Make Yourself At Home

Can architecture enable a sense of home in Kuala Lumpur's public housing?

by
Nadrah Ibrahim

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Abstract

Public housing in Kuala Lumpur was introduced by the government as a means of replacing informal settlements and providing housing for the lower income. Government subsidies often cover some of the costs of public housing to help keep it affordable and at the lower end of house prices. To help meet the low cost agenda, public house designs are often kept to a minimal standard in Malaysia, removing low income Malay dwellers from their ideal image of home. In the long run, signs of neglect in the public houses are reflected in the lack of care and maintenance from dwellers, vandalism and more.

This thesis proposes that good, homely architectural design practices suited to the dweller can help encourage emotional ties between dwellers (low income families) and the dwelling (public houses). Its aim is to investigate potential architectural design approaches to tackle such problems in future Kuala Lumpur public houses.

This raises the question of which homely architectural design strategies might be best utilised in the Kuala Lumpur public housing environment. The thesis begins by exploring the meaning of home in relation to both dwellers and dwelling before then identifying 'homely' architectural design practices suited to the Malay community. In the context of public houses, this research investigation identifies privacy, environmental comfort, security and safety as homely aspects that are most often lacking in public housing design, contributing to a less homely environment. To enhance the homely attributes of public houses, the thesis proposes ways to restore homely qualities of spaces in the public house, drawing from these three aspects in order to arrive at design opportunities best suited to the lifestyle of its dwellers.

Dedication

To Mama, Abah & loved ones.

Acknowledgement

Thank you to Mama, Abah, family and friends & Asraf for their endless support and encouragement.

Thank you JPA for the opportunity to learn, explore and experience it all in this beautiful part of the world.

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And lastly to the Almighty Allah S.WT.

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1. INTRODUCTION

1.1 Problem Statement & Research Question

Striving towards modernisation, Kuala Lumpur (KL) is cleaning up its city image by gradually reducing the number of informal settlements. Since the 1950s, the Malaysian government has pushed for proper housing at low cost as the solution to combat informal settlements. One of these initiatives is public housing. The introduction of prefabrication technology and modern design made it possible to construct a large amount of housing units for the poor while keeping the fabrication costs low; this approach was used extensively as KL's public housing model. Unfortunately, keeping the cost low has compromised good homely design practice that had previously been evident in the traditional Malay house (TMH).

Though the initiative to provide low cost housing was good, many of the public houses have been associated with problems of overcrowding, lack of maintenance and care, vandalism and drugs. Having to adapt to this environment proved to be a challenge for some residents to see it as a real home, which led to the question of ...

“How can architecture enable a ‘sense of home’ in
KL’s public housing?”

1.2 Aims & Objectives

The thesis aims to understand how architecture can act as an enabler towards a positive home environment in the realm of public housing. Its objectives include identifying qualitative features of home drawn from the TMH and to test and demonstrate these features through architectural measures applied into the public housing environment.

1.3 Scope of Design Research

This thesis explores qualities that are lacking in public housing for the housing to feel 'homely'. A range of KL public housing is investigated with a focus on the People's Housing Project (PHP). Some limitations were set due to the limited available time frame of the research. The thesis focuses in particular upon Malay dwellers of public houses as they make up the majority of KL inhabitants. A cost analysis is not carried out as cost analysis may restrict design explorations. However, designs were explored with careful consideration for simplicity and common materiality to help ensure a relatively low cost solution. Construction detailing and structure were not considered at this stage due to limitations in relation to the length of time available.

1.4 Overview of Methodology

- The 'Literature Review' for this thesis is spread throughout Chapters 1-6 where each of the citations are most relevant.
- The Context Analysis and Project Review focus the study around the Malay community of KL public housing.
- The Site Analysis analyses a past KL public housing project in particular.
- The Program Analysis is based on empirical study on living patterns of Malay dwellers living in the latest public housing project, PHP, through home visits.
- Theories of House and Home"summarises theories related to the homely in architecture.
- The Literature Review provides a theoretical understanding of the relationship between home and dwellers and provides the context for home within the public housing environment.
- The Preliminary Studies and Design Iterations test methods of achieving the Research Objectives.

