

# A Review of Malaysian Terraced House Design and the Tendency of Changing

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## Abstract

The construction of terraced houses is the main contributor to the successful development of housing industry in Malaysia but illegal changes and modifications by buyers and occupants may diminish its original identity or characteristics. The physical adaptation and adjustment made by the occupants to fit their utilitarian needs could result in the extensive modification of the housing facilities and the relocation of spatial distribution. Since alteration and renovations are always done and made without proper control, terraced house in Malaysia has lost its originality. This paper provides literature reviews on housing modifications specifically in terms of design consideration and changes in design. It describes the relationship between human and their territory and space which then leads to changes in lifestyle and design. Finally, a conclusion is drawn on the effect of altering the appearance and the change of the original architectural character.

**Keywords:** terraced house, housing modification, alteration, changes

## 1. Introduction

Today, appreciating the ever-recurring as a quality seems like an anachronism. The term recurring or repetition has negative connotation; it has become a synonym for monotony, sameness and boredom. But the principle of repetition is always present and forms the basis of all life in our planet: pulse beat, breathing, the cycle of the seasons, to name just a few examples. The principle of repetition therefore also stands for continuity, reliability, stability and homogeneity - attributes that definitely carry positive detonation. Luigi Snozzi an architect from Ticino, once said: *"If you have one good element, repeat it"*.

The typology of row houses is based on this principle of repetition in the best sense - provided that the recurring element is worth repeating, and also provided that the method of repetition is not monotonous. Our changing multifaceted living patterns do not allow monotony. Changing durations and habits of usage require new and flexible typologies. In addition, our socialisation patterns have increased and the cycles of individual reorientation have become shorter. Complex family and partnership structures have evolved which cannot be accommodated by traditional row house patterns (Pfeifer & Brauneck, 2008).

### 1.1 Terms

The Uniform Building by-laws 1984 defines terraced house as building for dwellers which has been designed as a single unit linked-house known as 'terrace' that consists of no less than these such buildings.

The remodeling and reuse mainly involve changing the basic structure or design of a building. In many cases, remodeling involves removing existing components and redesigning something new to replace the old at the same space. On the other hand, preservation means keeping something that has always was; restoration means putting it back into its original condition. Restoration technically means returning a structure to a certain time, usually to its original appearance. Since authenticity is the primary goal, it calls for extensive research. In the field, restoration is always restricted to structures intended for public use, or those opened as architectural or historic house museums. In contrast, reconstruction means remaking or copying the existing forms with the same or new materials. It is rebuilding what has been lost usually needs a plan starting from the ground up. Often it is quite difficult to determine what is old and what is new in reconstructions, and this may or may not be an

important issue. Adaptive reuse of old buildings is especially challenging, but the results are not only economical but also aesthetically rewarding (Burden, 1996).

## 2. Origins of the Terraced House

The Malaysia terraced house or was actually originated from the Malacca townhouses which date back to the seventeenth century and the Chinese shop houses of the nineteenth century. The earliest types of townhouses or row houses were built in the seventeenth century during the Dutch occupation. The architectural design of these townhouses was influenced by the Chinese and Dutch. The Chinese influence was identified by the unique roofs with rounded gabled ends, which originated in China, and they were tiled with Chinese clay tiles (Sumita, 2009). As for the Dutch influence, according to Chun, Hassan and Noordin 2005; in Sumita 2009, from Universiti Sains Malaysia, School of Housing, Building and Planning, were very similar to the traditional Dutch row houses as:

1. The brickwork of the drainage system has its own characteristics.
2. The material used for the steps at the main entrance and at the doorway of the passage leading into the air well, indicated the social status of the owner.
3. The hood which existed above the kitchen was made of wood.

## 3. Territory and Space

As to the cultural symbols and physical characters of the house, one may alter the space within the house which commonly happens to the space near the exit (either the front or rear), for example kitchen, living room, balcony or even bedrooms which are located near the exit. As Jayanti (2007) stated that in Bali, *'the extension of homeland that articulating the sense of belongingness, expresses through modification of kitchen with additional function as social meeting as well as source of self identity'*. She added that traditions and rituals had actually made the place unique and valuable as it differs from other places.

