

Assessment Of The Design Quality In The Low-Income Employee's Housing Case Study: Abu Dhabi – UAE

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Abstract: This study will investigate the opportunity to enhance the design quality of the Low-income employee's housing. A conceptual framework for the design quality rating will be developed to investigate the case study of Low-income employee's housing in Abu Dhabi, UAE utilizing a mix of qualitative and quantitative tactics. These investigations will lead to answering the main research question of: to what extent are the low-income employee's houses designed to be high residential quality? The study would also shed light on future sustained improvement solutions that can be brought in the areas of housing design quality in UAE.

Index Terms: Low income, employee, housing, UAE, socio-demographic factors, Housing, insurance benefits

1. INTRODUCTION

In Abu Dhabi, there is a considerable issue of congested houses and illegal partitions by low-income earners. Therefore, to overcome such issues, Abu Dhabi City Municipality (ADM) is targeting low-income earning citizens to meet their residential requirements. ADM already took initiatives in this area that not only intend to prevent the problems of illegal use of the building and high-density houses but also offers the opportunity to developers, investors and landlords to construct high-quality houses and redesign and renovate the existing buildings and convert them into residential units. Thus, the move aims to develop suitable accommodation to all community, more importantly, low-income earners. The municipality is committed to improving sustainability standard by offering affordable and highly qualitative accommodation facilities (Nabbout, 2017). With the keen focus on low-income earning people and who have a monthly income ranged in between Dh 4000 to Dh 6000, ADM aims to offer standard housing facility with the rental range in between Dh 1400 to Dh 2100/month. Thus, the move minimizes construction cost, maximize developers return on investment and mitigate the gap between demand and supply in the housing market.

1.1 Not-citizen Employees Low-income Housing Initiative

There are a wide demand and supply gap in the housing for lower-income earning people. As a result, people who don't find accommodation facilities are bounded to either share crowded homes or migrates to neighbouring suburbs resulting in productivity loss. The initiatives taken by ADM aims to offer sustainable housing facilities to bachelors and occupants hence includes both the citizen and non-citizen employees. It targets bachelor and occupants, Bachelors who are earning a monthly salary of Dh 2000 to Dh 4000 will be provided with the suitable homes ranging in between Dh 700 to Dh 1400.

1.2 Initiative Limitations

The key limitation or drawback of the initiative is as per the initiative, low income generating people who are employed in the service sector, i.e. tourism, hospitality, education, health, commercial and support industry. The does not cover all those people who can't afford better housing such as families with more than five people earning the same level of income would not be able to take the benefits of the initiative. In addition, as the initiative aims to enhance existing building to residential units henceforth, it is very difficult for the authorities to convince landlords to renovate existing buildings.

1.3 Statement of the Problem

In Abu Dhabi, there is a significant issue of poor housing, i.e. high-density house And illegal partitions by low income generating people; thus, the present study will explore the issue of how low income earning people in the Abu Dhabi are facing housing difficulties. The study attempts to thoroughly evaluate the current housing quality standards of low income earning employees and thereby will provide solutions for sustainable improvement to enhance the housing quality standards, so that, low-income earners will be able to improve their living standards.

1.4 Residential Satisfaction with Low-cost Housing

Mohit, Ibrahim and Rashid (2010) discussed the issue of residential satisfaction concerning newly designed low-cost housing in Malaysia. To this end, they investigated 45 variables grouped into five major components: public facilities, dwelling unit features, unit support services, neighborhood facilities and social environment. Their study indicated that individual residents are moderately satisfied concerning dwelling unit support services, followed by first, neighborhood facilities, next, dwelling unit features and then, social environment, which obtained a lower level of satisfaction among the residents with a higher number of percentage. Varady and Carrozza (2000) stated that how the increase of interest shows about the individual thinking towards their housing and how it has been affecting their lives.