1.5 Referencing

As required by VUW School of Architecture, MLA has been used for all citations and references.

1.6 Thesis Structure

2.METHODOLOGY

Research for the thesis was carried out through empirical study with photographic data gathered from fieldwork into public houses in KL. The consent for interviews and photographs, survey questions, and VUW Ethics Approval are included in the appendix of this thesis.

Qualitative observations on the public housing environment of the PHP in KL were carried out to gather insights into the relationship between the built environment and the domestic lives of public housing dwellers.

The fieldwork was conducted at 2 PHPs, namely Seri Alam PHP and Pantai Dalam PHP in KL. The fieldwork consisted of:

- Assessment on dwellers' quality of life.
- Taking photographs of public house environments (house unit interior – where permitted by dwellers) to gather visual data and assess of dwellers' living patterns.
- Site visits to Perumahan Awams (PA), namely PA Seri Labuan and PA Pulau Pinang provided author insights into the environment of walk up flats public houses.

2.1 Quality of Life Survey and Short Interviews

The survey was carried out to gauge the Quality of Life (QoL) of dwellers in PHP units. The survey will provide insight into the dwellers' demographic and current living conditions in PHP.

The Depression Anxiety Stress Scales (DASS) survey was developed by University of New South Wales professors, S. H. Lovibond and P. F. Lovibond to assess a person's state of psychological wellbeing by measuring degree of severity in depression, anxiety and stress. DASS can be used by non-psychologists (Lovibond S. H. and Lovibond P. F.) and due to its "ubiquitous" nature, the survey is identified as a good tool to assess QoL impacted by the built environment (Potangaroa 5). The DASS survey assessed QoL according to a severity scale of signs of depression, anxiety and stress. The thesis utilized the shorter version of DASS 21 questions to shorten the survey time per house visits and it is considered to be the preferable version for research purposes (Lovibond S. H. and Lovibond P. F.). The DASS 21 questions Bahasa Malaysia translated version was used for a clear understanding, to attract a larger pool of Malay participants and include those who are illiterate in English. The short interview questions intent to gauge dweller's pride over their PHP units. Questions (Refer to Appendix 3) asked were in relation to guests' and neighbours' perception of dwellers' house. The way the questions were constructed allow dwellers to reflect on their house image and also reflect the level of confidence with their house image.

2.2 Photograph appropriated PHP furniture layout

It is identified in Chapter 7 that dwellers relate best to their house as home when the space design is attuned to their lives (Smith 43). Dwellers relate to their house as home when the space design is attuned to their lives (Smith 43). Due to the standardization of PHP, dwellers can only work around furniture arrangement to suit space function according to their lives. The spaces "appropriated" or adapted by dwellers indicate dwellers' most preferable setting to suit their lives within the standard space provided. However, a more detailed examination must be made on the preferred qualities of these spaces. This is because dwellers may adapt passively. Therefore, level of satisfaction recorded for the spaces based on early studies of Goh Ai Tee and Ahmad Yahaya (refer to Project Review) are taken into consideration in the analysis. Several appropriated spaces of different PHP house units are compared for any significant patterns and analysed for their sense of "homeliness".

3. CONTEXT ANALYSIS

(Above) Fig 3.1. Malaysia in the world map. Source: Map adapted by author with image from https://www.freepik.com/free-vector/yellow-world-map-for-info-graphic_701288.htm.

Fig 3.2. Malaysia near the equator. Source: Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indeginoues Shelter System*, Pulau Pinang, 1991: 14.Print.

This chapter outlines the context of KL from aspects of location, climate, historical background of its public houses and the changes from traditional homes to modern houses.

3.1. KL's background

Kuala Lumpur is Malaysia's capital, located in Malaysia (refer to fig. 3.1 and 3.2). It has a tropical climate as illustrated in fig 3.1 and is home to multiracial demographics as shown in fig. 3.3.

