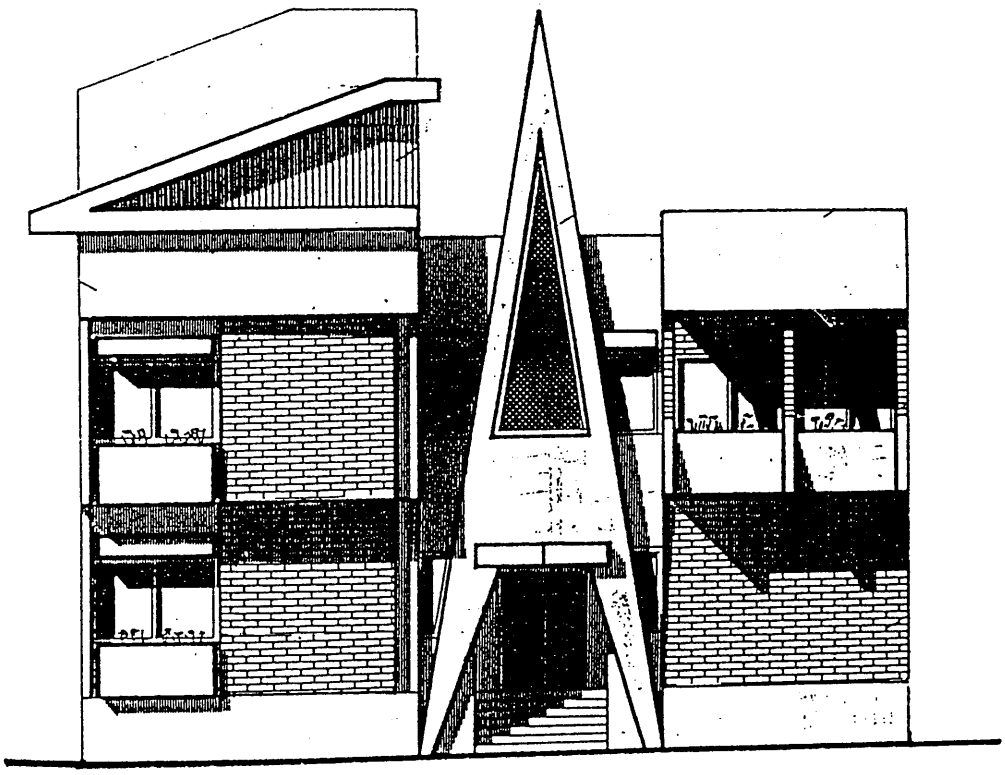


First Floor plan

Titel : Typical villa design in Madinah

Source: Madinah Municipality [2]

FIG 4.1b



Elevation

Titel : Typical villa design in Madinah

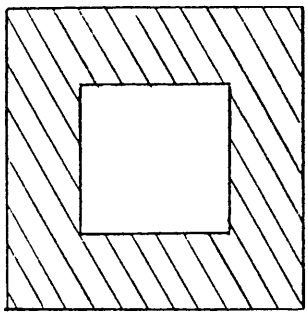
Source: Madinah Municipality [2]

FIG 4.1c

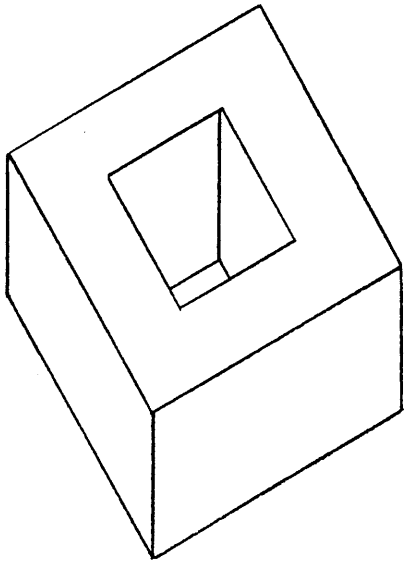
were also accomplished. The people now recognized that new style of life had been imposed on their society. The idea of outdoor living which opposed the concept of the family as indoor living.

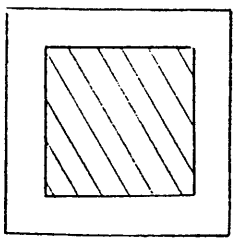
In the past people were enjoying the couryard within the house as an outdoor space. The couryard as an outdoor space within the house was well protected from the passby eyes, it also suited the family in terms of micro climate. Yet this concept was opposed in the villa type where the couryard was no longer provided so people found it very diffecult to use the outdoor space suronding the villa from all the boundries (fig. 4.2).

In this part of the disertation the above mentioned response of the people will be shown through some recent photographs taken from the new residential quarters in Madina, Then an attempt will be made to introduce new setback principles which assure the protection of visual privacy.

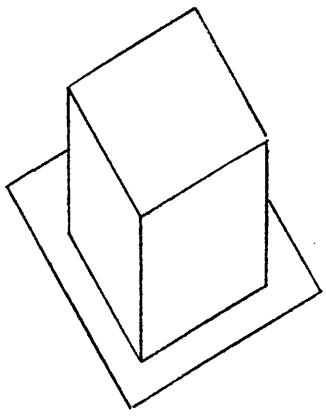


Courtyard House





Villa House



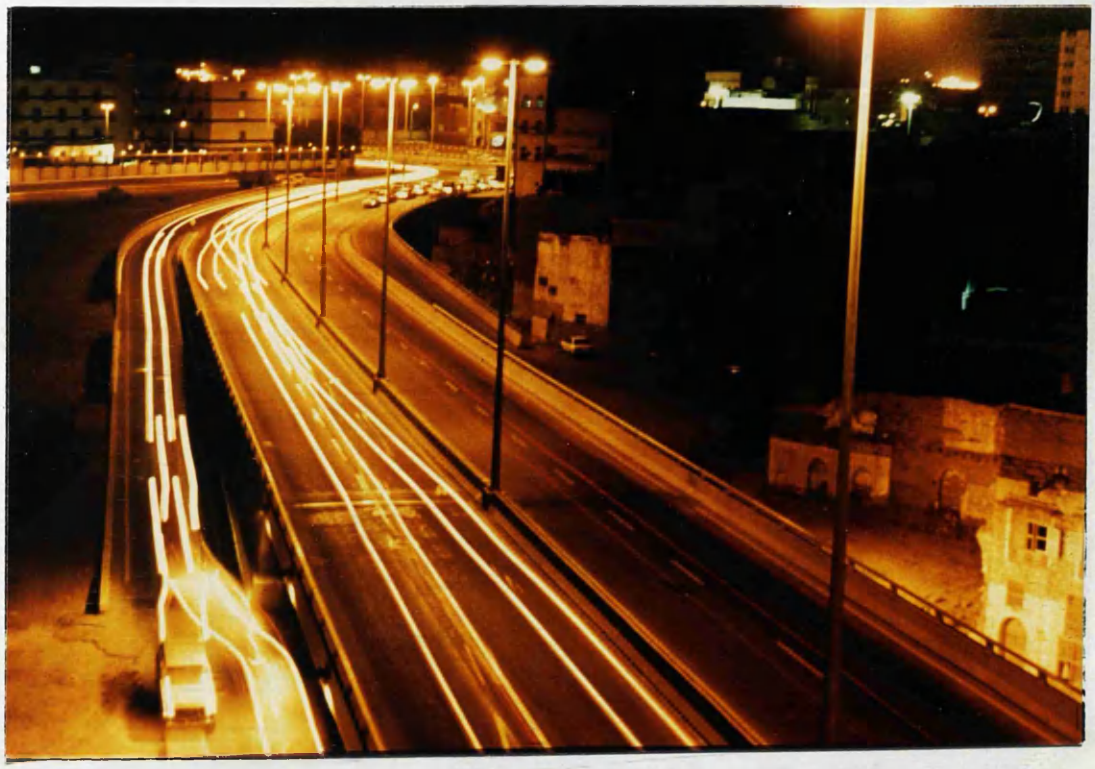
Titel : Different life style

Source: The author [ ]

FIG 4.2

Observation 1

Source : The author [1]



The new regulation ought to introduce new image for the Saudi city. High rise buildings, wide street etc.

FIG 4.3

Observation 2 Source : The author [1]

New dwelling type, the Villa was intrudced through the Lot and the set back regulation.

FIG 4.4

Observation 3 Source : The author [1]

The same principles was also practised in the multi storey buildings

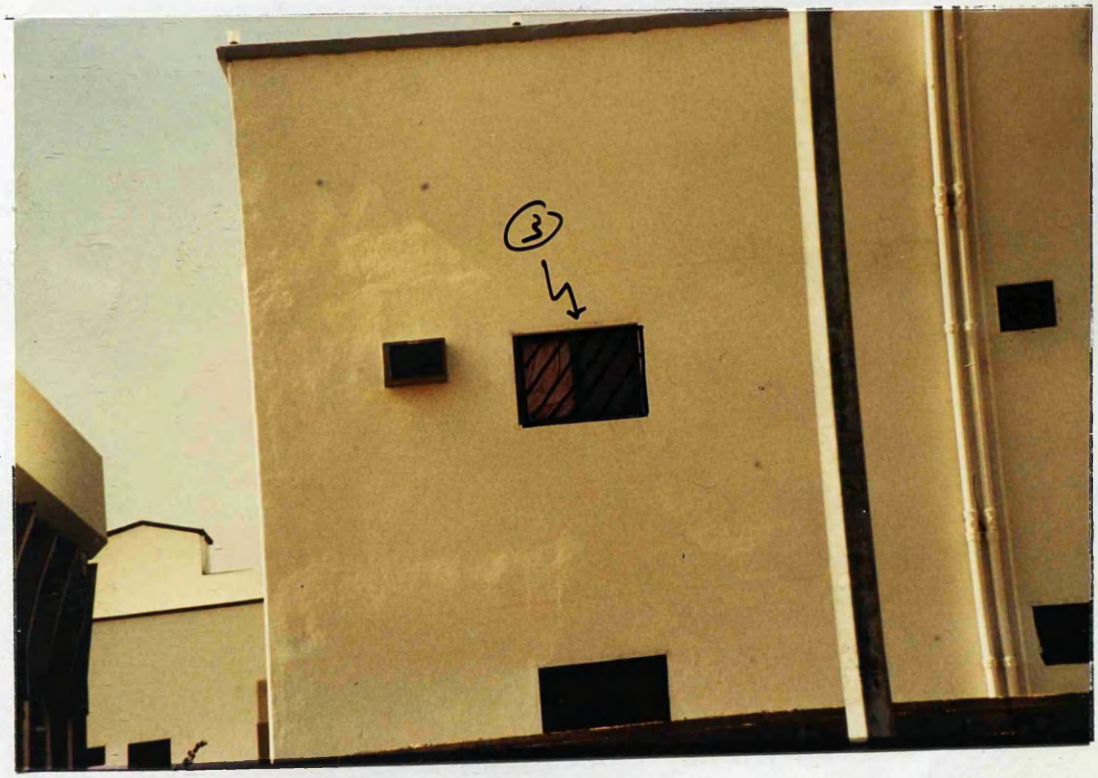
FIG 4.5

Observation 4 Source : The author [1]

The distance of 2m set back was also applied regardless the height of the building

