

## Homeowners Reasons for Spatial Design Modification of Terrace Housing Concepts

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### Abstract

*In the past four decades Malaysia has witnessed a rapid construction of terrace housing development all over the country and the terraced houses are typical concept of mass housing initiative, mainly developed either by the government or private developers in the country, in order to meet the ever increasing demand for housing. The common spatial characteristics of newly built terraced houses in Malaysia have not changed much, featuring repetitive and monotonous designs. Homeowners tend to modify their homes in order to meet their changing needs. Modifications are primarily aimed at providing better quality of life for the homeowners and improve the functional aspect of the house. This paper identifies the influential factors or reasons behind spatial home modification, which contribute immensely in enhancing comfort level and quality of life. Data were obtained from a purposive sample of 195 FKAAS Staffs living in more than 20 different housing estate developed by different housing developers. Descriptive analyses were applied to the data. The findings of the study indicate that the 105(83%) of the 128 FKAAS staff in UTHM Batu Pahat, Malaysia agree to have carried out modification to improve comfort level, improve dedicated space, increase in the need for storage space and enhance security features in their homes. From this finding it indicates that designers and developers tend to focus in the provision of the immediate needs of the households freezing out time in pursuit of static idealized object of perfection.*

**Keywords:** *Housing, Terrace house design, Modification, Spatial design modification.*

### INTRODUCTION

Over the past four decades Malaysia has witnessed a rapid construction of terrace housing development all over the country. The terraced houses are typical concept of mass housing initiative, mainly developed either by the government or private developers in the country, in order to meet the ever increasing demand for housing. As it is known as 'row house' or 'link house' in some countries, it was adopted from the British terraced house design (Hashim *et al.*, 2006). The key spatial characteristics of the terrace houses built in Malaysia, are either single storey or double storey; semi-detached or linked; built-up area of 18-20 metres by 55-75 metres; 2-4 bedroom with 2-3 bathrooms, dining area, kitchen, porch and balcony.

According to Omar *et al.* (2010) the common spatial characteristics of newly built terraced houses in Malaysia have not changed much, featuring repetitive and monotonous designs (Omar *et al.*, 2010). Modifications are primarily aimed at providing better quality of life for the homeowners and improve the functional aspect of the house. Mohd Jusan (2007) points out that, homeowners modify their homes in order to increase congruence with their home environment.

However, the mass housing design concepts has its strength and weaknesses. As it provides an alternative to housing needs for the general purpose and population as shelter, it is certainly not what the majority aspire currently as housing. According to Omar *et al.* (2003) the solution of “one design fits all” does not accommodate individual’s specific needs and subsequently the evolving changing needs of a household. This is noted by Ozaki (2002) as well, who further points out that mismatch between house design and the user’s values and lifestyle will always lead to dissatisfaction.

According to Omar *et al.*, (2012a) it is quite a normal scene to see even brand new houses being modified. This trend of modifying houses is very popular among Malaysians, to the extent that even the government has considered it a ‘culture’ among the people (Omar *et al.*, 2012a). It is an emerging culture, which has been acknowledged by the then-President of Malaysian Institute of Architects, as a growing culture of modification among Malaysian residents (Omar *et al.*, 2012b). This view is further supported by the Ministry of Housing and Local Government, stating that home renovation has become a ‘culture’ which needs to be addressed by professionals (MHLG, 1999).

Household occupants engage in housing modification on a number of levels, in order to make a home more aesthetically pleasing or more suitable for their needs. According to Abbott *et al.* (2003), In the UK, the past decades have apparently seen a dramatic increase in the level of interest afforded to the area of housing modification in order to improve their homes. However, Abbott *et al.* (2003) noted that the types of modification that take place range from fairly modest by putting a coat of paint onto a wall to quite dramatic extending a home or changing the interior layout. Furthermore, the number of household choosing to build their personal homes, or convert non-domestic buildings for home use is increasing steadily. Housing has become an increasingly important focus of Government policy in recent years in Malaysia. It is evident that in some cases, the decision to modify or personalize the residential property directly indicates dissatisfaction with current housing provision. Abbott *et al.* (2003) pose important questions related to the more practical issues of occupant’s requirements; whether the current new housing adequately reflects the values, lifestyles and ideals of residents? The research study is based on the position that housing design should be able to evolve and meet the needs of a changing household and society in Malaysia, which is increasingly composed of a number of subgroups whether based on socio-economic status or differences in lifestyle choices and preferences (Abbott *et al.*, 2003).

