



STUDY ON SPATIAL QUALITY OF AFFORDABLE
HOUSING IN KINGDOM OF SAUDI ARABIA

BY

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ABSTRACT

The main goal of the Saudi Arabian Government housing policy is to provide its citizens with decent and safe accommodation. The thesis discussed an important feature, which is the user lifestyle, and how to implement it in the initial design concept at early stages of design of affordable housing. It will also make a building's user more satisfied with the end product. Normally the design for affordable housing is based on the cost-reduction consideration and does not focus on the lifestyle of the traditional Saudi population. Therefore, alterations are being made which increase the cost of housing. During the past few years studies showed that there is a massive shortage of affordable housing in the Kingdom of Saudi Arabia, because the construction industry has mostly concentrated on building houses for the higher income group. The objective of this research was to investigate the design and layout of affordable house in Kingdom of Saudi Arabia and to explore the issues and problems related to affordable housing in Kingdom of Saudi Arabia. The method of study was carried by taking interviews with the real estate company dealing with affordable residential projects. Based on the interviews being taken it was studied that there is a huge shortage of affordable housing in the kingdom. And the affordable housing currently being occupied by the users are not satisfactory as the user want to have privacy in their space and these houses do not reflect their lifestyle or tradition. Therefore modifications are made to satisfy their needs, which increase the construction cost of the houses. To further study the issue of affordable housing a case study about the King Abdullah Housing Foundation was carried out to study the satisfaction of residents. The foundation donates housing to low-income families. Observation of the plan and layout of 20 houses in the King Abdullah housing compound were studied. Discussions were done with the users of the housing compound as how each space of their home functions and what are the problems and limitation faced by the users. Another survey was done in Riyadh and Jeddah to study the need for a design in a typical middle income Saudi family house. This survey investigated the design requirement of typical Saudi families who have an income less than 7000 Saudi riyal per month. The survey studied the space, plan and interior style of the homes preferred by the Saudis. Finally, the reasons were identified for the limitation of affordable housing in the Kingdom of Saudi Arabia. This study provides the guidelines for designing future affordable homes, which helps in solving the problems faced by the Saudi users.

ABSTRACT

إن الهدف الأساسي من السياسة الإسكانية للحكومة السعودية هو تزويد المواطنين بالسكن المناسب والأمن. ناقش هذا البحث النقاط الهامة لنمط حياة المستخدم / الساكن وكيفية تطبيقه في التصميم الإبتدائي في المراحل البكرة من تصميم المساكن بأسعار معقولة. إن ذلك يجعل مستخدم المبنى أو مالكه أكثر قناعة بالبناء النهائي. عادة ما يبني تصميم المساكن ذات الأسعار المعقولة على اعتبار خفض التكاليف دون التركيز على أسلوب الحياة المحافظة للسعوديين. لذلك فقد تم اللجوء لعمل بدائل والتي تسببت بزيادة التكلفة. خلال السنوات القليلة الماضية تمت دراسة النقص الكبير في الإسكان ذو الاسعار المعقولة في المملكة وذلك بسبب تركيز قطاع البناء والتشييد بشكل كامل على البناء للفئات من ذوي الدخل المرتفع. او قد أجريت دراسة استقصائية لمعرفة مدى رضا الناس في إسكان مؤسسة الملك عبد الله ، التي تتبرع بسكن في متناول ذوي الدخل المنخفض. تم إجراء مسح آخر في الرياض وجدة لدراسة الحاجة للتصميم في منازل الأسر السعودية والذي يقوم على شكل تخطيط المساحات. ومن هنا تركز الدراسة على حل مشكلة نقص المساكن بأسعار معقولة. من شأن استخدام الهندسة المعمارية المستدامة أن تساعد أيضا في بناء مساكن بأسعار معقولة ويجب تطبيقها في تصاميم المستقبل. ويمكن استخدام الأسلوب التقليدي للبيوت العربية في تصميم هذه المنازل لأن هذا يرضي أسلوب حياة السعوديين. إن الأسباب التي تم التوصل إليها في هذه الدراسة ستوفر مبادئ توجيهية لتصميم المنازل بأسعار معقولة في المستقبل.