According to Lawrence (1990), the lifestyle which is expressed through the household activities, can make a significant impact on the distribution of space. Thus, families prefer to live in their dwellings for a longer period of time, since they lack the economic power to change their dwelling to a bigger or more adequate one. As an alternative, residents also try to solve the emerging spatial needs by making some alterations in their existing dwellings, and thus adapting the space to their changing needs (Altas & Ozsoy, 1998). The size of dwelling changes as time goes by because of the change in family lifestyle, the growing children and the expansion of the family, thus the current dwelling is subject to alteration and addition in order to support the growing number of occupants (Tipple & Tipple, 1991).

In his observation, Hall (1969) relates the interpretation of personal space and the importance of privacy for the fulfillment of human needs in dwelling through environmental behaviour mechanisms similar to what had been mentioned by Yuan (1987) in the comparison between traditional house and modern house: in terms of vegetation and wind velocity gradient aspect, because of the limited size of the compound of the housing estate house and the need to provide privacy, only hedges and small trees are planted. In regard to ventilation aspect, the windows and other openings are located at higher levels to provide privacy.

Meanwhile, Wahid (1996) adds that the importance of privacy is taken into consideration when the physical of the dwelling environment changes. He agrees that developing a neighbourhood territorial sense is difficult to do. However according to Deasy (1985), unless the neighbourhood is clearly recognized as a distinct entity; it must have clear boundaries and must have, or adopt, a distinctive name.

In support of such a theory, the findings from a study conducted by Ahmad Hariza and Zaiton (2010) indicated that the design of terraced housing affects the privacy of the Malay family more at the public level than at the private level. Even though visual privacy is somewhat influenced by the design of windows and doors, the ability to control privacy by the use of physical elements, such as curtain and behavioural mechanism of closing the door most of the time, provides the much needed privacy. The arrangement of spaces, which does not take into consideration the need to clearly sort out public and private spaces, affects privacy in the house during the presence of outsiders but not within the family. The importance of separating kitchen, which is a private area, from the living or the public area of the house, can be determined through housing modification.

## 4. Guidelines Regulating the Residential in Malaysia; Focus on Terraced Houses

The Federal Government legislates policies and plans numerous programmes to build houses in Malaysia through the Ministry of Housing and Local Government. The ministry is responsible for implementing the government policy and ensure that every citizen can own affordable home, modernize their surroundings in new

villages and support the local government's initiative to be more effective and efficient when initiating housing projects.

Part IV of the Federal Constitution provides that the housing sector is listed under the state government. Therefore, the local government was created under the auspices of the Ministry of Housing and Local Government to assist the local government in regard to administration and the legislation of by-laws while providing basic amenities and services for the local population and also create opportunities for them to get involved in their own area of administration.

Besides the local government, the National Housing Department was also established under the purview of the Ministry of Housing and Local Government and the local government. This administrative agency was created in 1976. Its function is to provide free service of expertise to state governments which may wish to engage in low-cost housing projects, build low cost houses and enforce the housing developer acts.

#### 4.1 *The Local Government - According to Malaysia and I. L. B. S. L. R. Board (1995)*

The Local Government was created in 1967. This administrative department is the smallest and the lowest after the federal and the state governments. Its main characteristic is the formation of its statute, in example all rules and regulations are made by legislature local government laws are valid in the form of Parliament Act Ordinance, enactment, rules and by-laws. Generally the 3 acts that legislates the local government are:

1. Local Government Act 1976 (Act 171)
2. Road, Drainage and Building Act 1974 (Act 133)
3. Town and Country Planning Act 1974 (Act 172)

##### 4.1.1 Local Government Act 1976 (Act 171)

This act is only valid for use in states in Peninsular Malaysia. It gives the mandate to form the local authority (Note 1). This Act clearly identifies the functions of the local authority. The local authority's functions include the enforcement of fees and loan, auditing power, public health control, fine for civic offences and also by-laws legislation.

##### 4.1.2 Road, Drainage and Building Act 1974 (Act 133)

Generally, this act comprises all necessary items in a building plan, issuance of CF (Certificate of Fitness for Occupation) road name, as well as house addresses and the execution of by-laws. An example of these provisions is Uniform Building By-Laws 1984 (UBBL). The function of these by-laws is to give more accurate standard for the conditions set upon on the construction of any building.