### **Design Consideration**

Generally, almost all changes made to the house are intended to increase the number of bedrooms, or widen living room, dining, kitchen, wash room and car porch. The living room is a substantial space in the house that most residents had intended to modify (Saji, 2012). The extra space in the living room for use as the family sitting area is essential for the households (Wahid, 1998). According to Omar *et al.* (2010), it is common knowledge that kitchen is one of the favorite renovated spaces in local housing development. Findings have confirmed that kitchen has been very significantly modified (Omar *et al.*, 2010). Findings of Omar *et al.* (2010), indicates that virtually all of the houses that carried out modification added a “wet kitchen” to facilitate cooking and washing. It is however supported by the research carried out by Sazally *et al.* (2010) where homeowners believe there is a crucial need for a bigger kitchen and a separate “wet kitchen”. The former kitchen was then transformed into a “dry kitchen” and was installed with built-in kitchen

cabinets. On the other hand, most homeowners pointed out that the dry kitchen was only used for warming up food (kitchenette) and functions more to impress visitors and guests, as indication of their current status.

However, terraced housing was developed based on the 'efficient' use of setbacks and building-to-building distances for the purpose of natural lighting, wind flow, firebreaks and sanitation, without further consideration to integration of the local culture (Tajuddin, 2003). According Saji, (2012), during the 1970s, terraced housing has become a common display in the urban areas that were made up of rows and rows of interchangeable terraced houses along the rigid lines of the grid. Different from traditional houses, which are built scattered without proper planning in the village, the terraced housing units are systematically organized close to each other in rows without much consideration for culture requirements and future adaptability (Saji, 2012). The residents are restricted within the defined boundary of their fenced housing units. The concept of life in a community, as accustomed in the Asian societies, has given way to the anonymous living of housing estates, which still remains until today (Saji, 2012).

As housing designs are not easily accepted in relationship with the changes in lifestyles of the people, housing modification became monotonous and acknowledged as a Malaysian culture (Ministry of Housing and Local Government, 2004; Ahmad *et al.*, 2010). Due to the increasing value of land in urban area, terraced housing is in high demand as compared to other types of compact housing such as high-rise apartment as it allows room for modification. People modify their houses for many reasons. Some literatures have suggested that failure to include cultural consideration, including privacy in the design process, were the main reasons why housing units are being modified (Brolin, 1976; Correa, 1989). However, naturally one of the reasons for housing modification is to achieve privacy as indicated in the studies of Ozaki (2001), Zaiton (2000), Abu Gازه (1996) and Al-Khodmany (1999). Among the weaknesses in the housing design introduced is the lack of social and cultural considerations including privacy (Saji, 2012). Moreover, a clear understanding of the division between the public and private spaces which is known as spatial zoning should be taken as parts of the design considerations that would minimize housing modifications (Ahmad *et al.*, 2010). According to Gifford (2008), privacy can be regulated through behavioral mechanisms such as rules, manners and hierarchies, psychological means such as internal withdrawal and depersonalization, apart from behavioral cues by structuring activities in time, spatial separation, and the act of using physical elements (Saji, 2012).

### **Terrace House Modification**

Saruwono *et al.* (2006) states that in a modern and developing country like Malaysia, the society in general has advanced to a higher level of needs in accordance to the Maslow's model of hierarchy of needs (Saruwono 2012). At higher level they acquire certain aesthetic taste that reflects their image. However, it is carried through in the choice and aesthetics of their houses. The current concept of terrace house design provides limited involvement of the homeowners (Omar *et al.*, 2012). As a result many residences renovated their houses at the certain stage in order to fulfill their needs.

On the other hand, the perceive intension is to utilize user-initiative to change or modify the obtained housing and to make efforts to change the physical environment to meet the needs and aspirations. However, the involvement of the user is seen not only as a good method to show the

needs and demands, but disenchant with the epitome towards the Utopian model in mass housing which brings to a perception that mass housing is no longer adequate in Third World countries (Wahid, 1998). The mass housing that was built by the private and government agencies did not involve any association between the user and the designer in making decision (Saji, 2012). However, it depends solely on the party who makes the decision and communicates between the user and the designer. Architect and user come from different cultural backgrounds (Wahid, 1998).