APPROVAL PAGE

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TABLE OF CONTENTS

Abstract	ii
Abstract In Arabic.....	iii
Approval Page	iv
Declaration Page.....	v
Copyright Page.....	vi
Acknowledgements.....	vii
List of Figures.....	viii
CHAPTER 1: INTRODUCTION	1
1.1 Introduction	1
1.2 Background	1
1.3 Problem Statement	2
1.4 Objective Of Study	3
1.5 Scope Of Study.....	3
1.6 Significance Of Study	4
1.7 Methodological Framework	5
1.8 Limitations Of Study	6
CHAPTER 2: LITERATURE ON DESIGN AND AFFORDABLE HOUSING ...	7
2.1 Introduction	7
2.2 Affordable Housing.....	7
2.3 Designing Affordable Housing	8
2.4 Sustainability And Affordability	10
2.5 The Complexity Of Sustainable/Affordable Housing	10
2.6 Conclusion.....	12
CHAPTER 3: CURRENT HOUSING AND REAL ESTATE TRENDS.....	13
3.1 Introduction	13
3.2 Background	13
3.3 Privacy In Saudi Arabia	15
3.4 Islamic Perspective About Privacy	15
3.5 What Quran Says About Privacy Male And Female.....	16
3.6 Privacy In Saudi Families & Space.....	16
3.7 Personal Space.....	17
3.8 Housing In Saudi Arabia	19
3.9 Changing Patterns Of Housing In Saudi Arabia	24
3.10 Arab House Today.....	25
3.11 Housing Programme Developments.....	26
3.12 Need And Financing Of Affordable Housing In Kingdom Of Saudi Arabia	27
3.13 Housing Affordability	27
3.14 Sectors Providing Affordable Housing	29
3.14.1 The Public Sector Represented By The Real Estate Development Fund, The Ministry Of Housing And Public Works,	

Other Governmental Bodies And Saudi Industrial Development Fund	29
3.14.2 The Private Sector And Joint Stock Companies	30
3.14.3 Charities And Welfare Organizations	30
3.14.4 Banks	31
3.15 Issues And Problems Of Affordable Housing In Saudi Arabia.....	31
3.16 Overview Of Real Estate	37
3.17 Industry Structure	38
3.18 Primary Actors	39
3.19 Major Cities	39
3.19.1 Riyadh	39
3.19.2 Jeddah.....	40
3.19.3 Makkah And Madinah.....	40
3.19.4 Eastern Province.....	41
3.20 Process Of Working Of Real Estate In Saudi Arabia.....	41
3.21 Housing Market.....	41
3.22 Need Of Housing.....	42
3.23 Reasons Of Housing Shortage.....	44
3.24 Set Of Criteria To Meet The Demand Of Affordable Housing.....	45
3.25 Conclusion.....	46
CHAPTER 4: RESEARCH METHODOLOGY	47
4.1 Introduction	47
4.2 The Research Approach	47
4.2.1 Mixed Research Method	48
4.2.2 Quantitative Research	49
4.2.3 Qualitative Research	50
4.3 Methods Of Data Collection.....	51
4.3.1 Observation	51
4.3.2 Questionnaire	53
4.3.3 Interviews	54
4.3.4 Case Study.....	55
4.4 Conclusion.....	56
CHAPTER 5: ANALYSIS AND FINDINGS OF CASE STUDY	58
5.1 Introduction	58
5.2 King Abdullah Housing Foundation	58
5.3 Findings And Evaluation.....	62
5.3.1 The Impact Of Social Factors	63
5.3.2 Design Of Housing Unit.....	65
5.3.3 Planning Of Housing Units	81
5.4 Basic Concept And Design Of King Abdullah Housing Foundation, Issues And Problems	86
5.5 Conclusion.....	91
CHAPTER 6: ANALYSIS AND FINDING OF SURVEY IN RIYADH & JEDDAH.....	92
6.1 Introduction	92
6.2 Analysis And Findings	93

6.2.1 Personal Information	93
6.2.2 Interior Spaces Of The Residents	96
6.3 Result In Design For Affordable Housing Based On The Survey	105
6.4 Conclusion	106
CHAPTER 7: CONCLUSION AND RECOMMENDATIONS.....	107
7.1 Introduction	107
7.2 Conclusion.....	107
7.3 Design Guidelines	109
 BIBLIOGRAPHY	 111
APPENDIX I	117
APPENDIX II.....	122
APPENDIX III	128
APPENDIX IV	129
GLOSSARY	133