FIG 4.6

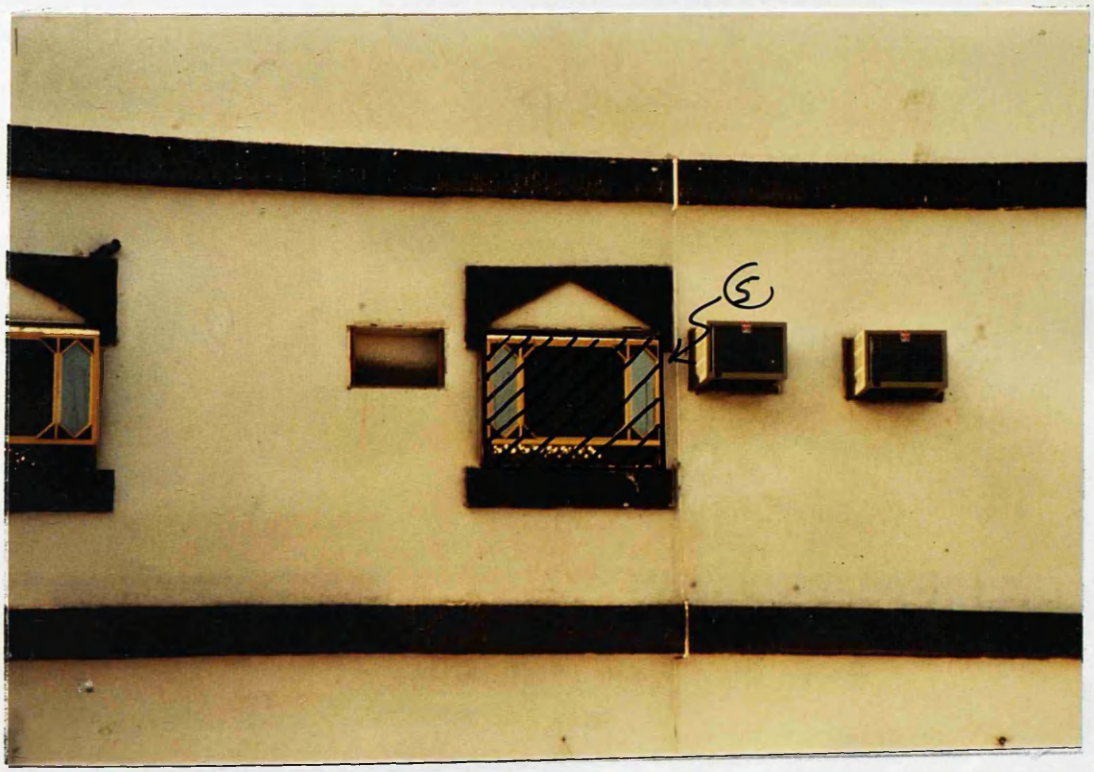
Observation 5 Source : The author [1]



The first response of the people was using Mashrabia, or aluminium sheet, or indoor blanket

FIG 4.7

Observation 6 Source : The author [1]



Other ways of acheiving visual privacy

FIG 4.8

Observation 7 Source : The author [1]

The use of very simple type of Mashrabia

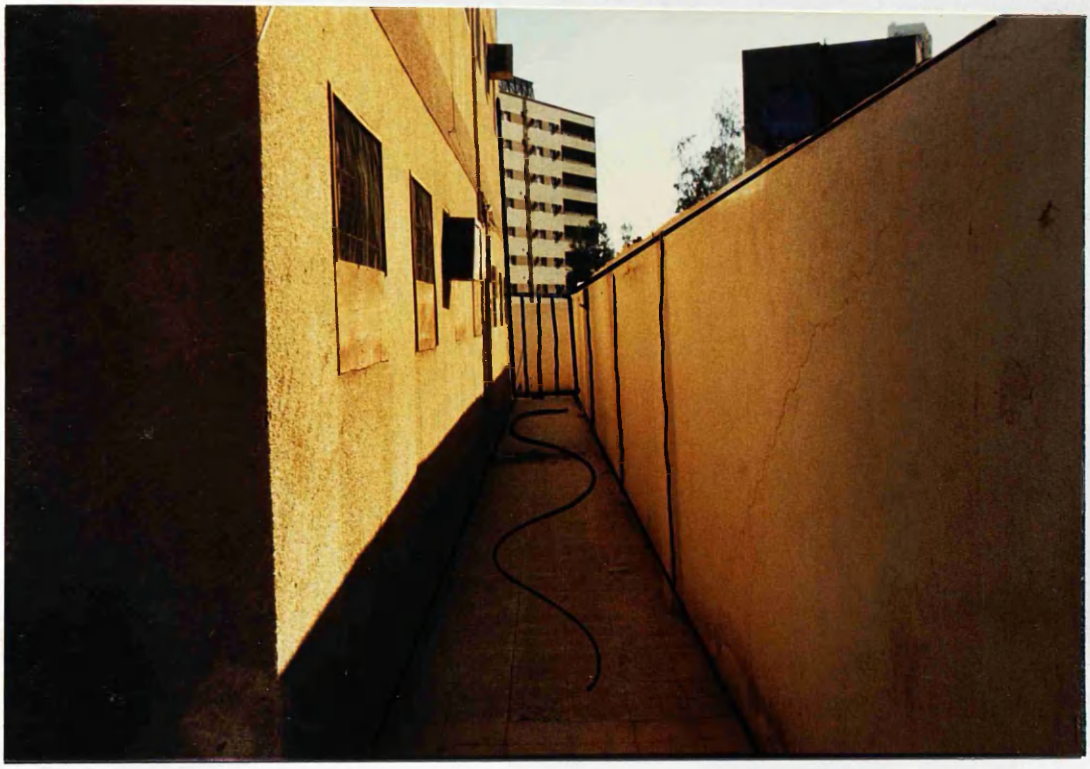
FIG 4.9

Observation 8

Source : The author [1]

Other people went to hard decision of blocking the whole window or balcony

FIG 4.10



Observation 9

Source : The author [1]

Middle class people leave the set back area as it is, others went to vegitation which quite expensive.

FIG 4.11

Observation 10

Source : The author [1]

Other examples of heavy planting in the side and rear set back

FIG 4.12

Observation 11

Source : The author [1]

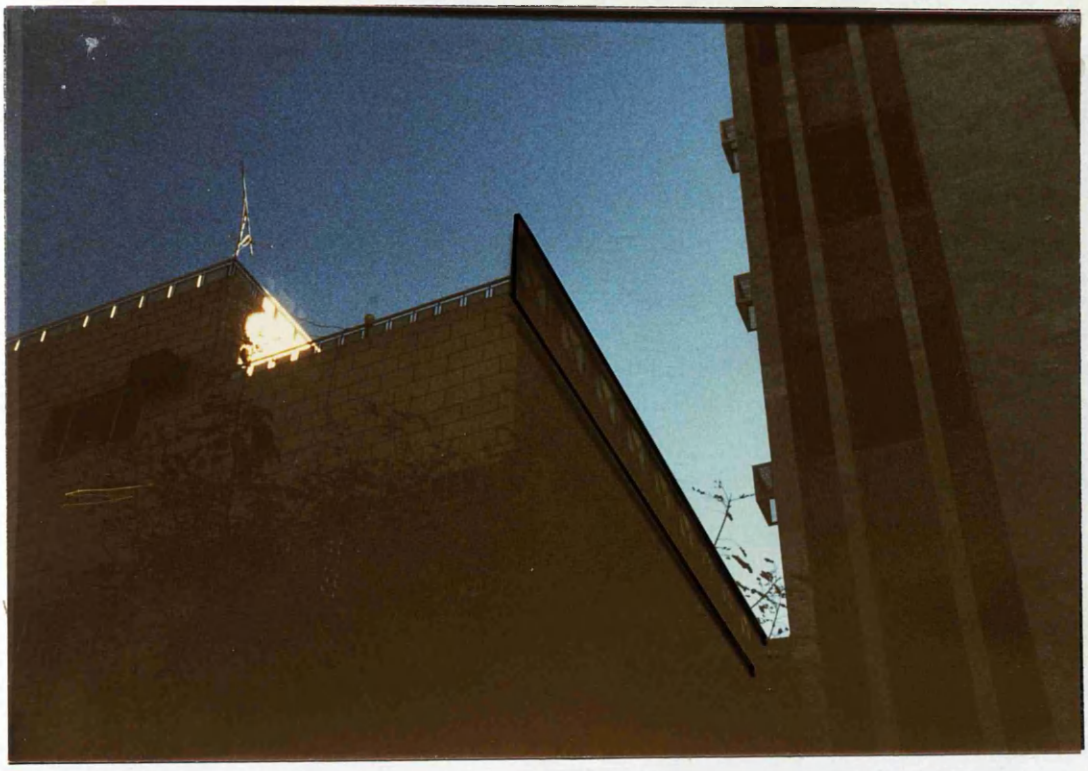
The use of very simple sheets of plastic

FIG 4.13

Observation 12 Source : The author [1]

The use of wooden sheets and pergola

FIG 4.14



Observation 13 Source : The author [1]

The use of plastic and aluminium fence wall

FIG 4.15

Observation 14 Source : The author [1]

The use of very high wall to block the whole Facade

FIG 4.16

Observation 15 Source : The author [1]

Other people built a wall of 9m height in the side Facade

FIG 4.17

Observation 16

Source : The author [1]

The use of Mashrabia and Roshan which is very expensive solution

FIG 4.18

4.2 NOTES FOR CHAPTER IV

[1] All the photograph had been taken by th auther in the city of Madina S.Arabia in january 1987.

[2] Madina Municipality, Building Permits Department.

[3] Drawing has beeb drafted by the auther.

CHAPTER V

PROPOSALS & RECOMMENDATIONS

5.1 INTRODUCTION

Before proposing new planning and building principles, one must review the Islamic principles previously mentioned to help in this process. The word "sakan" which litraly means peace and quite is expected to be adopted in any new legislation.

New legislation should also achieve the following principles which are abstracted from the Islamic legislation "Sharea" (a) the first principle is "Darar" or harm, no harm is to be allowed to develop by the owner or the neighbour from each other, (b) the second principle is "Hoquq Al-Jewar" or the neighbour's rights which should be highly respected by the owner in the same quarter, these rights are mainly measured in the form of visual privacy which is considered to be one of the most important factors determining the layout of the Islamic residential quarters, (c) thirdly the principle of "Horeyah" or freedom which should be given to the person so he could utilize his own property in his own way, but this principle expected to be controlled by principles (a), and (b). (d) lastly other principles should be maintained which require structuraly sound and allow economic houses.

The photographs in the previous chapter show how visual

privacy has been disregarded by the setback regulations, four proposals will be introduced attempting to assure the protection of visual privacy.

5.2 Proposal I

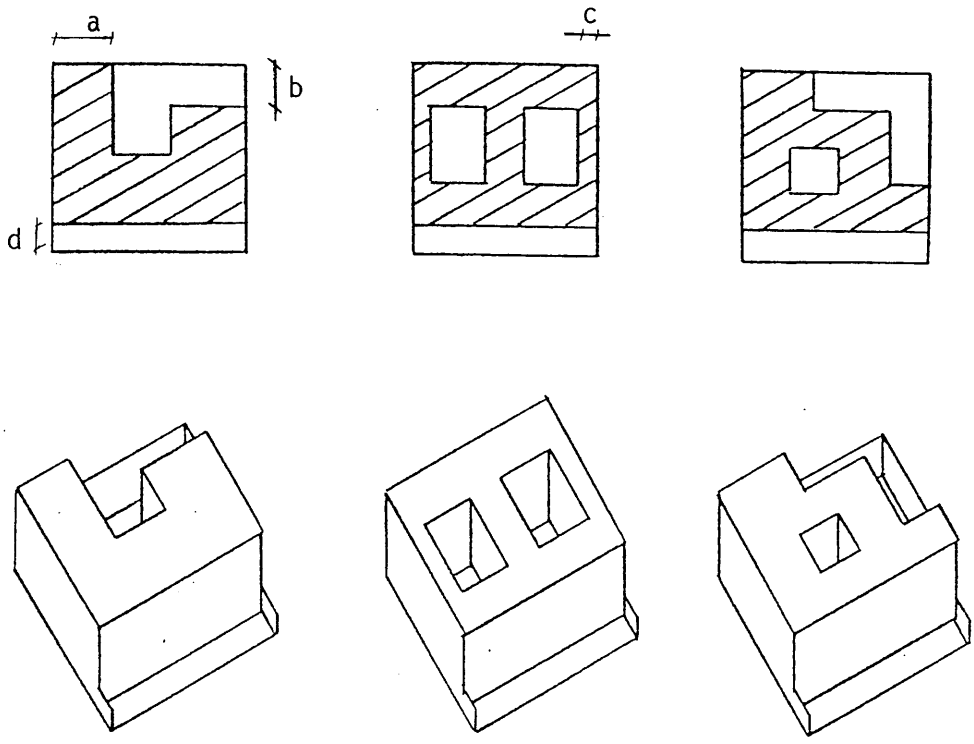
The first principle is the abolishing of the side and rear setbacks and that to controle any overlook the neighbours property, front setback could be reqiured mainly to meet the following aims (1) future street widening, 2) maintains uniform arrangement of building line, 3) holding and maintains of septic tank and sewerage system, 4) car park, and 5) extension rooms for servant and driver provided condition described in item 5 page 72.

Abolishing the side and rear setback could lead in practice to more freedom in design, which allow the construction of greater variety of housing units more convenient to the Saudi climate and culture (fig. 5.1a, 5.1b).