##### 4.1.3 Town and Country Planning Act 1974 (Act 172)

This act refers to the utilization of land physically. The use of land for any types of development will be determined by this act. Any physical planning will stress on the aspects of environmental pollution control, preservation of natural surroundings and deliberate on the rights and security of the residents. Each state should have balanced and consolidated policy in tackling housing development, industry, road and social services as well as culture.

Act 172 defines that urban and rural plannings are placed under article "*serasi bersama*" (Equal List). Each state has its own states planning authority led by its president or city mayor. The city council of the respected area involved must prepare a draft of structural plan and local plan before commencing with work projects on specific location. The draft Structural Plan and Local Plan will thereafter be placed for public viewing and approval prior to enforcement. Act 172 also dictates that developers must show intent application to ensure that the development to be undertaken meet the criteria written in the Structural and Local Plans. The application must be accompanied by a copy if suggestion plan report together with impact study on the development of the surrounding areas. The process to approve the application is not an easy task as it needs experts in all fields to evaluate it.

## 5. Design Consideration

A quotation '*The house does not have to tell anything to the exterior; instead, all its richness must be manifest in the interior*' by Adolf Loos (1914) in Colomina (1994) shows that the exterior façade should be made in such ways that it must not be changed rather than the interior. The arrangement of the interior reveals the spatial distribution in the house. Therefore, it is not impossible to conserve the exterior façade of the house or retain the original design.

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. The extra space in the living room for use as the family sitting area is essential for the households (Wahid, 1998). According to Erdayu Os'hara Omar, Esmawee Endut & Masran Saruwono (2010), it is common knowledge that kitchen is one of the favourite renovated spaces in local housing development. Findings have confirmed that kitchen has been very significantly modified (Figure 1 and 2). Nearly all of the houses added a “wet kitchen” to facilitate cooking and washing. This finding support previous research carried out by Sazally, Omar et al. (2010) where homeowners found there is a crucial need for a bigger kitchen and a separate “wet kitchen”. The former kitchen was transformed into a “dry kitchen” and was installed with built-in kitchen cabinets. Most homeowners pointed out that the dry kitchen was only used for warming up food (using the oven) and functions more to impress guests, as indication of their status.

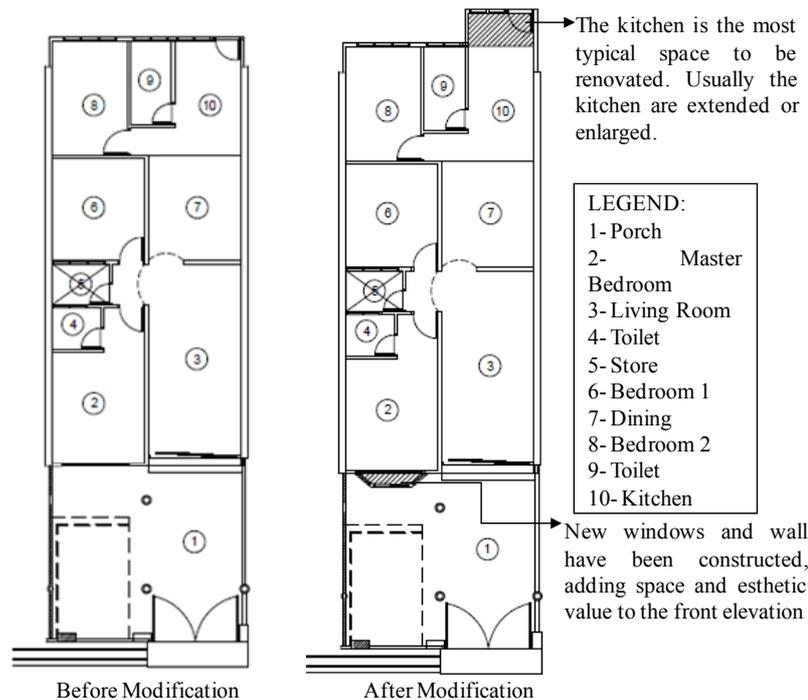


Figure 1. An example of a typical renovation of a single storey terrace house in Malaysia. It mainly involves the front facade and the kitchen area