Fig 3.3. Kuala Lumpur's demographics. Source: Adapted by author from Malaysia Department of Statistics. *Statistics Malaysia at a glance*. 8 June 2018. Web. 5 March 2018. < <http://www.dosm.gov.my>>

Kuala Lumpur (KL) refers to the 'muddy confluence' of the Klang and Gombak Rivers in the Malay language. KL flourished from a small tin mining settlement to Malaysia's largest city within eight decades, from 1859 to 1939 (Chen 74). KL's flourishing economy influenced many to move from the *kampongs* (villages) and into the city in search of work and a better life. However, many who could not afford proper housing in the city resorted to living in squatter settlements called "*setinggan*".

2.2 Setinggan

Since the 1960s, *setinggan* were considered by outsiders and the government as a setback to KL's development due to the negative stigma of crime, poverty, crowding, lack of safety, hygiene and amenities associated with *setinggan* (KL City Hall as cited in Mohd Yusoff, Tengku Hamzah and Alias 1). Despite this, Kuala Lumpur City Hall (KLCH) recognises *setinggan* settlers' own internal social structure that promotes social cohesion among its community. In the KL Structure Plan 1984 report, KLCH stated that:

The squatter communities are quite socially and politically organised. Each settlement usually has its own village committee and internal conflicts and complaints are normally channeled and resolved through these committees.

(Kuala Lumpur City Hall, 1984:117 as cited in Mohd Yusoff, Tengku Hamzah and Alias)

It appears that former *setinggan* residents recognise and appreciate the *kampong* environment within *setinggan*. *Setinggan* residents interviewed by Mohd Yusoff, Tengku Hamzah and Alias in their study mentioned that they felt comfortable in the *kampong*-like environment that *setinggan* represent, as the grounded and horizontal spread of *setinggan* enables them to interact with neighbours, supervise children and engage in communal activities easily (11).

Fig. 3.4 to 3.11 show the *kampong* spirit within a typical *setinggan* environment and how it has changed. A proposal to uplift the *setinggan* as a "modern kampong" was brought forward but dismissed to make way for the city's urban agenda (Mohd Yusoff, Tengku Hamzah and Alias 12). The "Zero Squatter Policy by 2005" was introduced in 1996 (Goh and Yahaya 1). This has been implemented through removal of *setinggan* and relocation of residents into government-led public housing projects, which resembles modern mass housing in nature. For public housing dwellers, the "transition from a traditional way of life into a regulated, planned modern environment is difficult to comprehend" (Kosman et al. 11).

Fig. 3.4

Fig 3.4. Then: Neighbouring Universiti Malaya students visiting and carrying out charity work in Kampung Kerinchi setinggan (30 March 1972). Source: Siti Salmiah A. Hamid. (*Kampung Kerinchi Transformation*). 22 July 2016. Web. 6 Jan 2018 < <https://www.hmetro.com.my/node/153645>>

Fig. 3.5

Fig 3.5. Now: Area has been replaced with public housing flats. Source: Siti Salmiah A. Hamid. (*Kampung Kerinchi Transformation*). 22 July 2016. Web. 6 Jan 2018 < <https://www.hmetro.com.my/node/153645>>

Fig. 3.6. Then: Washing clothes at a small drain (17 April 1972). Source: Siti Salmiah A. Hamid. (*Kampung Kerinchi Transformation*). 22 July 2016. Web. 6 Jan 2018 < <https://www.hmetro.com.my/node/153645>>

Fig. 3.6

Fig. 3.7. Now: The same stormwater drain is enlarged. Source: Siti Salmiah A. Hamid. (*Kampung Kerinchi Transformation*). 22 July 2016. Web. 6 Jan 2018 < <https://www.hmetro.com.my/node/153645>>