This process is controlled by the building height standards and floor area ratio. ie; the maximum bulk of the building calculated by the following formula

$$BB = 3.3 \times FAR \times H$$

Where BB is the maximum building bulk, 3.3m is the



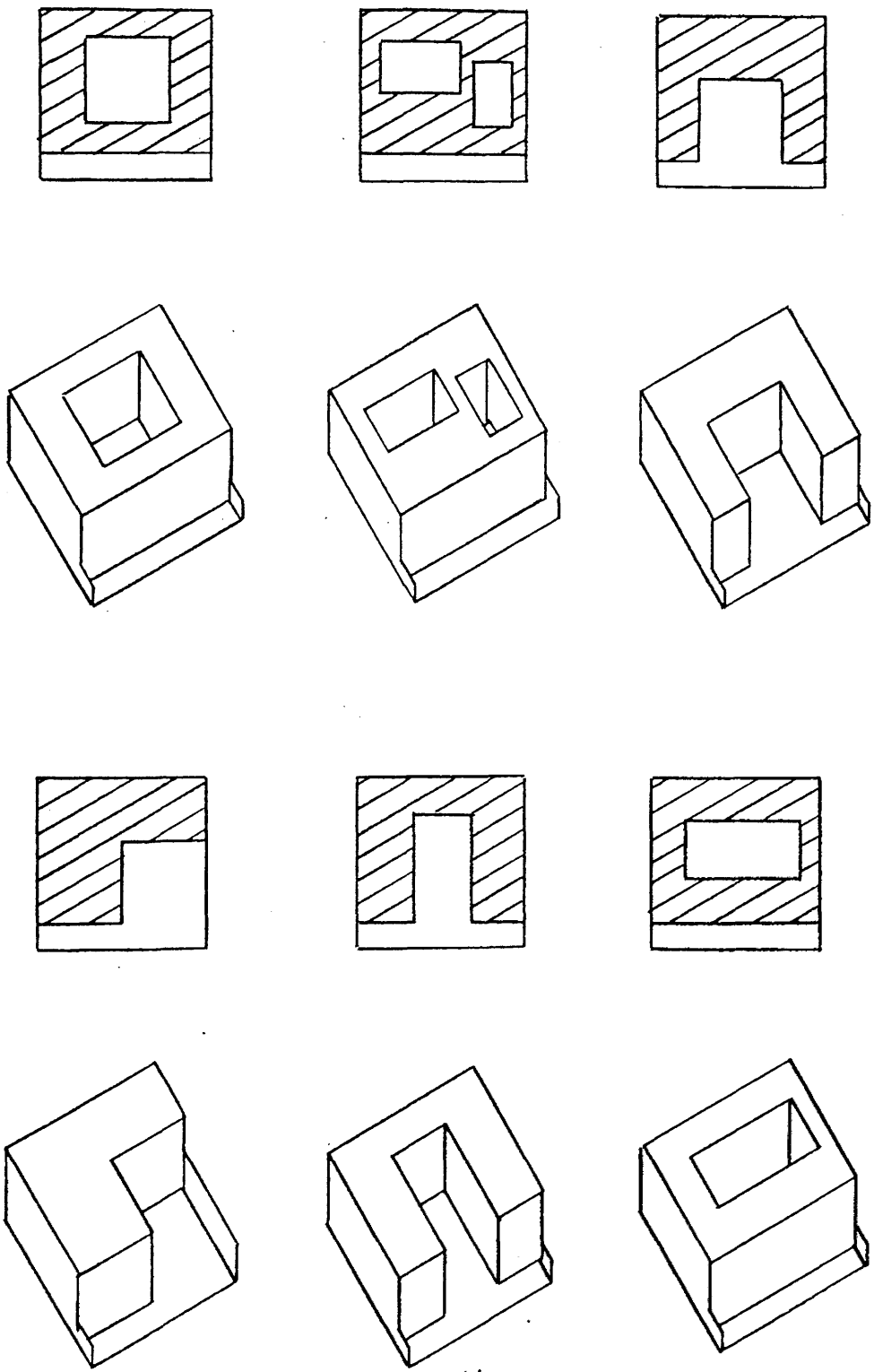
Built Up Area

Distance A,B,C are ranged between 1.5m - 3.6m
1.5m is the minimum width of W.C. and corridor
3.6m is the minimum width of room
Distance D is the front set back of 3m
Fixed by Madina Municipality

Titel : Proposal I, Design alternative

Source: The author [4]

FIG 5.1a



Titel : Proposal I, Design alternative

Source: The author [4]

FIG 5.1b

standard floor height fixed by Madina municipality, FAR is the floor area ratio, and H is the numbers of storey allowed in certain area.

Applying this formula on a typical 20m x 20m lot in Madina where FAR= 60% of the total area and H = 2 storeys

$$BB = 3.3 \times 240 \times 2 = 1584\text{m cubic.}$$

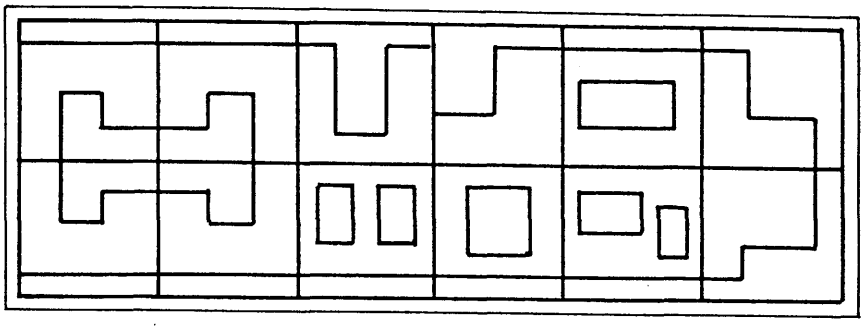
However if any owner decides to have any courtyard in the rear or the sides property line of his lot he should build a fence wall of not less than 5.5m (fig. 5.2).

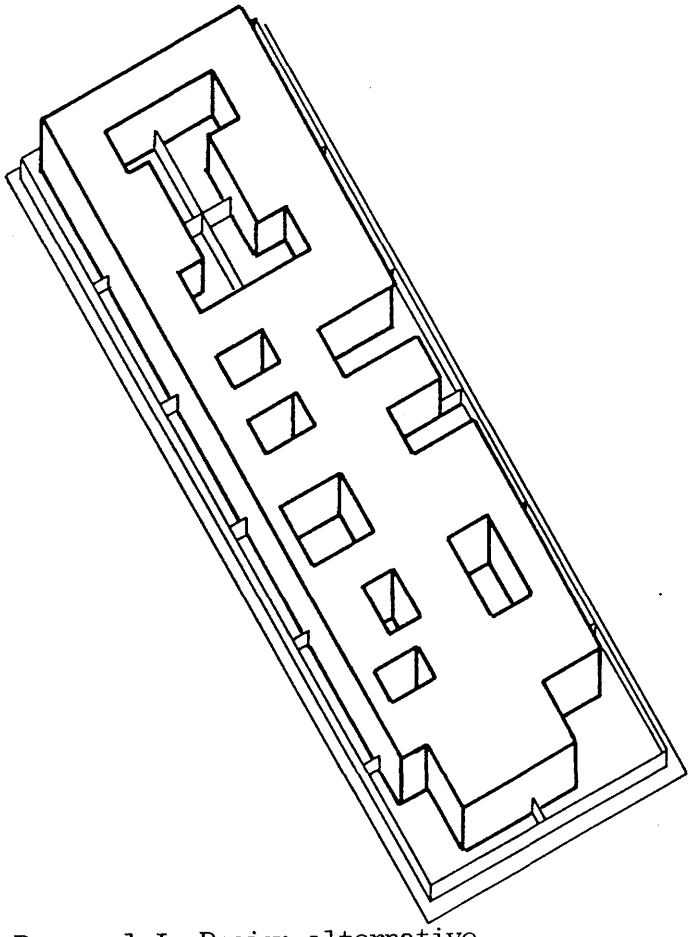
This wall will protect them and his neighbour from being over looked, owner in such case could negotiate with each other in sharing the benefit and the cost of the wall.

5.3 PROPOSAL II

The consultant of the city of Riyadh 1976, SCET International introduced a document designated "Planning Regulation", which circumscribe the Zoning regulation and some other technical standards proposed for the city of Riyadh [1].

When SCET tackled the problem of visual privacy and setback regulation they introduced as one of their





Titel : Proposal I, Design alternative

Source: The author [4]

FIG 5.2

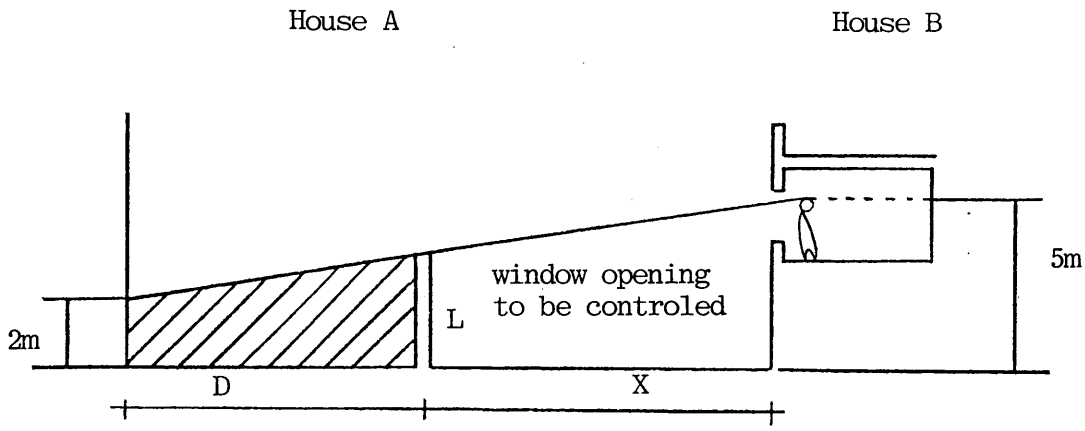
proposal the following formula which elaborated some standards for protection the visual privacy of the neighbour.

> "The minimum distance at which a window can be opened without intfenging on anothers privacy is given by the following formula
>
> $X = D\ (5-L)/(L-2)$.
>
> Where D is the width of the ground to be visually protected, L is the height of the dividing wall, and X is the minimum distance at which a window can be opens in a facade. (fig. 5.3a).
> If X is less than D (5-L)/(L-2) the owner of house B must either build a blind facade from the second floor up or comply with a window opening design which prevents direct sight line into his neighbour's property" [2].

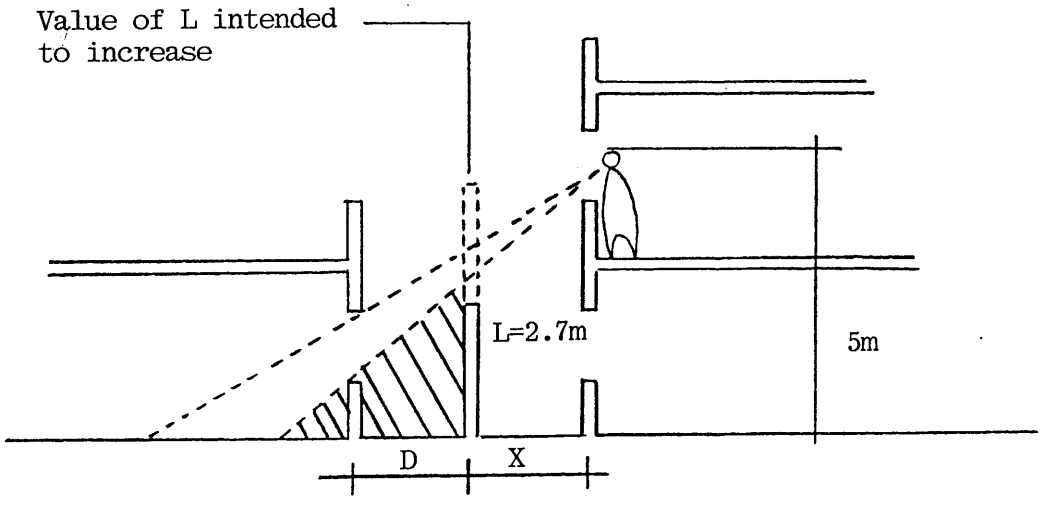
As shown in figure 5.3b, practising this formula in typical lot of 20m X 20m in Madina, it clearly shown how the windows are overlooking each other, therefore, the value of the dominator tended to increase, that to let the value of X exceeds the value of[D (5-L)/(L-2)], that could be accomplished by increasing the value of L, Through building very high fence wall.