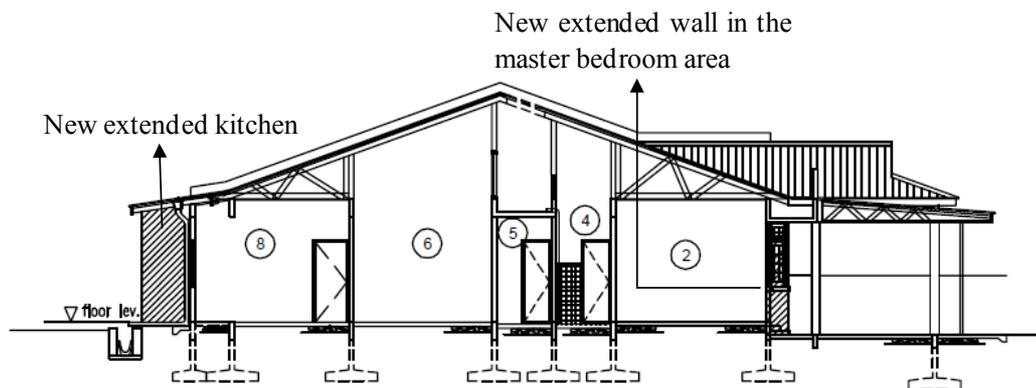


Figure 2. The section elevation shows the extended kitchen and the extended wall in front

Basically, 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

of the local culture (Mohamad Tajuddin, 2003). By 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 gridiron. Different from traditional houses, which are built scattered without proper planning in the village, the droning terraced housing units are systematically organised close to each other in rows without much consideration for both climatic and culture requirements. 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.

As housing designs are not easily accepted in tandem 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 Hariza & Zaiton, 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 authors 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). 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. A clear understanding of the division between the public and private spaces should be taken as parts of the design considerations that would minimise housing modifications (Ahmad Hariza & Zaiton, 2010). Thus, privacy can be regulated through behavioural mechanisms such as rules, manners and hierarchies, psychological means such as internal withdrawal and depersonalisation, apart from behavioural cues by structuring activities in time, spatial separation, and the act of using physical elements (Gifford, 2008).

In terms of design for building envelope, according to Abdul Majid Ismail (2008) the orientation of the building must be suitable to avoid direct sunlight towards the building. If the orientation of the building is not suitable, then more of shading devices must be installed on the building thus, making it possible for the dwellers to change slightly the façade of the building.

It should be borne in mind that with houses designed for more than three people where a separate living space is required, it is difficult to achieve this without sacrificing the day lighting and ventilation of other areas (Rowe, 1936). This may eventually ends up with tampering with the façade. Unless the design had considered the day lighting and ventilation all along, this problem might not occur in the first place.

In any housing system, the design of the external wall is crucial because it dominates the external appearance of the buildings and costs more than any other element - 20% of the total cost of the superstructure. Any increase in the unit cost of walling in order to improve its appearance or performance has correspondingly large effect on the cost plan (Anon, 1970).

The allocation of the right amount of space to every activity and function in a program would help greatly determine the quality and efficiency of a design. The architect, at this point of the programming process, needs to translate the owner/user's ideas into square-foot areas of net usable space as well as into square feet of space required for service and circulation. This can be accomplished by following the standard figures of space requirements that have established over the years for almost every function of concern (Kemper, 1979). The current housing developments with back lanes have been assigned for garbage collection. But in a society where all windows and doors on the external facades of homes are fitted with security grills, to prevent theft, the back lane is seen by some of the general population as a negative feature in terms of security. A possible approach to this situation could involve increasing the dimensions of the rear building setback and removing the lane, thus creating a larger backyard for the houses (Sumita, 2009).

Previously, Küller (1979) studied architectural appreciation using the semantic different technique. He found that a pleasant environment increases calmness and security and reduces aggressiveness (Küller, 1980). He validated 36 adjectives for architectural appreciation, which in turn were grouped into eight factors: pleasantness, complexity, unity, enclosedness, social status, potency, affection and originality. These may be used as a formula to predict customer needs for the design options. Khalid and Helander (2004) also discussed different types of customer needs: (a) information value or utility, (b) functionality and product semantics, (c) familiarity and usability, (d) aesthetics, including holistic and gestalt features, (e) cultural and symbolic association, (f) prestige, and (g) pleasure. Some of these have criteria been researched in the context of product design and may be relevant to this research framework.