Fig. 3.7

Fig. 3.8

Fig. 3.9

Fig. 3.10

Fig. 3.11

Fig. 3.8. Then: Flooding around Kampung Kerinchi and Kampung Haji Abdullah Hukum *setinggalan* and Jalan Bangsar (5 January 1971). Fig. 3.9. Now: Flood prone area is developed. Fig. 3.10. Then: 'Royal Malaysian army part of *gotong-royong* for road and drainage repair works in Unit C, Kampung Kerinchi *setinggalan* (1977). Fig. 3.11. Now: What was left of the Kampung Kerinchi *setinggalan*. Source: Siti Salmiah A. Hamid. (*Kampung Kerinchi Transformation*). 22 July 2016. Web. 6 Jan 2018 < <https://www.hmetro.com.my/node/153645>>

3.3 Home in KL: Transition from traditional to modern

Public housing dwellers' longing for the *kampong* environment led the investigation to recognise the *kampong* as a meaningful place, one of home. The traditional Malay house (TMH) within *kampongs* is viewed as an exemplar model for homes for Malays. A comparison between TMH against modern public housing environment in KL shows the differences between the two housing typologies and how they attend to the local context and Malay's domestic way of life.

3.3.1 Traditional Malay Homes

The traditional Malay house (TMH) is considered to exhibit a more homely feel for Malay dwellers compared to modern housing due to its close and meaningful relationship between the house and the dweller. Syed Ariffin Iskandar in his conference paper titled "Made To Order: A Place Called Home" discussed TMH design and its build process that centers around the dwellers as individuals (15), which results in each house being unique to the dweller, enabling them to establish their own unique lifestyle; this is regarded as the true form of home (36). According to Wan Hashimah Wan Ismail in the book *Houses in Malaysia: Fusion of the East and West*;

The traditional Malay house was a natural expression of the social and cultural ways of life of the family and the community.

(Wan Ismail 11)

This is because the traditional Malay house was traditionally designed and built by the dwellers themselves, which identifies with the dweller's individual needs in terms of culture and lifestyle, projecting good personal knowledge of its surrounding context and responding well to the locals' natural environment (11). This is evident in the way TMH considers privacy and gender segregation, comfort through climate responsive design and ergonomic design, and safety and security adapted to the Malay lifestyle as compared to the public houses.

Fig. 3.12. Sectional perspective of typical TMH spaces. Source: Chen Voon Fee, *The Encyclopedia of Malaysia. Volume 5: Architecture*, Kuala Lumpur, 1998:20 - 21. Print.

Fig. 3.13. TMH typical layout. Source: Nurizan Yahaya and Ahmad Hariza Hashim, *Perumahan dan Kediaman (Housing and Home)*, Serdang, 2001: 47. Print.

Referring to fig. 3.12 and 3.13, the spaces can be divided into three main areas, namely the front portion consisting of *anjung* or front porch (fig 3.14) and *serambi* (fig. 3.15), the middle portion of *rumah ibu* (fig. 3.16) and the back portion of *selang* (fig.3.17) and fig. 3.18, dining area (fig. 3.19) and the *dapur* (fig.3.20) (Yahaya and Hashim 46) (Wan Ismail 13). Other spaces may include *pelantar* (fig. 3.21) and outhouse bathroom.

Fig. 3.14. *Anjung*. Source: Chen Voon Fee, *The Encyclopedia of Malaysia. Volume 5: Architecture*, Kuala Lumpur, 1998:25. Print.

Fig 3.15. *Serambi*. Source: Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indeginoues Shelter System*, Pulau Pinang, 1991: 19.Print.

Fig 3.16. *Rumah Ibu*. Source: Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, 1991: 80-81. Print.

Fig 3.17. Kids playing at the *selang*. Source: Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, 1991: 38.Print.

Fig 3.18. *Selang* as a connection between different domains. Source: Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, 1991: 66.Print.

Fig 3.19. Dining area. Source: Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, 1991: 38.Print.

Fig 3.20. *Dapur* (Kitchen). Source: Chen Voon Fee, *The Encyclopedia of Malaysia. Volume 5: Architecture*, Kuala Lumpur, 1998:21. Print.

Fig 3.21. *Pelantar* (Washing area in TMH). Source: Chen Voon Fee, *The Encyclopedia of Malaysia. Volume 5: Architecture*, Kuala Lumpur, 1998:21. Print.