But applying this formula in bigger value of X as shown in figure 5.4, 5.5, 5.6 it could be notice that as the value of X increase the angle of vision idecreeses, until when X becomes aproxmetly equal to 8m or more , no direct sight takes place.

A



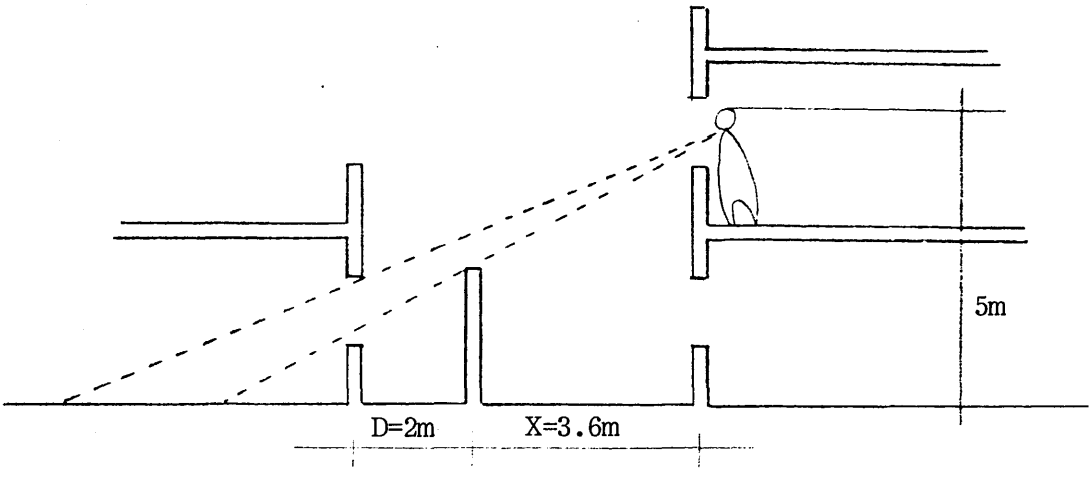
B

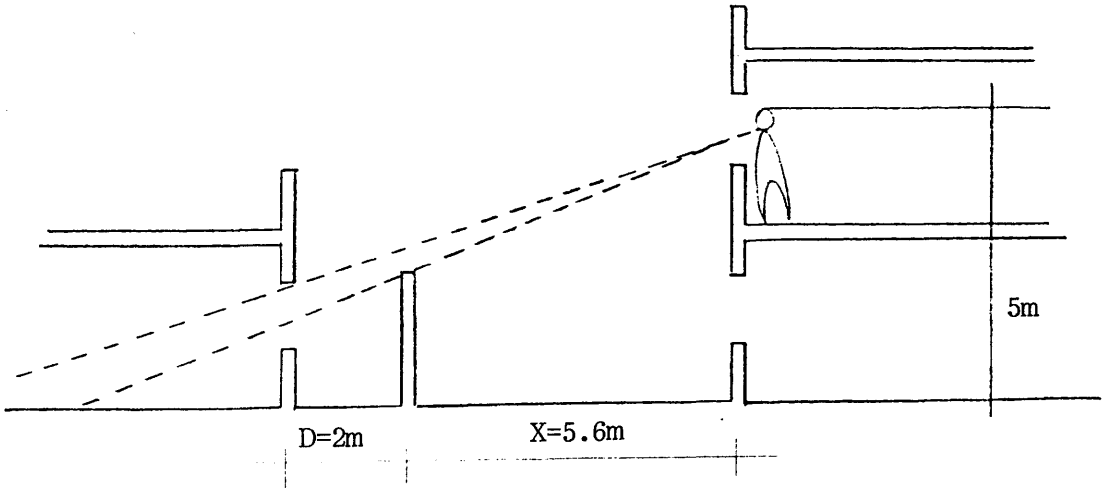


Titel : Proposal II

Source : [1]

FIG 5.3





Titel : Proposal II

Source : The author [4]

FIG 5.4

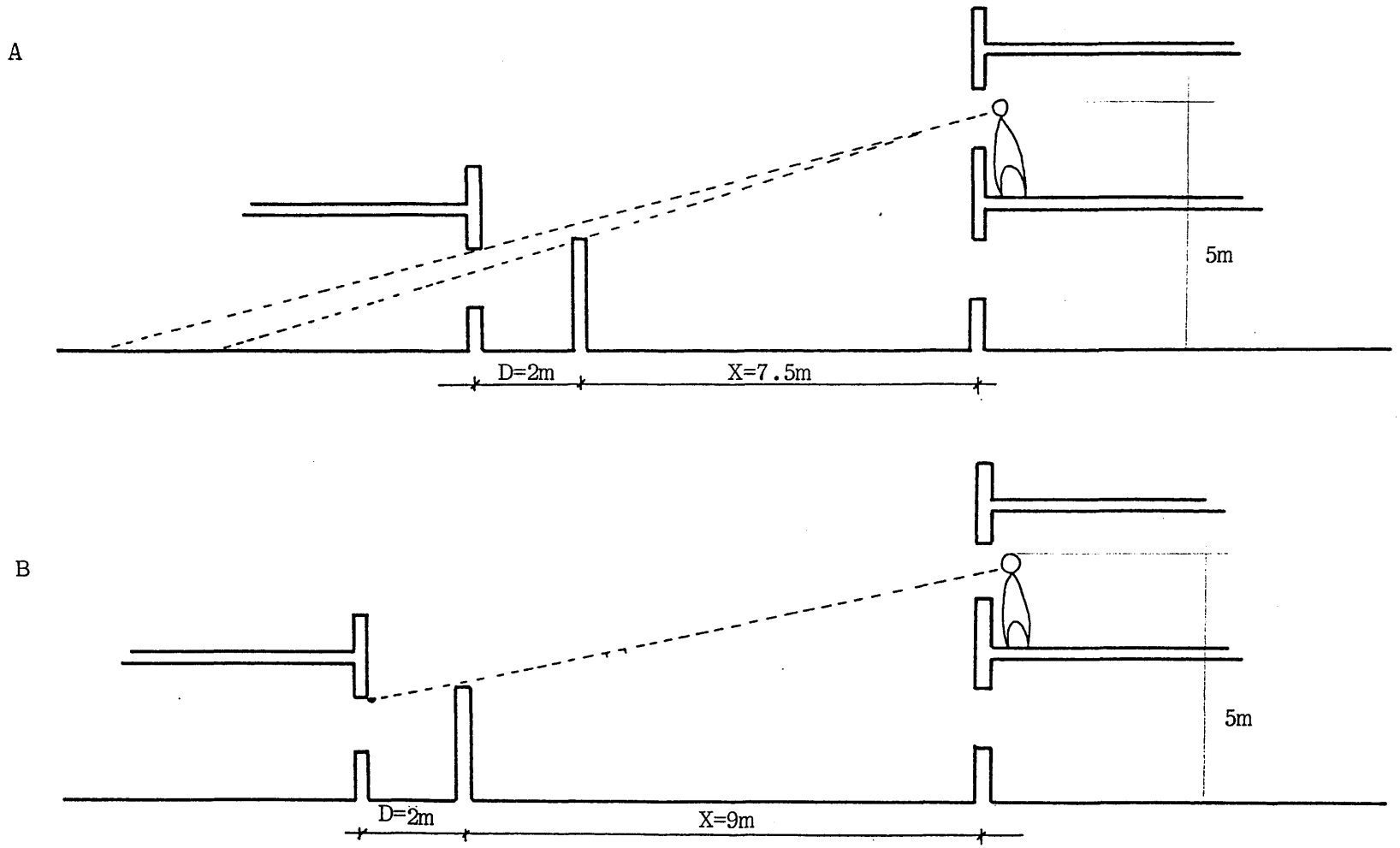


FIG.5.5

Titel : Proposal II Design alternative

Source: The author [4]

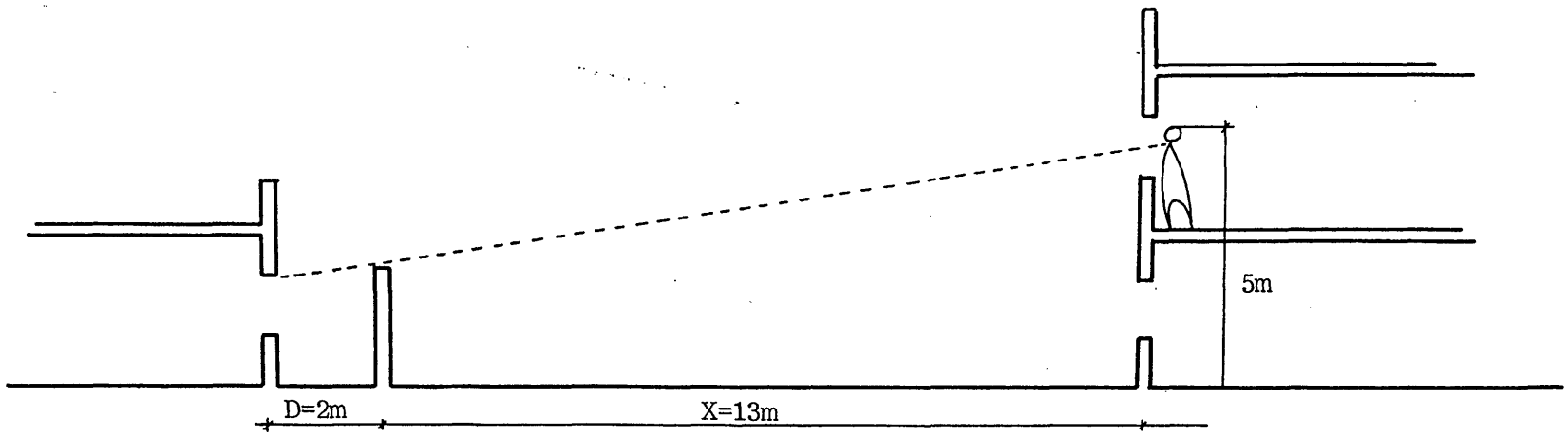


FIG 5.6

Titel : Proposal II Design alternative

Source: The author [4]

These could determine the minimum lot size where no complication of visual privacy rise. If the minimum value of X as 8m approved, the minimum lot width could be calculated as

minimum lot width = 2 x side setback + building width.

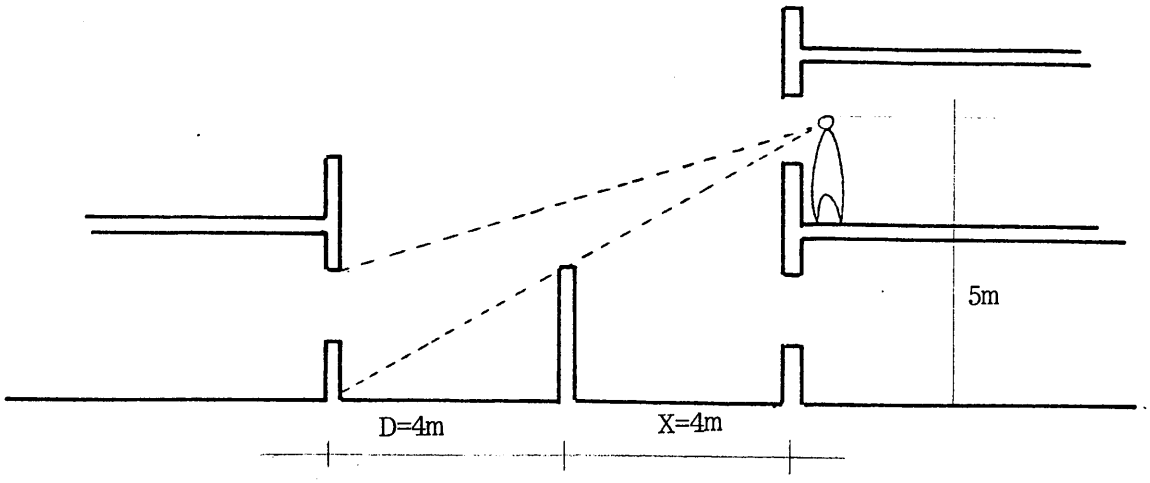
Yet the minimum width of any building in the new quarters in Madina is equal to "lot width - sides setback" which is