1.5 Fifth National Policy Document on Spatial Planning:

Ministry of Infrastructure and Water Management defined the key policy for the design quality assessment through seven principles; the below table shows the main Netherlands principles and the indicators to achieve a better quality

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assessment rating:

Table 1 Quality assessment Indicators

Principles	Indicators
spatial diversity	Space standards The performance of building regulations Dimensions of buildings The variation of dwelling types Forms and Densities.
economic and social functionalities	Community buildings infrastructure: railway stations, schools, and playgrounds. Local facilities: cafes and shopping centres.
Cultural diversity	The diversity of activities for local communities: community halls, cultural facilities, street art, and public spaces.
social equality	Ensures that the design of housing development reflects the aspirations of the community.
Sustainability	Reducing the environmental footprint of the housing. Use durable and locally sourced materials, Achieves the optimum energy performance rating.
Attractiveness	aesthetical characteristics of a housing
Human scale.	Urban design: car parking, the coherence of street design and easy access to transport.

In some old urban area in the Netherlands, such as Vathorst, Amersfoort, the planners and designers attempt to redesign the neighbourhood with the existing unique housing development due to innovative approaches to design quality. Which based on a combination of three specific elements identity, closely bound, and area. Therefore, this area is combining of traditional housing in a 'classical' style with inventive contemporary architecture, were the developers and the municipality offered a variety of housing types, forms, and styles. Based on the above, below are the main divisions of the urban planning elements for each re-planned area or new area:

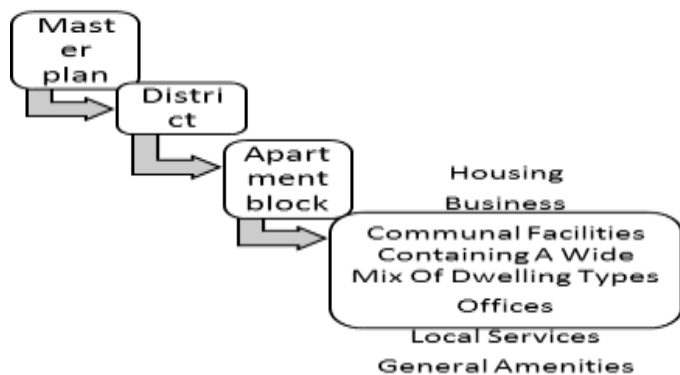


Figure 1 Urban Planning Assessment

1.6 Assessment tool Categories

As a summary of the three cases, we can realize that the housing authority in each country focused on common factors to assess and enhance the design quality of low-income housing. Below table shows the comparison for the three cases:

Table 2 Assessment tool categories

Singapore	United Kingdome	Netherlands
Floor	Location	spatial diversity
Internal Walls	Visual impact	economic and social functionalities
Ceiling	Open space	Cultural diversity
Doors	routes and movements	social equality
Windows	Unit size	Sustainability
Components	Unit Layout	attractiveness
Basic Mechanical and Electrical Fitting	Unit noise control, light quality, services	Human scale
-	Accessibility within the unit	-
-	Sustainability	-

Based on the above, we can realize the main principles for the assessment in all authorities are intersect in five main categories, as below:



Figure 2 Key principles of design quality assessment

Therefore, in all cases of the study, they proposed that residential satisfaction in low-cost public housing can be enhanced through improving the management of security control, perimeter roads, cleanliness of garbage house and garbage collection, all these predictors have high coefficient values for the design quality.

1.7 Expatriates' low-income houses

Industrial City of Abu Dhabi's (ICAD)—Workers' Residential Cities, (ZonesCorp, 2018): Zones Corp is a dynamic industrial development organization located in the heart of Abu Dhabi, and workers' residential cities are one of the developmental areas that follow this organization. ICAD, a residential city, is more than just a sprawling accommodation facility for foreign workers whose salary is below AED 2000 (Emarat Al

Youm, 2018); it is a high-quality accommodation for workers engaged in industrial and economic activities and construction workers, which has been built as per international specifications compliant with the standards of both the United Nations and Human Rights; see Figure 1. Overview. There are currently 30 Residential Cities in Abu Dhabi, spread across Mussaffah, Mafraq, Razeen, Hameem, Al Ain and the Western Region (ZonesCorp, 2018).