Inevitably, in the future the housing unit will possibly change according to the household's lifestyle and lifecycle (Wahid, 1998). The size of housing will decrease and increase when the user make changes to meet their lifestyle. However, changes in the housing unit are not convenient. However, these are the reasons that encourage users to modify and to raise the living environment so that it could fit accordant to their lifestyle (Wahid, 1998). Hence, according to Rapoport (1989), the main objective of transformation is to increase space according to the needs and requirement of the user (Saji, 2012). The need for more space and the changing circumstances of the occupants result in the improvement of the shelter, either by replacing deteriorated components and by increasing or reducing the space, showing that there is a reason for such changes. After a period of occupancy the resident will begin to make changes to their house (Saji, 2012). According to Saji, (2012) the homeowners modify their house for two reasons. The first is when there is a change in the demography and necessity of the residents. This shows the priority of the homeowners to modify their house instead of moving to another different unit, as movement according Billington *et al.* (2012) is the most stressful activity in human life. The second reason for modification is that the current provision in the design does not satisfy the homeowners living requirements. However, it is noted by Saji (2012) that the supply-driven market is what causes the homeowners to make these changes. Nonetheless, constant changes to the house are not limited to the conventional house; both traditional and conventional houses experience numerous changes. The main causes for the change are due to dynamism and discrepancy (Wahid, 1998).

## MATERIALS AND METHOD

This paper presents the findings from a research conducted on factors affecting terrace house spatial design modification in Malaysia. The scope of the research covers the homeowners in Faculty of Civil and Environmental Engineering (FAAS), Universiti Tun Hussein Onn, Malaysia.

A research question was asked in order to guide the investigation: What are the existing common factors that lead to spatial design modification of terrace house concepts in Malaysia? However, this section deals with the research methodology adopted in conducting this research, that is, the target population, sample and sampling techniques, instrumentation, data collection, the instruments used for data collection, the methods of data collection and analysis. The methodology employed in this study is quantitative method as discussed below. The target population comprised of academic and administrative staff of FKAAS in UTHM Batu Pahat.

Convenience sampling technique was used in the administration of questionnaire for this study. After taking into consideration the large number of potential respondents in the sample size along with the information required to achieve the research objectives the research instrument decided on was a questionnaire. The questionnaire as defined by Hutton (1990) and cited in Blaxter *et al.* (2004) "is the method of collecting information by asking a set of formulated questions, in a

predetermined sequence, in a structured questionnaire, to a sample of individuals drawn so as to be representative of a defined population” (Blaxter *et al.*, 2004). With these factors taken into consideration the importance of a well thought out research instrument cannot be over stressed, as according to Rowley (2004) a well-designed questionnaire will only ask the questions to which you want an answer. On the other hand after taking into consideration the different methods available to administer a questionnaire, the self-completion questionnaire was deemed as the most suitable research instrument for the current study. This method was decided upon because it would enable the collection of large quantities of data from a sizable population sample with relative ease and therefore aid the administration process.

The administration of the questionnaire involved one faculty with five departments within Universiti Tun Hussein Onn Malaysia and required the personal attendance of the researcher at more than 180 corridor offices. Due to the quantitative nature of the current research it was decided to use SPSS (Statistical Package for the Social Sciences) to analyze the data obtained from the questionnaires.

After assessment of the questionnaires it was found the total number of questionnaires administered was 160 (81%) out of a potential sample size of 197 academic (Lecturers) and administrative staff employed to the respective and various department of the faculty (FKAAS). This represented as previously stated 85% response rate of from both academic and administrative staffs of (FKAAS) available on the day of the administration of the questionnaire. However on closer inspection this number was reduced to an actual usable sample size of 128 staff or 80% of the sample size. This was due to 17 questionnaires that were incorrectly completed and as a result deemed ineligible for use. In addition 15 questionnaires were not retrieved up to the time of analysis, as it was taking a longer time and difficulty in locating the respondents (see Table 1 below) for detailed description of the number of questionnaire administered. Likert Scale scoring of 1 – 5 was used for the questionnaire administered. Table 2 reveals the views of the FKAAS staff in on the factors or reasons behind home modification.