3.3.2 Modern Public Housing

As illustrated in fig. 3.22 the first public housing in KL consisted of 14,56 terraced and wooden houses. Since prefabrication technology was introduced, design of public houses turned to low rise, medium density walk up flats and later into high rise, high density 18 story flats. Floor plan area also increased over the years as shown in fig 3.22.

Fig. 3.22. Development of Malaysian public housing over the years. Source: Mapped by author with information sourced from Kosman, Kamarul Afizi, et al. 50 Tahun Perumahan Awam di Kuala Lumpur. Selangor: ATMA Universiti Kebangsaan Malaysia, 2008. Print. and Malaysia National Housing Department (Jabatan Perumahan Negara) and Google Maps.

The 'Human Settlement' concept in the 1980s produced many public houses around KL using a low rise flats typology such as the examples shown in fig. 3.23 and 3.24 (Kosman et al. 12). Malaysian preferred the low rise flats because it holds familiar "sociocultural background and vernacular environment" to the *kampong* (Kosman et al. 15). However, due to rising land cost in KL, high rise high density housing typologies such as those shown in fig 3.25 and 3.26 eventually took over (Kosman et al. 15).

Fig 3.23. Low rise public housing. Source: Kosman et al, *50 Tahun Perumahan Awam di Kuala Lumpur (50 Years of Public Housing in Kuala Lumpur)*, Selangor: ATMA Universiti Kebangsaan Malaysia, 2008. 14 and 36. Print.

Fig. 3.24. Low rise public housing. Source: Kosman et al, *50 Tahun Perumahan Awam di Kuala Lumpur (50 Years of Public Housing in Kuala Lumpur)*, Selangor: ATMA Universiti Kebangsaan Malaysia, 2008. 14 and 36. Print.

Fig 3.25. High rise public housing. Source: Kosman et al, *50 Tahun Perumahan Awam di Kuala Lumpur (50 Years of Public Housing in Kuala Lumpur)*, Selangor: ATMA Universiti Kebangsaan Malaysia, 2008. 56 and 27. Print.

Fig. 3.26. High rise public housing. Source: Kosman et al, *50 Tahun Perumahan Awam di Kuala Lumpur (50 Years of Public Housing in Kuala Lumpur)*, Selangor: ATMA Universiti Kebangsaan Malaysia, 2008. 56 and 27. Print.

3.3 Traditional vs Modern

3.3.1 Privacy and Gender Segregation

According to Lim, Malays have embraced Islam for generations and have infused Islamic values in their culture. In the clash between culture and religion, Islamic influences present a greater authority over the way of life of Malay people (80). The influences are evident in how spatial organisation of TMH relates closely to the Islamic values and practices of privacy through gender segregation (Yahaya and Hashim 46), which demand restrictions on interaction between unmarried males and females who are non-family members and to protect women's modesty (Lim 82).

As shown in fig. 3.27, 3.28 and 3.29, spaces are arranged in hierarchical order from public to private. It is important to note that in TMH, privacy is achieved through hierarchal order of gendered domains instead of screens that are more commonly used in middle-eastern houses (Yahaya and Hashim 28). To maintain privacy of sleeping areas, dwellers may cover the space with cloth or wooden partitions (Chen 21). Referring to fig. 3.28, it is observed that on a domestic day to day basis, the front portion is the most public area and is considered as the male domain while the more private middle and back portions are dedicated for females (Yahaya and Hashim 47).

During daily domestic living, the Rumah Ibu is considered as the most private and sacred space (Chen 21) (Mohamad Rasdi 27).

Typical Traditional Malay House (TMH) spatial arrangement

Fig. 3.27. TMH typical layout. Source: Nurizan Yahaya and Ahmad Hariza Hashim, *Perumahan dan Kediaman (Housing and Home)*, Serdang, 2001: 47. Print.