Figure 3 Overview of ICAD

1.8 ICAD Criteria

There are 28 residential sites for workers, with a capacity of housing 385,000 individuals, in addition to 8 accommodation facilities for temporary workers, with a capacity of 30,000. 16 km² spread in different locations in Abu Dhabi is dedicated to workers' residential cities (ZonesCorp, 2018). It has 24-hour security and CCTV/surveillance system. The residential city for permanent workers is situated nearby (within 10 to 15 minutes) to industrial zones in Abu Dhabi.

1.9 Low-income initiatives

The Abu Dhabi Municipality for 2017 has passed special laws and regulations for the housing program of low-income employees (Transport, 2017). The low-income category has been identified by expatriate employees in the service sectors (commercial services, tourism and hospitality, office support, health, education, etc.) who often work in the city with low or no housing allowances. This program is not comprehensive for workers' housing in the following sectors: construction, maintenance, cleaning, guarding, delaying, employment and labour supply (Council, 2017). The low-income housing programmer aims to provide a high-quality life for the targeted group by providing low-income housing units characterized by the following:

- ✓ High quality
- ✓ Income-friendly prices.
- ✓ Proximity to work areas.

The low-income housing initiatives target low-income employees in two main groups, bachelors and families, by providing new low-income housing units or retrofitting existing buildings in areas determined by the Abu Dhabi Municipality in Abu Dhabi Island (see table 2 and 3 appendix 1), to create housing units suitable for low- income employees, as follows:

Low-income Families Rate

Table 3 Families Rate

	Income per capita/AED	Rental Rate
Monthly	6,000 – 4,000	35% of the income of the family
Annual	72,000 – 48,000	

Low-income bachelors' rate

Table 4 Bachelors rate

	Income per capita/AED	Rental Rate
Monthly	4,000 – 2,000	35% of the income for each bachelors
Annual	48,000 – 24,000	

Currently, average monthly income among expatriate households is low, at around AED 6,000 per month, reflecting the high number of low-income expatriate employees in Abu Dhabi, with a high percentage of housing in Abu Dhabi (The General Secretariat of the Executive Council, 2008). Hence, accommodation concerns in Abu Dhabi concerning lower-income employees have shifted from quantity-oriented to quality-oriented concerns, which also highlights the need for focusing on high-quality designed houses. The chapter presents the data collected from the respondent in estimating the assessment of the design quality in the low-income employee's housing through SPSS software. This chapter is consisting of three parts, part one is about the questionnaire analysis, and part 2 is about the interviews which have been taken in a place with some experts within the same filed, part three is about analysis of Singapore case study as one of the leaders in the low-income housing. Moreover, in part 1, the analysis outputs are in the form of frequency tables, percentages and bar graphs. While the interviews output helped to understand more about the topic and propose an ideal solution to our topic, then the case study analysis will give a deeper understanding of how other countries such as Singapore are dealing with this kind of housing internationally.

PART 1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

Respondent's profile

Table 5 Demographics profile of respondents

S/N		RANGE/OPTION	FREQUENCY	PERCENTAGE	MEAN
1	AGE	24-27years	25	50.0	28.08
		28-31years	19	38.0	
		32-36years	6	12.0	
	Total	50	100.0		
2	Marital Status	Married	16	32.0	
		Single	34	68.0	
	Total	50	100.0		
3	Gender	Male	41	82.0	
		Female	9	18.0	
	Total	50	100.0		
4	Religion	Buddhism	4	8.0	
		Christianity	8	16.0	
		Islam	38	36.0	
	Total	50	100.0		