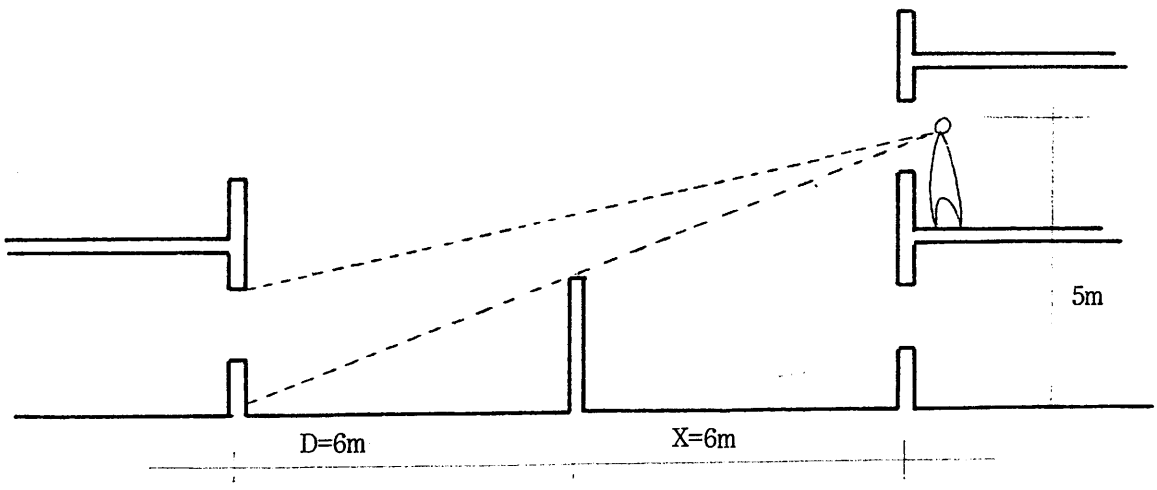
20 - (2+2) = 16m.

So this formula could be developed and utilized in Madina in the large lot size of not less than 30m X 30m (fig. 5.6), it could be also enhanced by the use of some special window opening design which prevents direct sight of neighbour property.

However practesing this formula again in large lot in a way both buildings are set back the same distance which means that X = D fig. 5.7, 5.8.

We can see that both gardens are over looked by each other. Though privacy in such case could be achieved by (a) heavy planting which will act as wall fence, (b) by having plastic wall fence and, (c) applaying some window design alternative which will be examine in proposal IV.





Titel : Proposal II Design alternative

Source: The author [4]

FIG 5.7

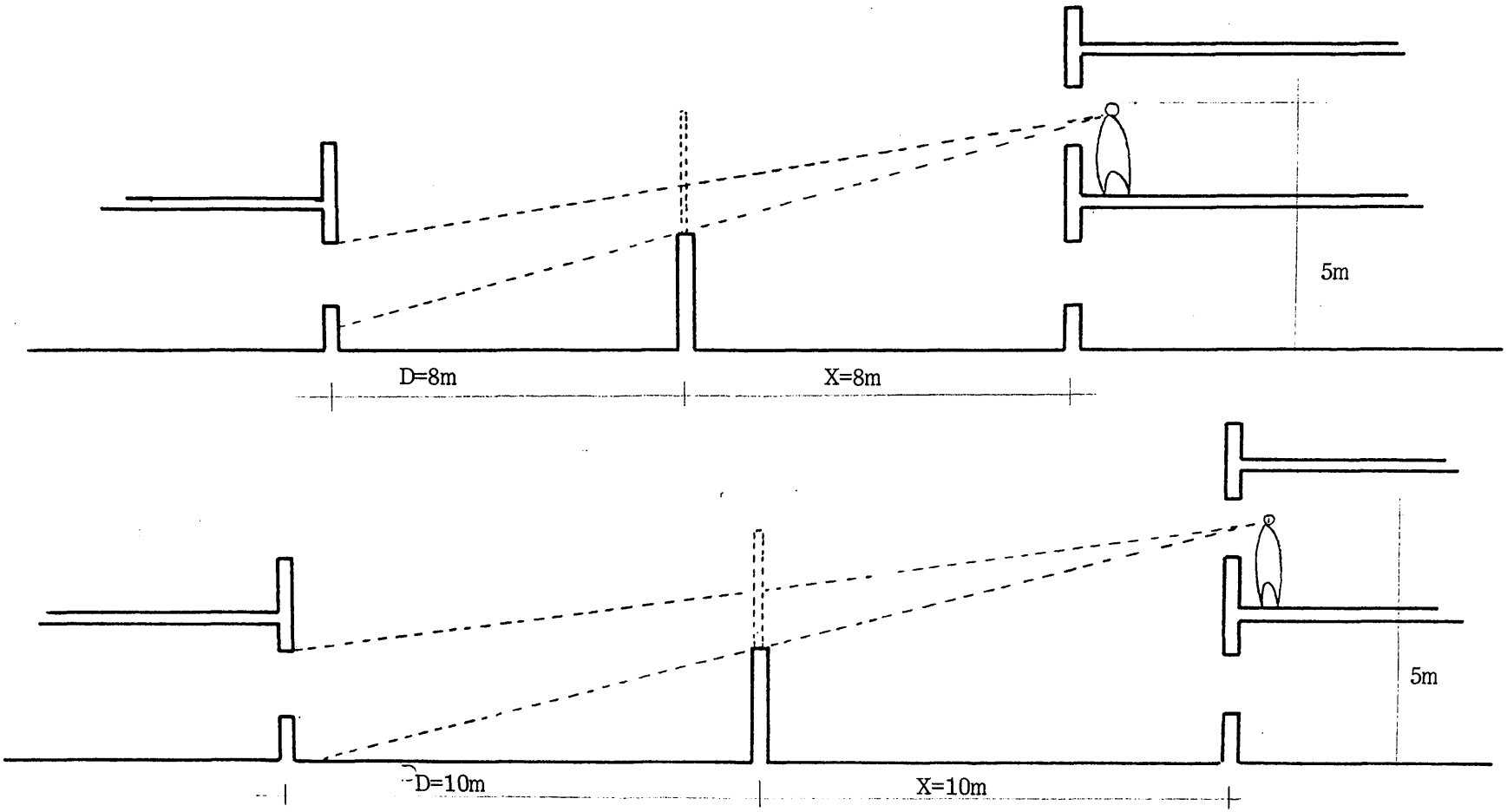


FIG 5.8

Titel : Proposal II Design alternative

Source: The author [4]

5.4 PROPOSAL III

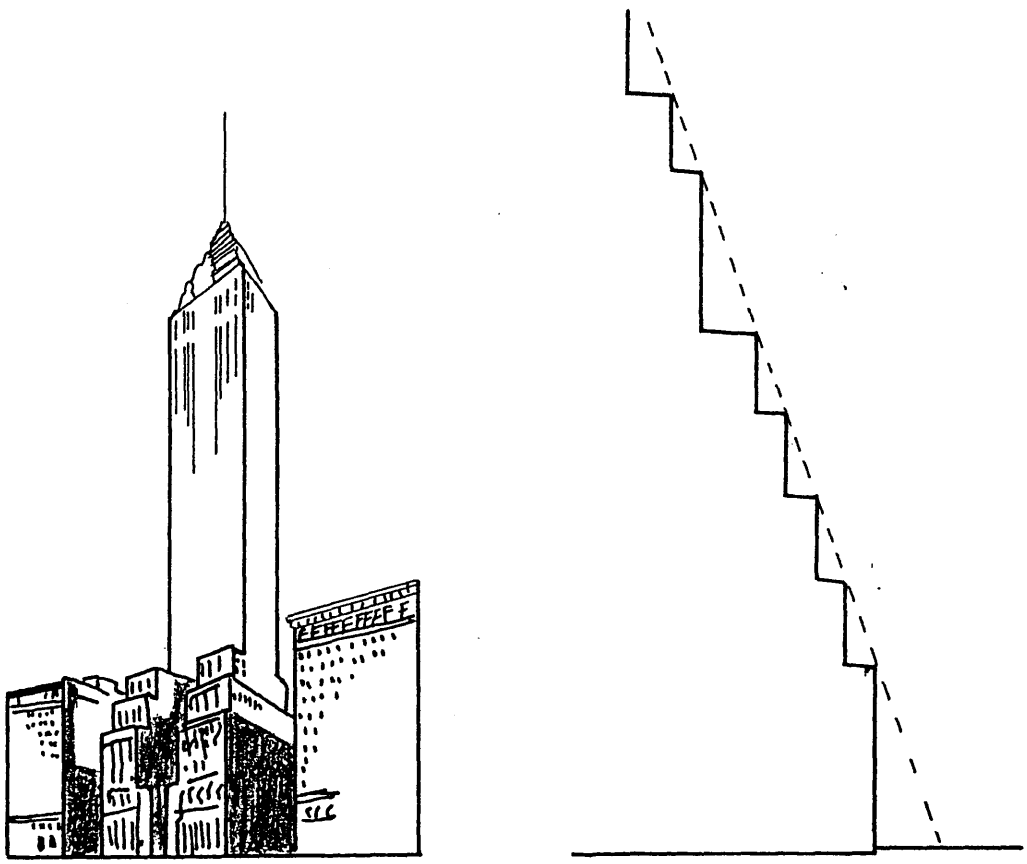
The third proposal abstracted from the idea of building envelope, which first introduced in 1916 in New York Zoning Resolution.

The idea mainly based on providing adequate air and light for each building, it was to protect the street and avenues from being turned into dark canyons [3].

Accordingly the height of building was limited in proportion to the width of the street. Therefore building could rise "x" additional feet for each foot it setback, ie; in Midtown district in New York building could rise-to-setback ratio of 2.5 : 1 and 3 : 1, equal to sky angle planes of 68.3 and 71.6 or an average of 70 (fig. 5.9).

However the idea could be applied in Madina where the back yard in the multi storey apartment lot had turned to dark ravine full of dust and waste note, this is the area on to which the main room of the flats look fig. 5.10.

Sky angle planes of 60 from the rear property line will shape the proposed building bulk (fig. 5.11, 5.12). The angle of 60 was chooses because it dose not change the existing setback distance of 2m, and also because the visual privacy for the ground floor will be protected by both the dividing wall and by the setback of the upper floors.



Titel : The Building envelop New York

Source: Midtown zonining [3]

FIG 5.9

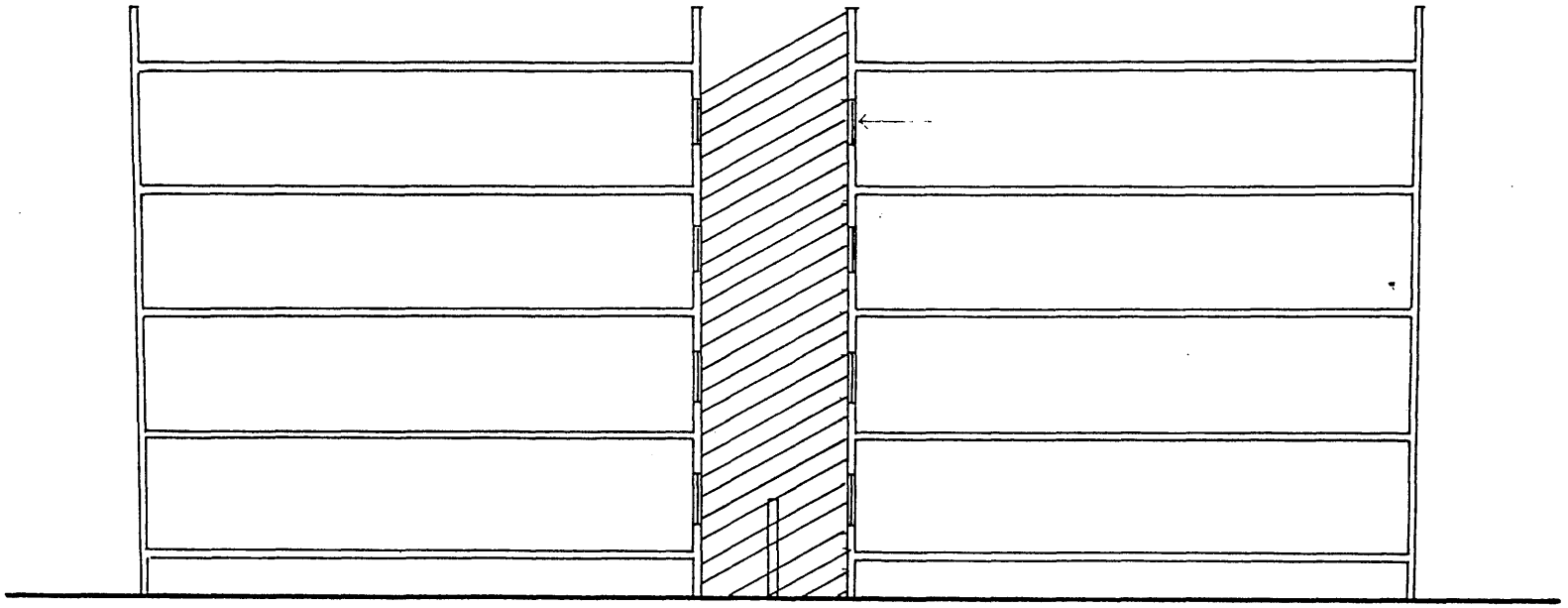


FIG 5.10

Titel : Existing rear Yard in Madinah

Source: The author [4]