Table 1: Number of questionnaire administered to the FKAAS Staff

S/No	FKAAS Staff	No. of Questionnaire retrieved	No. of Questionnaire not retrieved	Total
1	Faculty of Civil and Environmental Engineering	145	15	160
	Total	145(90.6%)	15(9.4%)	160

## RESULTS AND DISCUSSION

Assessment of the reasons for respondent`s home spatial modification within 10 year period of occupancy was conducted. According to this survey in Table 2; it shows that 83% of the 128 FKAAS staff representing 105 respondents from various households agree to increase in the number of family members as a reason behind their home modification, while 72% of the FKAAS staff representing 82 respondents agree that increase in the need for more storage space as reason for home modification. 50% of the staff representing 57 respondents moderately agree to improved occupant circulation amongst spaces as reason behind home modification.

Whilst 58% of the FKAAS staff representing 69 respondents moderately agree to enhancement of ergonomic features to be the reason of their home modification. Interestingly, 75% of the staff representing 95 respondents agree to aesthetic upgrade as the reason for their home modification while 74% of the FKAAS staff representing 90 respondents agree to enhancement of security features as a for home modification. On the other hand, 74% of the staff representing 93 respondents agree to upgrading their homes according to increase in their economic status. From the data analysis, 75% of the FKAAS staff representing 94 respondents agree to improvement of their comfort level as the reason behind their home modification; whilst 78% of the staff representing 98 respondents agree with the improvement of functionality of a dedicated space as a reason for their home modification.

Table 2: Reasons for home modification (Source: Field Survey, 2013)

Reasons for home modification	Strongly disagree	Disagree	Moderately agree	Agree	Strongly agree	Mean X
Increased family members	0(0%)	3(2%)	5(4%)	105(83%)	13(10%)	4.02
Need for storage	0(0%)	0(0%)	7(6%)	82(72%)	25(22%)	4.15
Improve circulation	0(0%)	0(0%)	57(50%)	39(35%)	17(15%)	3.65
Enhance ergonomic features	0(0%)	0(0%)	69(58%)	47(39%)	4(3%)	3.45
Upgrade aesthetics	0(0%)	0(0%)	11(9%)	95(75%)	20(16%)	4.07
Enhance security features	0(0%)	0(0%)	9(7%)	90(74%)	23(19%)	4.11
Increased economic status	0(0%)	5(4%)	3(2%)	93(74%)	25(20%)	4.09
Improve comfort level	0(0%)	0(0%)	0(0%)	94(75%)	32(25%)	4.25
Improve dedicated space	0(0%)	0(0%)	0(0%)	98(79%)	26(21%)	4.20

\*\*n = 128

## CONCLUSION

From the data analysis as discussed in (Subsection Results and Discussion above), the statistical results on the reasons for home modification provide descriptive statistics of the mean which indicates clearly that the respondent`s *agree* with “*improve comfort level*”, “*improve dedicated space*”, “*increase in the need for storage space*” and “*enhance security features*” as reasons for their home modification. The findings shows that majority of the respondents unanimously *agree* to factors listed in table 2 above being the reasons for their home modification.

Therefore, it would be of benefit if any future research in this area was conducted in a variety of housing estates across a wider geographical range. This would add more information to a seriously under researched topic by gaining an overall picture of the influential factors that leads to spatial design modification especially in terms of changing needs

However, in the light of the preceding conclusions, the following recommendations are offered as possible means of enhancing the housing design, particularly to the terrace house design, as it will go a long way in reducing the passive modification being carried-out by homeowners. Designers and developers should consider the possibility of change in family size which usually increases with time and is absolutely inevitable in human developmental life. The design should be flexible to respond to the changing needs of the homeowners. Designers and developers should create design homes with adequate storage facilities to accommodate the future needs of homeowners towards storage space. As home owners usually acquires more domestic possession eventually in a life time. Hence the need for storage becomes highly imperative. In order to achieve an effective housing design, it would also be of great benefit to explore the concept of time-based design. Further research in this area should be conducted to develop guidelines and possibly draft policies towards implementation of and Time-Based Design.

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