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
3.1	Rowshans windows (kaizer talib,1984)	19
3.2	Badgirs (kaizer talib, 1984)	20
3.3	Adobe houses in dariyah near riyadh (kaizer talib, 1984)	21
3.4	Courtyard house in mecca (kaizer talib,1984)	21
3.5	Window with a magic eye (kaizer talib,1984)	22
3.6	Mud lump structure prevents sandstorms (kaizer talib,1984)	23
3.7	A muslim neighbourhood (kaizer talib,1984)	24
3.8	Framework for the inquiry about affordable housing in saudi arabia (salama, 2006)	35
3.9	Relationship between income level and house layout preferences (developed based on the testing the survey questionnaire and responses received) (salama, 2006)	37
4.1	Research methodology	51
5.1	Location of the thual housing in jeddah	60
5.2	Graph showing number of wives	63
5.3	Graph showing number of children	64
5.4	Graph showing employment	64
5.5	Thual villa	65
5.6	Plan of the thual villa	66
5.7	Graph showing percentage of people said yes for alteration and no for alteration of the house.	67
5.8	Men's majlis	67
5.9	Ladies majlis	68

5.10	Majlis	68
5.11	Majlis	69
5.12	Majlis	69
5.13	Majlis	70
5.14	Graph showing percentage of guests visiting per week	71
5.15	Graph showing percentage of guests coming with only males and females.	71
5.16	Compound area	72
5.17	Graph showing percentage of people thinking about their safety and security of their homes in the compound	73
5.18	Road of thual compound	74
5.19	Graph showing rating given on scale of 1 to 10 for lighting used in the house.	75
5.20	Kitchen	75
5.21	Bathroom of the thual villa	76
5.22	Graph showing rating of the ventilation of the house	76
5.23	Graph showing rating of infiltration of insects and rodents in the house	77
5.24	Corridor area of the thual villa	78
5.25	Master bedroom	78
5.26	Master bedroom	79
5.27	Master bedroom	79
5.28	Graph showing rating of color scheme of walls and ceiling.	80
5.29	Outside space of the villa	81
5.30	Graph showing the percentage of satisfaction of outdoor space by the residents	82
5.31	Graph showing the percentage of residents satisfied with facilities given in the complex.	83

5.32	Graph showing the percentage of satisfaction with the car parking provided.	84
5.33	Graph showing the percentage of satisfaction of electric sockets	85
5.34	Graph showing the percentage of satisfaction with the furniture.	85
5.35	Graph showing percentage of satisfaction with the kitchen.	86
5.36	Graph showing the percentage of satisfaction with the current house.	87
5.37	Graph showing the percentage of residents preferring their future home location.	87
5.38	Furniture and accessorize	89
5.39	Graph showing importance of interior environment regarding health and comfort.	90
5.40	Graph showing the satisfaction of the elements of the house.	91
6.1	Graph showing the age of owners in percentage.	94
6.2	Graph showing the number of family members in percentage.	94
6.3	Graph showing the percentage of respondents living in apartment and villa.	95
6.4	Graph showing the income range in percentage of the family.	95
6.5	Graph showing the different spaces and rooms in the residence	96
6.6	Graph showing the rating of interior elements in the living room.	97
6.7	Graph showing rating of interior elements in bedrooms.	98
6.8	Graph showing rating of interior elements of a kitchen.	99
6.9	Graph showing rating or interior element in the bathrooms.	100
6.10	Graph showing the style of furniture used in percentage.	101
6.11	Graph showing style of furniture used in the bedrooms.	102
6.12	Graph showing the satisfaction with bathroom in percentage.	103
6.13	Graph showing the satisfaction with the kitchen.	104

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The objective of this chapter is to explain the background of affordable housing in Saudi Arabia. It discusses the problem statement, objective, scope, significance of study, followed by methodological framework and limitation of study.

1.2 BACKGROUND

Housing is an essential necessity. In traditional societies, housing was limited to the narrow definition of shelter. The house was very efficient, environmentally compatible and socially adaptive. A multitude of factors dictate the provision of efficient housing which caters to cultural needs, and is socially engaging (Mubarak, 2000).