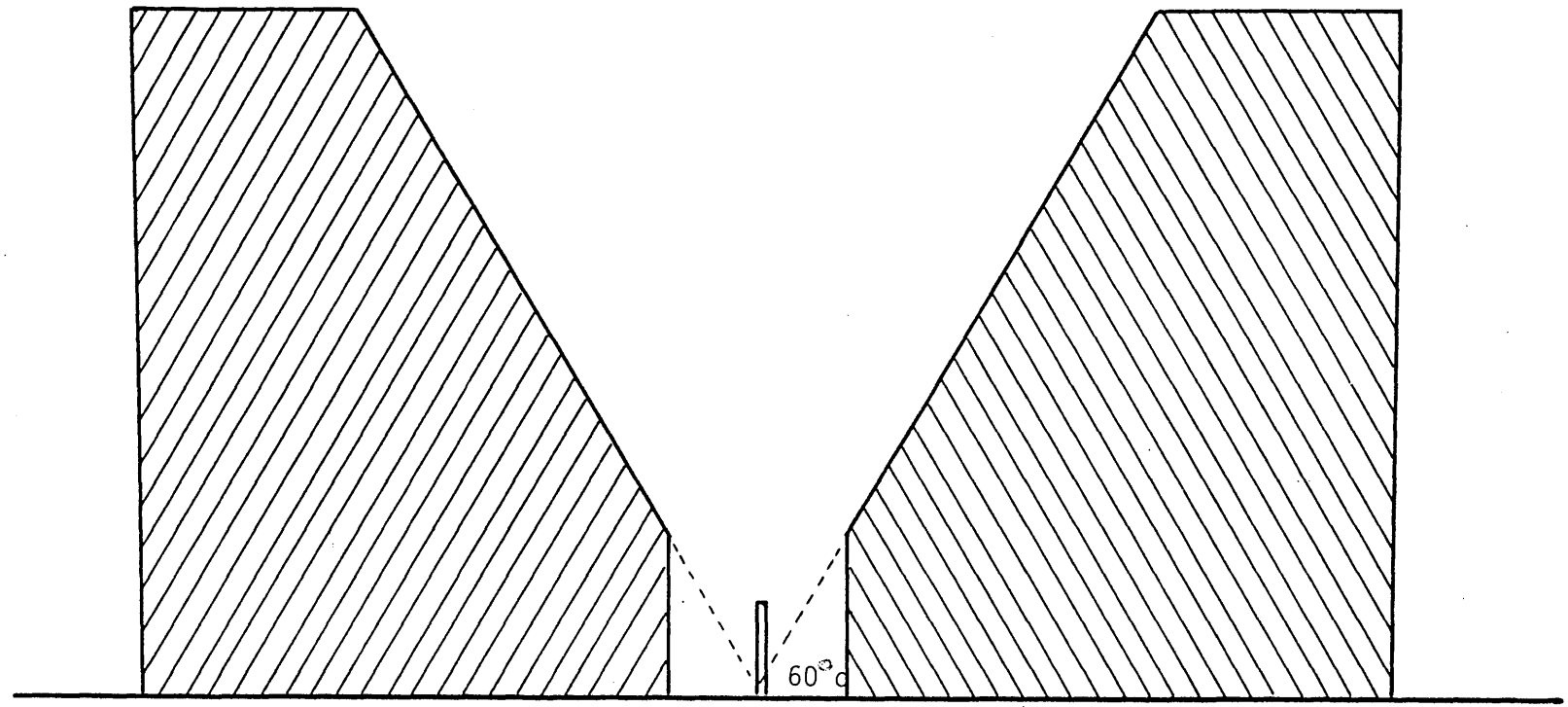
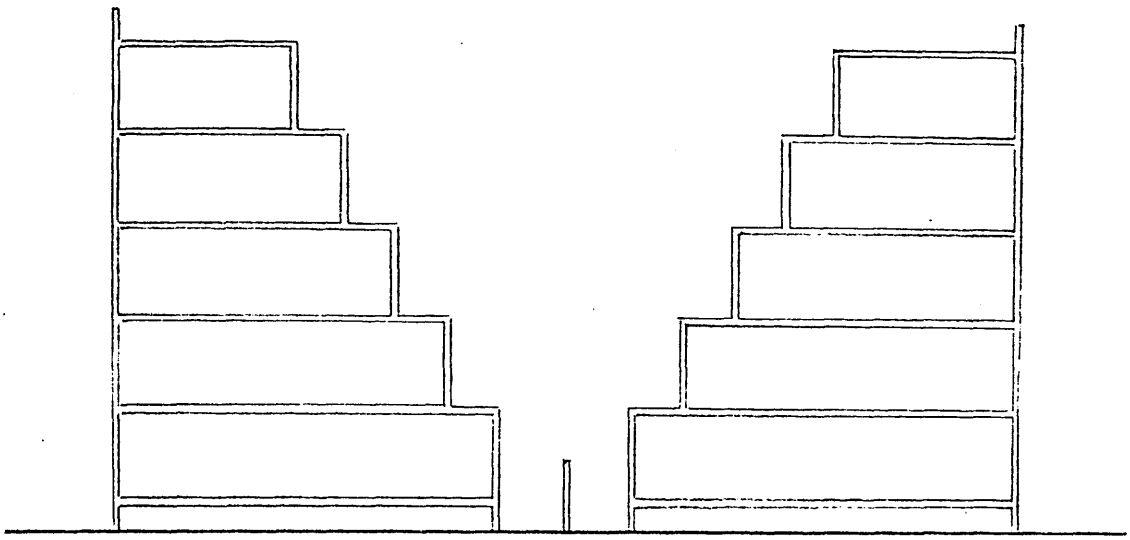
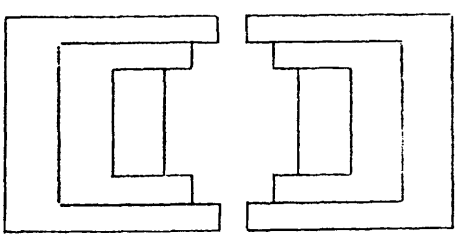


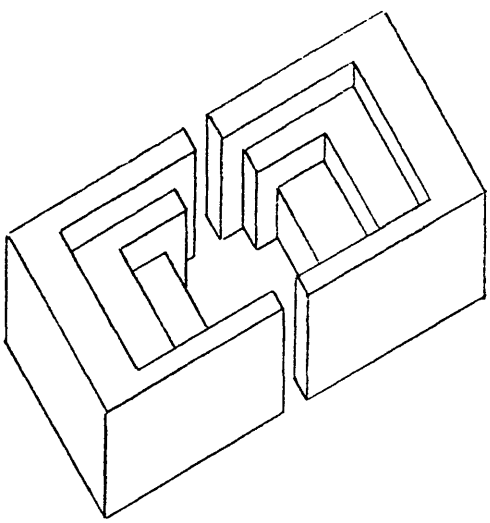
FIG 5.11

Titel : Proposed Building bulk

Source: The author [4]







Titel : Proposed Building Bulk

Source: The author [4]

FIG 5.12

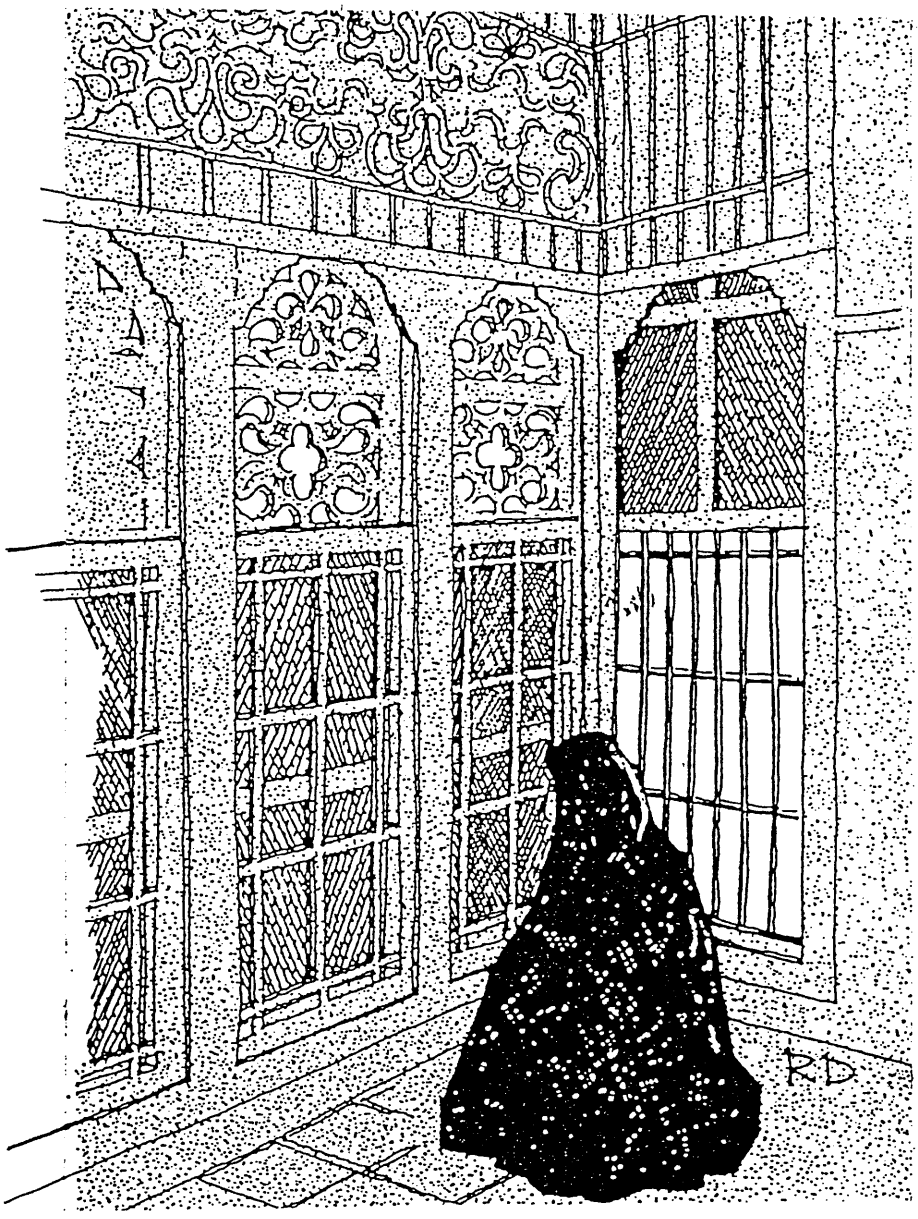
This principle could lead to greater variety in design because it give both the designer and the owner more freedom in choosing the building bulk, but the most important achievement is turning the back yard into better, viewed, light, and ventilated space.

5.5 PROPOSAL IV

There are two ways for achieving visual privacy which (a) privacy by distance, (b) privacy by design. Yet all the previous three proposals attempt to solve the problem in a distance terms by providing the minimum distance where by a person is not allowed to have close and direct sight into his neighbours property.

The forth proposal mainly attempts to achieve visual privacy through some design solution. It will mainly involve the design of the building's openings to prevent direct sight between the neighbours regardless of the distance between them.