## 6. Theoretical Model

Mohd Jusan and Sulaiman (2005) had developed the theoretical model of personalization which points out the above theory (Figure 3). Built environment is characterised by its attributes Rapoport (2000), as a lot of us work and live in surrounding aspired by others (Bentley, 1985), the given surrounding will be initially filtered and assessed by the individual's filtration system. Culture is recommended as the fundamental factor of this filtration proposition. Culture is a radical term comprised of values, ideals, norms, standards, user needs, user characteristics, etc. which are described as measurable cultural variables Rapoport (2000). The impact of this filtration or assessment proposition is whether or not the occupant considers the house as person-environment compatible. There are two ways to manage with problems through which users experience person-environment incompatible. One is to accustom by adjusting family norms or patterns (Sinai, 1998) and remain in uneasiness, whilst alternatively is choosing to personalize. Nevertheless, there are several factors constrain personalization which are financial availability, market situation, social ties, planning and building regulations etc. These constrains are considerations for the users to either move or modify. Whichever decision the users made, this process is repeating. A crucial point is that the problem will not remain despite the users having achieved person-environment compatible situation. Personalization is an endless process. Humans would change their understanding on their living environment at certain points in their life as human needs are changing towards their life cycle period. Consequently, they would later consider their house to be person-environment compatible.



Figure 3. An example of an excessive alteration of a terraced house in Malaysia.  
On the right side is the original level of the terraced housing

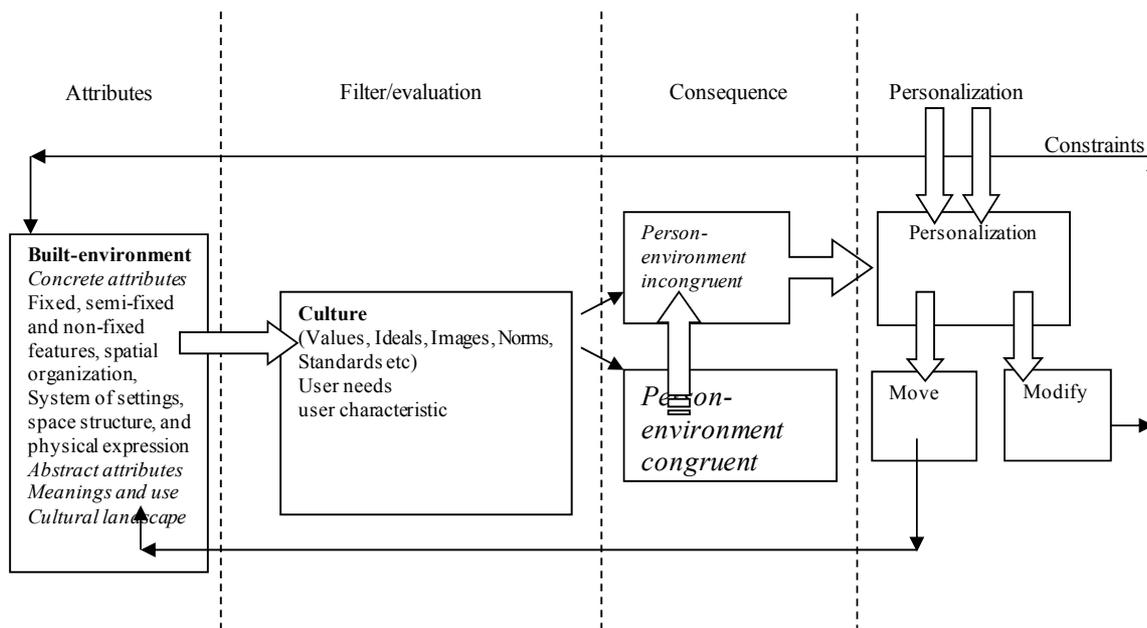


Figure 4. Theoretical model of personalization in built environment

Source: Mohd Jusan and Sulaiman (2005).

## 7. Changes in Design

The intension is to utilize user-initiative to change 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 (Hassan Udin Khan, 1980; Turner, 1976; 1980; Julaihi 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. In fact, 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 (Lang 1987; Julaihi Wahid, 1998).