Rumah Ibu becomes female dominated domain. (Yahaya and Hashim 47)

The *kampung* is known for good community spirit. According to Chen, communal activities, such as visiting family, friends and neighbours during festivities, holding *gotong-royong* (sharing workload) and *kenduris* (social or religious feasts and functions) including weddings, show that community inclusion is generally preferred over individual house privacy (19). To serve the social needs, the nature of spaces within TMH may change according to fig. 3.29. The openness of space provides dwellers flexibility in use of the spaces.

Fig 3.28. Nature of spaces during domestic living.
Source: Author's image.

Fig 3.29. Nature of spaces during social functions.
Source: Author's image.

A comparison between typical TMHs against typical public houses shows differences in their spatial organization. Referring to figure 3.30, TMHs are typically organised in a linear public to private arrangement.

Fig. 3.30. Connection and nature of spaces between programs in several spatial organisation of TMHs.
Source: Adapted by author from Nurizan Yahaya and Ahmad Hariza Hashim, *Perumahan dan Kediaman (Housing and Home)*, Serdang, 2001: 29. Print.

Referring to fig. 3.31, the public houses have a concentric arrangement centered around the public living and dining area. Thus, privacy for the private areas is lost when guests visit the house. Limited space and single entrance into the modern house prevents the house from having gender segregated domains.

Fig. 3.31. Connection and nature of spaces between programs in several spatial organisation of previous KL's public housing. Source: Adapted by author from Kosman, Kamarul Afizi et. al, 50 Tahun Perumahan Awam di Kuala Lumpur, Bangi: Institut Alam dan Tamadun Melayu (ATMA) UKM, 2008: 120, 143, 144, 145. Print.

Most TMH spaces (i.e. *serambi*, *rumah ibu*, *selang*, etc.) are flexible open spaces capable of adapting to many occasions while public house design typically consists of standard, function-based spaces (i.e. living room, dining, bedroom, etc.) (Lim 87) as shown in fig. 3.32. The key spaces that mediate social interaction in TMH, namely *Anjung*, *Serambi* and *Selang*, are typically neglected in public house designs as observed in fig. 3.32. It is observed that each of these space's gender-assigned nature mediates between public and private well during social interaction with guests. As for the sleeping area, there is greater privacy observed in bedrooms of modern houses because they are physically defined by walls.

Fig 3.32. Typical PHP public housing house unit. Source: Modeled by author with drawing from National Housing Department.

It can be seen that privacy is handled differently in TMH and the public houses. The focus on gender segregated spaces in TMH conforms to Islamic teachings and provides privacy according to each gender's requirements. Thus, spatial organization of the typical western-style public house must consider traditional Malay values that are still being practiced today, especially gender segregation and privacy.

2.3.2 Comfort

- **Climatic design responses**

Vernacular architectural elements of the TMH exhibit good passive design responses to the local climate compared to typical modern housing. Lim JuanYee in the book *The Malay House: Rediscovering the Indigenous Shelter System* found many shortfalls in modern mass housing, such as the public houses in adapting to the local climatic. Fig. 3.34 to 3.36 compare the different ways TMH and modern housing respond to local climate through architectural design.

TRADITIONAL MALAY HOUSE		MODERN HOUSE
<p>Building Material</p> <p>Lightweight construction from wood and natural materials allows low thermal capacity, traps little heat and cools at night. Attap roof acts as an excellent insulator. Little or no glazing in the house.</p>	
	<p>Use of high thermal capacity materials such as bricks, tiles and concrete stores up heat and radiates inside the house causing discomfort. High amount of glazing installed.</p>

<p>Layout</p> <p>Houses are randomly arranged to ensure wind velocity is not reduced.</p>	
	<p>Rigid arrangement between houses creates barriers and blocks wind flow at the latter path.</p>

<p>Ventilation of Roof Spaces</p> <p>Provision of ventilation joints and panels within roof design assists natural ventilation flow.</p>	
	<p>Roof spaces are insulated by trapped air instead of being ventilated. This method of construction is effective only with high ceiling spaces.</p>

<p>Vegetation</p> <p>Coconut trees and other types of trees planted in the kampung (village) provide good shade, at the same time allowing wind flow at the house level.</p>	
	<p>Due to the lack or limited garden compound, only small hedges and trees are planted, which reduces shade. Upper units rarely have space for planting.</p>

Fig 3.34. Climatic design responses: TMH vs modern housing. Source: Adapted by author from Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, 1991: 75. Print.