That could be achieved through the following, (a) the use of "Mashrabia" and "Roshan" which mainly prevent and control the vision beside some others function. People in side the house are protected from out door vision in the meanwhile they are allowed to see out door with certain vision angle (fig 5.13).



Titel : Traditional Arabian Mashrabia

Source: Warren and Fathi [5]

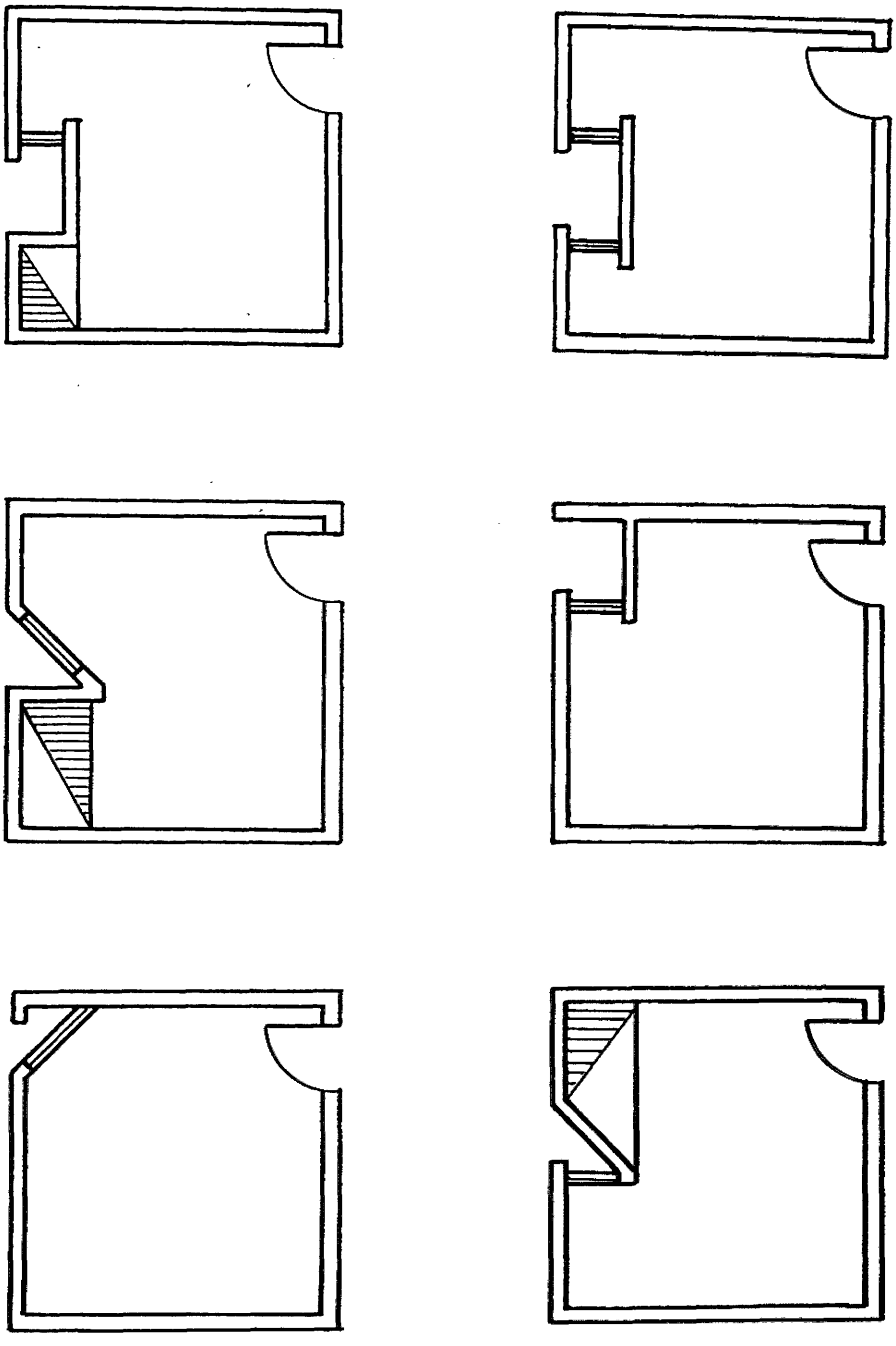
FIG 5.13

However the use of "Mashrabia" per se does not introduce the ultimate value of visual privacy, the situation could be enhanced by designing opening in the facade in such a way that it dose not face directly the neighbours window, (b) by the use of some window design alternatives which do not allow direct sight to take place, this could be achieved either by sitting the window back in the room (fig. 5.14), or projecting the window out side the room (fig. 5.15).

Selected examples from both alternatives are examined from the point of out door sight, (fig. 5.16, 5.17).

Both solutions allow certain sight to take place but with a specific angle, they also protect large area of the room from being over looked.

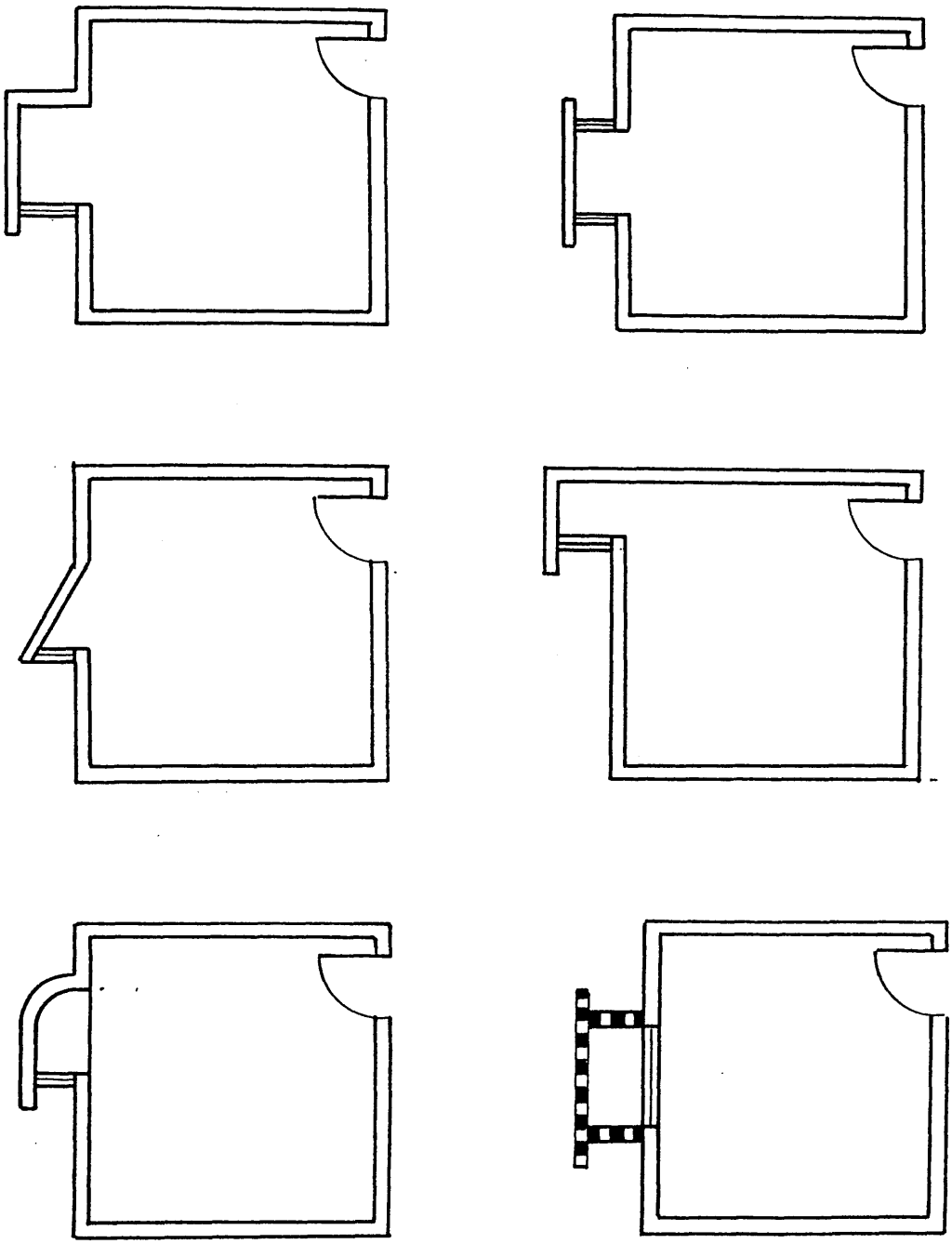
However, these design alternatives could be applied in the existing buildings in Madina especially in both the side and rear facades, in the same context it will also allow other design alternatives to develop.



Titel : Proposal IV design alternative

Source: The author [4]

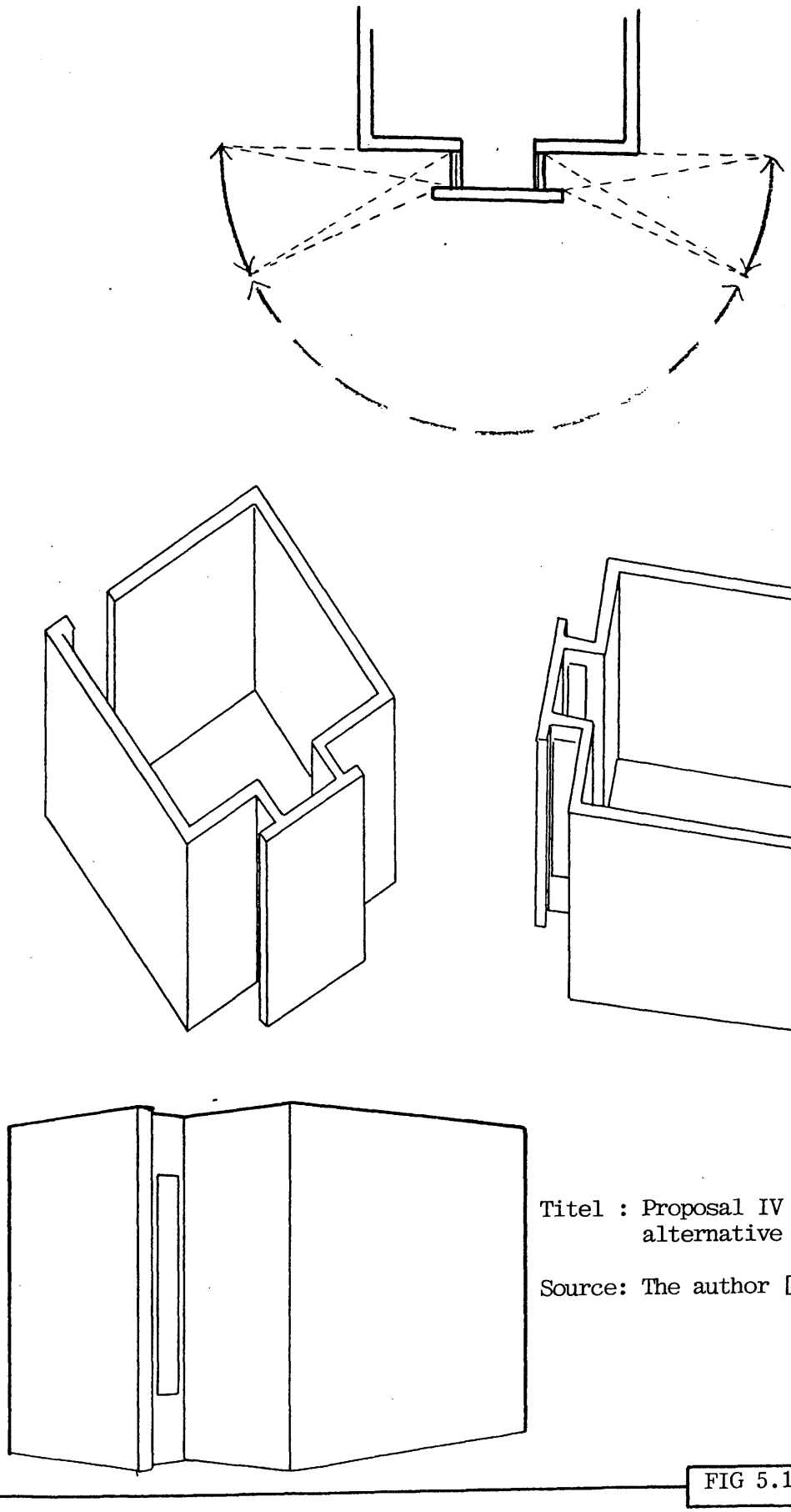
FIG 5.14



Titel : Proposal IV design alternative

Source: The author [4]