In the future, the dwelling unit will possibly change according to the household's lifestyle and lifecycle (Moore et al., 1985; Julaihi Wahid, 1998). The size of dwelling will decrease and increase when the user make changes to meet their lifestyle. However, changes in the housing unit are not expedient. These are the reasons that encourage users to modify and to raise the living environment so that it could fit accordant to their lifestyle (Julaihi Wahid, 1998). Hence, the main objective of transformation is to increase space according to the needs and requirement of the user (Rapoport, 1989). The demand 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 the house. The residents will 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 residents to remodel their house instead of moving to another unit. The second reason for renovation is that the design itself does not satisfy the resident's living requirements. This reveals the supply-driven market which causes the resident to make these changes. Nonetheless, constant changes to the house are not limited to the conventional house, both traditional and conventional houses experience humorous changes. The main causes for the change are due to dynamism and discrepancy (Julaihi Wahid, 1998).

## 8. Methods to be Used

To obtain appropriate data on the terraced house design and the tendency of changing, a research on this area may involve a study on the background of the site, surveys and some note taking should be developed in order to obtain information from different residents in the housing area. The survey should randomly conduct at different hours of the day among different age-group users. Residents of different ages and socio-economic status should be surveyed in order to assure a representative cross-section of the housing area population. Professionals should be interviewed as well to learn their common understanding on how the design should be made to fully cater the

family members of the housing areas. The residents should be the main subjects of this study. Knowing about their experiences, opinions and feelings in relationship to their houses was a very valuable way to understand their preferences, activities, levels of comfort and enjoyment. This was particularly important for understanding why space is being demanded that resulted in housing modification. In order to obtain information from them in a systematic way, questionnaires with both open and close-ended questions is necessary for this study. The number of participants that will be surveyed may be varied from each study area since the number of population differs.

### 8.1 Questionnaire Design

The length of a questionnaire can have a negative impact on completion rate and response quality. In general, it is not recommended that questionnaires are over 30 minutes in length, as longer surveys could impact the effectiveness of the research being conducted (Lightspeed Research, 2008). So, the questions are designed to be as simple and straight forward as possible.

### 8.2 Observations

Observations can provide and reconfirm important information that can support the survey results. The combination of observation and surveys is a key methodological approach for this study to observe how the existing conditions of the residential areas (functional, physical, social and psychological) influence resident's behaviour in making a change on the house in the future. Notes and picture taking of the residential areas should be the method for recording observations.

### 8.3 Documentation and Archival Evidence

Documentation can span a long span of time and is useful for obtaining historical data that may not be otherwise accessible through observation or interviews. One weakness of documentation and archival evidence is that there tends to be a bias towards that of the author and access can sometimes be a problem due to privacy reasons. However, documentation such as working drawings, grants and photographs will provide secondary data on the original design of the house and its environment. Archival evidence such as history books and newspaper articles can provide a significant part of the study storyline from the perspective on an "outsider".

## 9. Conclusion

Terraced house is a row of identical or mirror-image houses that share side walls. The first and last of these houses is called an end terraced, or end house or corner house, usually larger than those houses in the middle. Most of the designs of the Malaysian terraced houses are not in sync after it is occupied by the users. Users tend to change the design and façade of their respective buildings after settling down or even after getting the keys to their residents. The issue is to gain reasons of designing the terraced house which was built to meet its purpose or it is meant to be changed in terms of alteration and extension. The modifications have the effect of altering the appearance of the original architectural character so dramatically that there is potential for loss of real house value. Most of the original terraced house designs had changed, some of the houses has been transformed into double storey to three storey which made the overall housing view does not look like a terraced housing scheme anymore. This had been an eye shore for the dwellings living there or even the people passing by. Modifications without consent can even jeopardise the safety aspect especially units without service lane or back lane where these buildings are extended until the rear boundary which may increase the risk of fire. Excessive modifications can also create an unbalanced, mixed and unattractive character on the building. But because it is a common view in Malaysian situation, the problem arise were not being considered very seriously. Some might say that this is the work of the authorities for the leniency by letting residents alter their houses as they may.

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## Notes

Note 1. Rights and power of the Local Authority were established on the basis of written laws. Hence the chief councillor of the city council is given the responsibilities and tasks as provided in the written laws only. Should he or his deputies misuse their positions and act against the written provisions, they are liable to be prosecuted under the terms and principle known as 'ultra vires'.