Fig 3.35. Climatic design responses: TMH vs modern housing. Source: Adapted by author from Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, 1991: 76. Print.

Fig 3.36. Climatic design responses: TMH vs modern housing. Source: Adapted by author from Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, 1991: 76. Print.

Typical practices of modern design of mass housing often disregard passive approaches to thermal comfort needs. Lim highlights that issues related to the urban environment such as “cost constraint, the need for safety and security, high density living, use of large furniture and lack of greenery” largely overrule passive design for climate response, and this can result in poor thermal performance in modern houses (78).

From the comparison shown in fig. 3.34 to 3.36, it can be identified that TMH exceeds modern housing in terms of climate responsive passive design but modern houses are more durable. Thus, mass modern housing design must learn from TMH to adapt its design to be better suited to the local climate context for thermal comfort of its dwellers. Innovative design solutions that incorporate TMH climatic response design strategies into modern mass housing can lead to more homely design.

- Ergonomics in traditional Malay house design

In Chapter 7, Silva and Santos address ergonomics as space efficiency for dwellers to occupy in a comfortable manner (144). This section examines ergonomics in TMH and the public house.

Ergonomics of TMH is unique to Malays as it takes into account Malays' unique occupancy traditions within the house's spaces in detail. According to Syed Iskandar Ariffin, measurements for TMH design are based on a "human biometric unit" (16) of the person building the house; thus, measurement varies according to the builder. According to Wan Ismail and referring to fig. 3.37, some basic measurements include the knuckle (*buku* and *ketak*) the forearm (*hasta*), and open palm (*jengkal*) and widespread arms to the side (*depa*) (20). For purposes of regularity, the "human biometric unit" is measured in metric standard against an average Malay figure as in fig. 3.38.

Fig. 3.37. Measurement using the body.

Source: Wan Hashimah Wan Ismail, *Houses In Malaysia: Fusion of the East and West*, Skudai: Universiti Teknologi Malaysia, 2005: 20. Print.

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Fig. 3.38. Traditional Malay's human biometric unit. Source: Syed Iskandar Ariffin, "Made To Order: A Place Called Home." 1st Southeast Asian Housing Forum of ARCH. Seoul: USD Publishing Co, 2011. 28. Print.

Traditionally, Malays occupy space differently from westerns, due to different cultural and religious practices. Ariffin studied the Malay people's occupation in TMH space and found several key postures for house space occupation (fig. 3.39 to 3.42). Fig. 3.40 to 3.42 illustrates the Malay often sits crossed leg on the floor to accommodate their various activities and practices and this relates to the way TMH spaces are designed. As muslims, Malays also pray five times a day (fig 3.41). Ariffin found these postures relate well with the way spaces in TMH are designed (fig 3.39 to 3.40).

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Fig. 3.39. Standing in relation to space dimension in TMH. Source: Syed Iskandar Ariffin, *"Made To Order: A Place Called Home."* 1st Southeast Asian Housing Forum of ARCH. Seoul: USD Publishing Co, 2011. 28. Print.

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Fig. 3.40. Sitting in relation to space dimension in TMH. Source: Syed Iskandar Ariffin, *"Made To Order: A Place Called Home."* 1st Southeast Asian Housing Forum of ARCH. Seoul: USD Publishing Co, 2011. 28. Print.

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Fig. 3.41. Basic Malay posture in relation to space dimension in TMH. Source: Syed Iskandar Ariffin, "*Made To Order: A Place Called Home.*" 1st Southeast Asian Housing Forum of ARCH. Seoul: USD Publishing Co, 2011. 28. Print.

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Fig. 3.42. Posture and serambi space relation based on social activities occurring at the serambi space. Source: Syed Iskandar Ariffin, *"Made To Order: A Place Called Home."* 1st Southeast Asian Housing Forum of ARCH. Seoul: USD Publishing Co, 2011. 28. Print.