Affordable housing is defined differently by researchers. In developed countries the definition of affordable housing is generally accepted and it means, “Housing that can be purchased by families earning between 30 percentage and 80 percentage of the community’s median income.” In Developing countries due to the relatively low per capita incomes it generally means, “housing that is provided for the middle and low-income groups who need assistance or supplements to fulfill housing needs” (Adel, 2005).

In Saudi Arabia the statistics and costs of housing acquisition show that a vast majority of households have an average median monthly income of about 7000 Saudi

riyals or less and have to spend much more than 30 per cent of their income on housing acquisition, hence liable for assistance (Adel, 2005).

The demand for affordable housing in the Kingdom of Saudi Arabia has witnessed an increase during the past few years. Saudi Arabia faces a rising unemployment problem, in common with many other countries. House rents have been rising due to sizeable financial and legal barriers to home ownership, which the government seems to be addressing. Home ownership is currently estimated at only 30 per cent of the population. There is a huge potential for growth in mortgage lending and also construction (Economist Intelligence Unit Views Wire).

1.3 PROBLEM STATEMENT

- a. The design for affordable housing in Saudi Arabia is usually governed by cost reduction and does not take into consideration people's lifestyle. Such approach has resulted in a number of consequences for users of affordable housing. Therefore, users have to incur costly alterations to the original plan to suit their lifestyle.
- b. When the Saudi people start to occupy these affordable houses they are not satisfied with the layout as the design is mostly based on the western concept rather than the traditional style.
- c. There is a shortage of affordable housing due to the increase of rent prices and poor employment and it is estimated that 70 per cent of Arabs do not even own a house.

1.4 OBJECTIVE OF STUDY

The purpose of this study is:

- a. To investigate the design and layout of affordable house in the Kingdom of Saudi Arabia
- b. To explore the issues and problems related to affordable housing in Saudi Arabia.

1.5 SCOPE OF STUDY

The scope of study will be based on the lifestyle of the Arab people and the kind of houses they would dwell in. It will also deal with how affordable housing is provided by the government and other organizations. It will also discuss issues and problems faced by the tenants of affordable housing in Kingdom of Saudi Arabia.

Due to the shortage of affordable housing in the Kingdom of Saudi Arabia, there are new projects and plans from real estate companies which are coming up to deal with this issue. This study discusses the trends and approaches to accommodate the needs and requirements for the housing to be sold to the Arab people.

This section will review affordable housing in developed countries to see guidelines that are being practiced by international organizations in designing an affordable residence.

A Study on traditional style of Arab houses will help in explaining the methods used and approached in providing natural ventilation and the elements of designs which are commonly used in housing in Saudi Arabia.

The Arabs consider privacy as a very important social factor. Privacy is very strictly followed, and it is part of religion. Males and females in the household and guests who are not part of the family are segregated. The concept of privacy has been

practiced in Saudi Arabia and this should be considered very important in the planning and design of a house, keeping in mind the affordability and availability of space.

1.6 SIGNIFICANCE OF STUDY

Despite the previous research which has been carried out on affordable housing in the Kingdom of Saudi Arabia, the issues of designing and planning still prevail. There is a shortage of housing in the Kingdom especially for Arabs who require affordable houses. Not many developers prefer working on affordable projects. Developers prefers to work on expensive housing like bungalows and villas.

A study of the needs of users of affordable housing, along with designing and trends in developed countries will also help in solving the problem of affordability. Sustainable designing by including green architecture should be applied.

Traditional Arab houses in Saudi Arabia normally have the following spaces: courtyard houses, mashrabiya, badgirs which were used in traditional houses and which helped in harsh climate of Saudi Arabia. These elements should be followed in the upcoming modern affordable housing projects; such traditional elements will help in energy-efficient design. The vernacular style of Arab houses was constructed to avoid sandstorms and hot weather.

Sidawi's survey conducted for affordable housing showed that the understanding of the preference, of future homes, of the Arab people is very important for the residents, so as to make them feel comfortable about the home in which they are living. She also added that current housing does not reflect the Arabic layout and is devoid of privacy and has irritating consequence on a user (Sidawi, 2008).