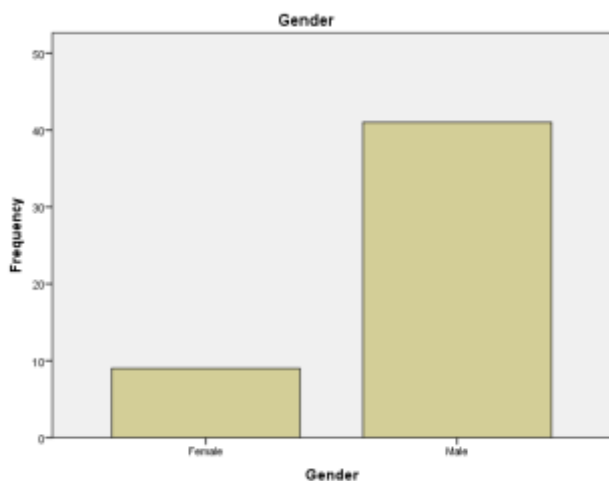


Figure 4 Respondents gender

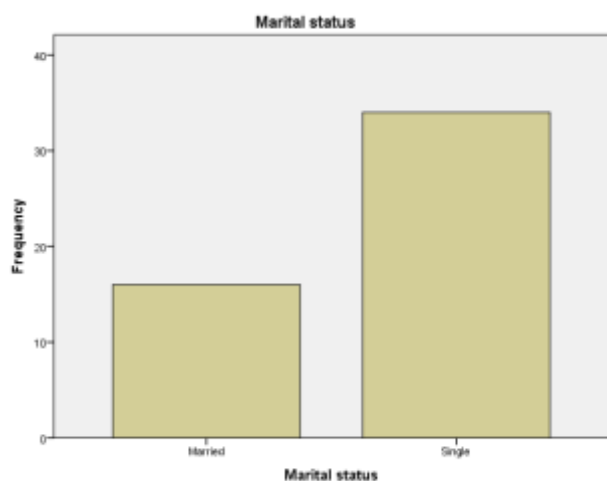
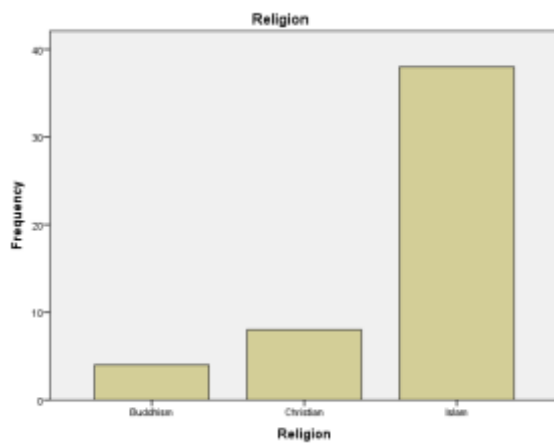


Figure 5 Respondents marital status



Above table showed some of the demographic distribution results where 25(50.0%) of the respondents claimed to fall under the age range of 24-27years, 19(38.0%) claimed to fall within the age range of 28-31years while 6(12.0%) of the total respondents claimed to fall within the age range of 32-36years; this showed that majority of the respondents that participated in the research falls within the age range of 24-27years as at the time of this research; It was also revealed that majority of the respondents which takes 34(68.0%) of the respondents are single as at the time of this research while 16(32.0%) claimed to be married. This shows that the majority

of those that participated in the research are bachelors or spinsters; the table also showed the gender distribution of those that participated in the research where 41(82.0%) of the respondents claimed to be male, and 9(18.0%) of them claimed to be female, this shows that males participated in the research more than female since it is even males that take up the responsibility of providing shelter for the home; this table 1 still showed the religion distribution of the respondents where 4(8.0%) claimed to be practising Buddhism, 8(16.0%) claimed to be a practising Christian. At the same time, majority of the respondents which also take the largest percentage of those that participated in the research 38(76.0%) claimed to be practising Islam.

2 CONCLUSION

Low-Income are living in poor quality of houses where there is no balcony, ceiling walls, floors and do not have air conditioned rooms. They are struggling with the poor quality houses where neither there is proper ventilation nor lighting facilities available. Due to lack of basic facilities in house, low income earners who are living in shared houses are dissatisfied with the house qualities. With the applicable statistical tools like correlation test, the study discovered that rental cost and kindergarten shows significant relationship. It means that people who are paying high rental are able to enjoy the benefits of such facilities or vice-versa. Municipality must take ground rules on developers to make affordable houses for them with good quality for well being life.

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