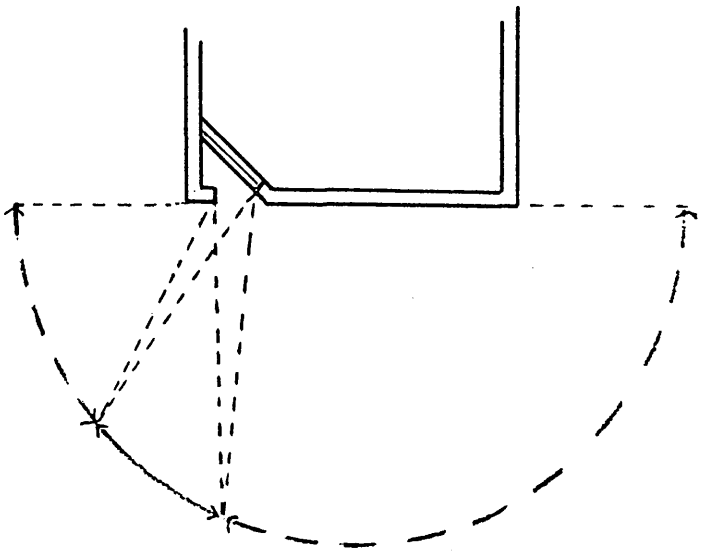
FIG 5.15

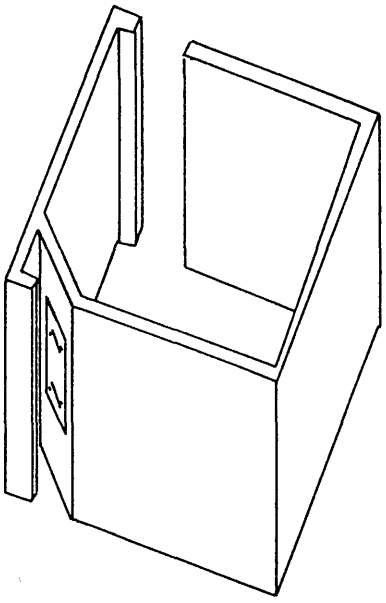


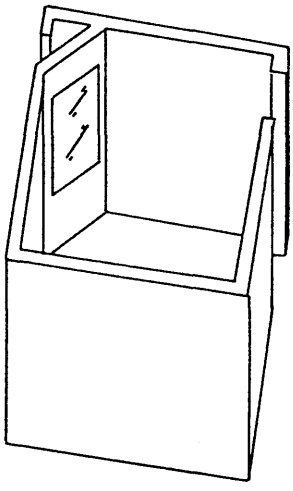
Titel : Proposal IV design alternative

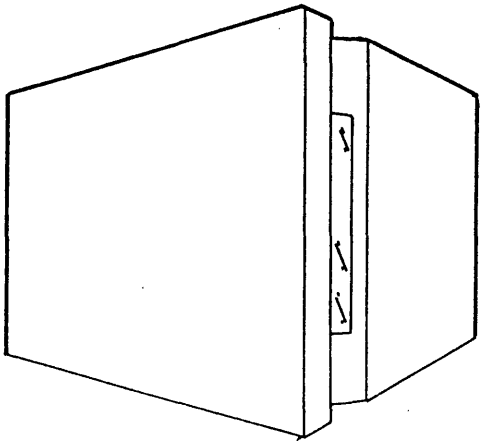
Source: The author [4]

FIG 5.16









Titel : Proposal IV design alternative

Source: The author [4]

FIG 5.17

5.6 CONCLUSION

To conclude the previous proposals mentioned in this chapter could be classified as (a) planning policy, (b) buildings design policy. Both policies are well related and affecting each other.

In the planning policy distance between the buildings were mainly dealt with. Yet in proposal I, II, and III shape of the building bulk and distance between two buildings were examined mainly to allow the principle of privacy to take place, ie: in the lot which less than 30m x 30m in size, abolishing the existing set back regulation were practiced in order to give more freedom to both the designer and the owner of the building, also to allow the principles of peace and quit to exist.

However, when the lot size exceeds this range another alternative was introduced since the lot size in such case is too big to be covered, such alternative was accomplished through letting the distance between two buildings being under control, either by fixing that distance as minimum of 16m where each building required to be setback a distance of 8m, or by the use of large fence wall between the buildings or the use of heavy vegetation at the boundary line.

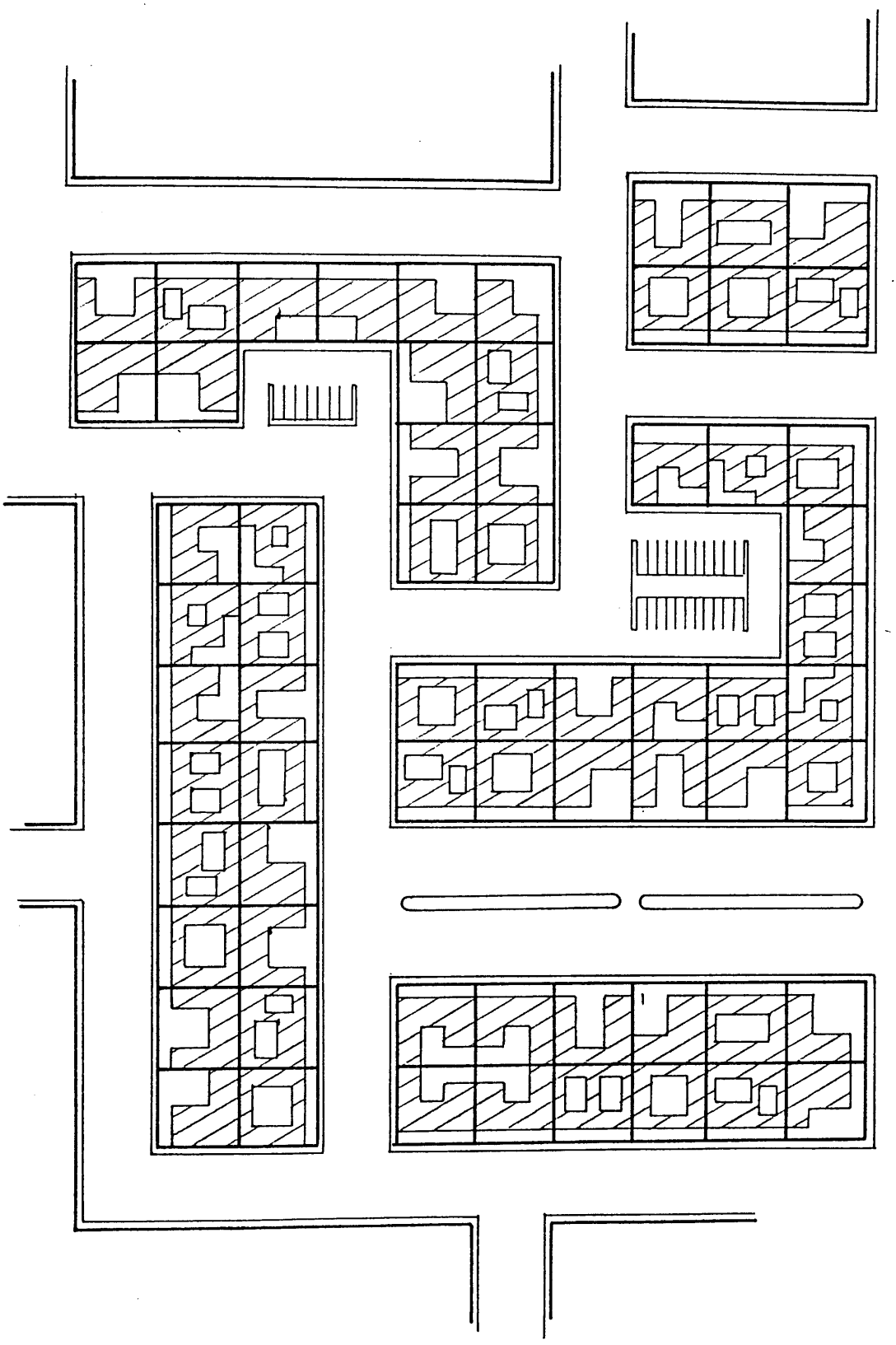
In the multi story building the idea of building envelop

was performed mainly to deal with the complication of providing adequate light and air in the rear yard of the building, figure 5.18 and 5.19 show a piece of residential quarter after applying some of the above mentioned proposals. However, in the application of this proposal I am mainly concerned with the block layout and the buildings within that block, though I have applied them within the existing Saudi roads standards.

In the building design policy the main concept was to provide peaceful, quite house, which contains an indoor courtyard, that was achieved through the planning polices. An attempt was made in proposal IV substantially to manipulate and design appropriate window opening in the building in order to prevent direct sight among the neighbours regardless of the distance between the buildings.

In other words such a proposal could be utilized both in the standard lot of 20m x 20m and in the large lot of over 30m x 30m. However the last proposal could enhance the previous three policies in order to establish new principles, more over it could be utilize in the existing building in Madina.

At last many other policies both in planning and building design are expected to be introduced in the future but the



Titel : Proposed Residential Quarter

Source: The author [4]

FIG 5.18

Titel : Proposed Residential Quarter

Source: The author [4]

FIG 5.19

most important fact is that all these new policies should meet the Islamic thought and principles mentioned in the II chapter of this study.

5.7 RECOMMENDATION

Reviewing the second and third chapter of this study we can see a great demand for recapitulating the existing planning and building regulation in the Kingdom.
Careful study should be carried out to examine how far does the existing regulations correspond to the Islamic principles in this field.

However the existing regulation are in great demand for revaluation and appraisal process in order to introduce new regulations which assure the Islamic identification of both the city and the individual house unit.

The only recommendation of this study is the achieving of that big goal, that could be accomplished through a comperhenssive study by expert people in the field of "Sharea" Islamic law, architecture, planner, land scape architecture, and urban designer. In a way they review the existing regulation and rewrite new one, this study could be considered as a start and step forward to that goal.

Lastly I found it helpful to cite the following recommendation which recently supmited by group of experts

to "King Abdulaziz City For Science And Technology" in their study designated as The Saudi Building Codes and Land use Regulation

"-Developing a continuous dialogue between Sharea scholars and environmental designers,
-Institutions of Islamic law related to the built environment should be revived, strengthened, and integrated with contemporary institution,
-Proposed building and land use regulation should possess the basic characteristics and principles of the regulation practices in the Islamic history, in a way it should be specifying what should be done and how to do it and what should not be done and how to avoids it. Such study should include dimensional analysis and diagrams in away it does not limit the freedom in design, so great involvement of the citizens in the decision making will take place,
-New regulation in Saudi Arabia should address the following (a) continuity between controls related to the natural environment and controls of the urban environment, (b) future coordination and definition of responsibilities between the different government agencies, (c) continuity between large scale plan and controls "Master plan", medium scale plan and controls "urban design schemes", and small scale controls "building plot",
-Saudi norms and tradition, in the context of "Sharea" should be reflected in building and land use regulation ie: privacy, size of the home,safety requirement, etc.
-Future research is needed to identify various planning and design standards and guidelines contributing to the making of built environment of the Islamic community ie: the achievement of proper hierarchy of space in terms of privacy, and also the achievement of proper mix of income levels,
-Alternatives must be found to the current zoning regulation, which are based primarily on dimensional setback.

In order to avoids the current proven disadvantages of (a) windows overlooking neighbours, (b) penalizing small plots of 20m x 20m, versus large plot, (C) predetermining the building type permitted on the plot, etc.
-The two cities of Makkah and Madina are in great need of regulation coupled with planning and design efforts in order to achieve the kind of environment they deserve." [6].

5.8 NOTES FOR CHAPTER IV

[1] SCET Ryadh Action Master Plan T.R.7 p.70

[2] Ibid

[3] New York City Planning Dep. Midtown Zoning p.80

[4] The drawing has been drafted by the auther.

[5] Warren & Fathi, 1982 Traditional House In Baghdad, Published by The Coach Publication House Ltd, Horsham.

[6] Group Of Experts, 1986. The Saudi Building Codes And Land Use Regulation, report supmited to King Abdulaziz City For Science And Technology.

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