1.7 METHODOLOGICAL FRAMEWORK

The methodology used for this research is divided into four stages. The first stage is the theoretical research followed by second stage, which is data collection. Third stage – which is divided into two parts -- is analysis and findings. And the final stage is recommendations and conclusions.

Stage 1

The first stage consists of the formulation of the topic, identification of problem, and statement followed by the research objectives. The literature is done from the sources, which are in the form of articles, journals, electronic and printing media on all of the related topics.

The literature review is further divided into two chapters. The first chapter of the literature review is related to housing in general and affordable housing in particular.

The second part of the literature review is related to Arab homes, including privacy element. In addition, to the need for affordable housing in Saudi Arabia, there are other issues which are being faced by the residents of affordable housing. This chapter also explains the traditional Arabic homes in the past and before the discovery of oil and petroleum in Saudi Arabia such as the use of courtyard in houses and other Arabic elements like mashrabiyas.

Stage 2

The data collection is done in two parts. The first part consists of the observation, which was carried out, in studying affordable housing in Kingdom of Saudi Arabia. The second is the survey questionnaire being executed. There was a case study taken in Jeddah in its Thual district. This survey was done on the housing, which had been

provided by the King Abdullah Foundation for Housing Development. A case study was done in order to understand how the users are using the houses. The second survey was taken in Riyadh and Jeddah and the questionnaire distributed was given to Arab residents who had monthly income less than 7000 Saudi riyals. The questions were based on the interior design style of their homes and what they would prefer to be more comfortable in future.

Stage 3

The final stage is the stage, which is the Conclusion and Recommendations chapter and is the last chapter of this research. It provides the guidelines to be followed in designing an affordable home in Saudi Arabia. The final chapter consists of the summary of the research, recommendations about the design of affordable housing, and suggestions for further research.

1.8 LIMITATIONS OF STUDY

The author constraints in completing this study in Saudi Arabia identified a number of hurdles:

1. It is not easy for female researcher do to interview and visit sites since the culture of Saudi is conservative.
2. The other problem faced by the author is related to communication. Being a non-Arabic speaking it was difficult to communicate even with the officials of certain companies who were not very fluent in English, and a translator's assistance was needed.
3. Since the study was based in Saudi Arabia, most of the places for the case study were located in rural areas, which were far from the main city.

CHAPTER 2

LITERATURE ON DESIGN AND AFFORDABLE HOUSING

2.1 INTRODUCTION

This chapter defines the term affordability. Affordable housing is a term used to describe dwelling units whose total housing costs for either rented or purchased unit, are deemed affordable to those that have a median household income. It describes the criteria for designing and constructing affordable home. Sustainable design is an important issue (Bhatta, 2010). In Australia, the National Affordable Housing Summit Group developed their definition of affordable housing as housing which is “reasonably adequate in standard and location for lower or middle income households and does not cost so much and meets the basic needs on sustainable basis.”(Queensland Department of Housing, 2004).

2.2 AFFORDABLE HOUSING

Affordable housing is a term used to describe a housing unit whose total cost of housing is reduced according to the median income. Different people define affordable housing differently.

According to the Queensland Department of Housing in Australia, 2004, affordable housing is defined when:

- It is appropriate to needs of low-income households in terms of design, location and access to services and facilitates.

- Rent paid by households in the lowest 40% of income unit does not exceed 30% of gross household income after any applicable Commonwealth Rent Assistance is deducted.
- The definition of affordable housing acknowledges not only direct housing costs, but also indirect housing costs (Queensland Department of Housing, 2004).

2.3 DESIGNING AFFORDABLE HOUSING

Martha reported that there can be many solutions for designing affordable housing. It can be from the structural proposal of a building, to that of the materials, to sustainable projects that increase the initial investment but compensate by making the house more economical in terms of energy consumption (Martha, 2004). Designing an affordable house can be based on five criteria:

(i) CONSTRUCTION EFFICIENCIES

Construction efficiencies are among the most effective strategies for decreasing the cost of housing construction without reducing the livability. Construction details that use standard material dimensions and equipment modules limit waste and labor, reducing costs by at least 10 percentage. Using locally available and easy to repair materials, equipment and finishes also contains construction and life-cycle costs (NHI, 2002; Roberta and Tasneem, 2002).

Factory-built housing, both manufactured and modular offers greater cost savings when compared with conventional site-built housing. Modular housing is considered the strongest among frame housing and conforms to the same standards and codes as site-built. This saves the labor cost and time of construction period (Dr. Abdulaziz Al-Babtain, personal communication, December 19, 2009).

(ii) SPACE EFFICIENCIES

Space efficiencies can be achieved without reducing livable spaces, by minimizing circulation space and room dimensions. The ratio of a room' width and length also determines how well convectional furnishings will fit without wasting space. Rooms are very long proportionally and often do not offer the most efficient use of space (NHI, 2002; Maureen and Courtney, 2007).

(iii) GREATER HOUSING DENSITIES

Housing densities can also save money, especially in areas where there is a high land cost. Higher density multi-family housing has environmental benefits. One of the challenges of higher density housing is maintaining norms for privacy and valued, useable outdoor space (NHI, 2002; Roberta and Tasneem, 2002).

(iv) ENERGY EFFICIENT DESIGN

Energy efficient or green architecture design contributes to environmental sustainability and saves life-cycle costs. Unfortunately, it is all too often excluded from affordable housing projects because it is perceived as "too expensive". In fact, it is possible to attain energy efficiencies without incurring additional costs (NHI, 2002; Roberta and Tasneem, 2002).

(v) DESIGN FOR DURABILITY

Durability saves on costly maintenance and future building renovations. Spending on durable materials, finishes, furnishings and equipment may entail higher initial construction costs, but is compensated by substantially decreased life-cycle costs (NHI, 2002; Martha, 2004)

2.4 SUSTAINABILITY AND AFFORDABILITY

Housing costs are increasing in most of the cities however income of people is not necessarily increasing with the same rate. Due to the lack of budget and investment, most governments are not able to provide sufficient housing. Only over the past decade, housing markets in many cities around the gulf region including Saudi Arabia have witnessed a rising interest in the investment of creating good housing environments of different qualities, including affordable housing. To many architects, engineers, and developers, the terms “affordable housing”, “design”, and “environmental quality” are exclusive and are looked at in isolation. Once the goal of providing quality design and the goal of incorporating environmental and social concerns are included, it is generally assumed that the cost will automatically increase. When production techniques are developed to provide genuinely affordable housing, effort is often focused on cost reduction only, while many other aspects are overlooked (Salama and Dr.Habib, 2002).

2.5 THE COMPLEXITY OF SUSTAINABLE/AFFORDABLE HOUSING

All countries in the world face a set of various housing problems, both in provision and distribution of housing units. Therefore, the issue of housing affordability has become critical due to government disinvestment in public housing and replacement of public housing mechanisms with market-driven systems (Whitehead, 1991).

Sustainability in affordable housing research seems to encompass three dimensions; the economic dimension, for example, the financial costs associated with housing development, the social dimension, for example, the sense of belonging and the feeling of community among inhabitants, and the environmental dimension, for

example, encouraging water and energy conservation within the building (Salama and Dr.Habib, 2002).

Tiesdell reported that mixed development of affordable and market rate for housing (Tiesdell, 2004), comprises of medium density housing and multi-modal transportation. These are some of the strategies that have been developed for housing development at the neighborhood scale, and beyond. In the arena of sustainability assessment, quite a number of assessment methodologies and tools have been developed to measure the environmental performance and sustainability of affordable housing (Alshuwaikhat, 2006).

Previous studies show that there are two major approaches to sustainability. The “Top-Down” approach aims at developing policies, strategies and standards. However, this approach was heavily accused of being more evaluative than informative, and that it relies on, forcing the professional community to be aware of sustainable planning and design issues it relies on forcing the professional community to be aware of sustainable planning and design issues then responds to them. The “Bottom-Up” approach aims at building public and professional awareness, while providing feedback mechanisms. It is more informative than evaluative and relies heavily on developing a common understanding, a common language, and develops a sense of responsibility toward the environment. In recent years however, emphasis was placed upon the “Top-Down” approach while ignoring or oversimplifying the Bottom-Up approach. In this respect, it can be argued that both approaches are needed and none of them can replace the other (Salama, 2002).