In contrast, design of modern public houses is bound by standards, laws and building requirements that lead to a more standardised and rigid house design compared to the TMH. According to Chen, most modern houses are designed to merely meet laws and authority requirements without much thought about traditional needs and cultural functions (120), and in the case of low cost housing like public housing, the focus is primarily to keep costs down; thus, designs are kept simple (Chen 121). This affects ergonomics for a Malay lifestyle.

While it is observed from the author's fieldwork (Chapter 4 - 6) that some dwellers have accepted furniture, there are many important cultural traditions still being practiced, such as sitting cross leg on the floor and the obligatory prayers. To enhance ergonomics of house space, it is important that the public house be designed with consideration of Malay culture and some traditional lifestyle to improve dweller and space relations. Elements such as movement, posture and the domestic programs carried out should help inform design decisions.

3.3.3 Safety and Security

Chapter 7 will show that passive surveillance from community members provides a less intrusive approach to safety and security in the public housing environment. A similar observation was made with safety and security of the *kampongs*. According to Lim, the TMH does not need great safety and security design measures due to the low crime rates in *kampongs* (85). Safety and security are supported by the good social control that a tight knit *kampung* community has over its surrounding environment and the relatively close distance between houses in the *kampung*. Socially inviting open spaces such as *anjung*, *serambi* and *selang* also support social integration among the neighbours (Chen 19). According to Ariffin, “a serambi with generous openings indicates a communally active and pleasant owner” (24), which encourages positive social interaction between neighbours. The few safety and security design measures include a raised house floor level to protect from floods and wild animals (Lim 92) as shown in fig. 3.43 and sliding lock detail for openings (Chen 27) as shown in fig. 3.44.

Fig. 3.43. TMH raised on stilts to avoid flooding and wild animals. Source: Chen Voon Fee, *The Encyclopedia of Malaysia. Volume 5: Architecture*, Kuala Lumpur, 1998:24. Print.

Fig. 3.44. Wooden sliding lock behind doors and window shutters to prevent intruders. Source: Chen Voon Fee, *The Encyclopedia of Malaysia. Volume 5: Architecture*, Kuala Lumpur, 1998:27. Print.

In public houses, safety and security are often a huge concern. Solid walls in the modern house may project a sense of protection; however, the weaknesses, according to Mohamad Rasdi are found in the design of openings ("Housing Crisis" 22) and corridors in flats ("Housing Crisis" 13). To prevent break in, it is common in urban areas in Malaysia for openings to be installed with grilles for security even though this is considered a hazard for fire safety (22). This leads to the impression of dwellers being 'imprisoned' in their own house (19). Mohamad Rasdi suggests adding safety design measures such as those illustrated in fig. 3.45 ("Housing Crisis" 15) and careful considerations of sizing and placement of openings as some examples of relatively easy design solutions ("Housing Crisis" 22).

Fig. 3.45. Solutions suggested for safe and secure design measures. Source: Mohamad Tajuddin Mohamad Rasdi, *Housing Crisis: Back to a Humanistic Agenda*, Skudai:Universiti Teknologi Malaysia, 2007:15. Print.

From the comparison, it can be seen that modern public housing is more prone to dangers and crimes than TMH. Whilst public houses need to be upgraded with safer and more secure design measures, it is important to incorporate less intrusive safety and security measures for the dwellers to enhance the feeling of home. Elevated surveillance areas such as balconies can be incorporated into housing designs to overlook onto public areas. A good measure to also include, following the TMH model, is to create socially active spaces within public areas to foster good community spirit and a tighter community that would look after each other.

The shift from TMH to modern public housing is inevitable in urban areas due to economic constraints and feasibility in general. However, this must not be at the expense of creating a poor domestic living environment. A more homely environment for the majority of Malay dwellers is needed in modern mass housing particularly in public housing. A more homely environment can be achieved by incorporating some of the important design elements of TMH that pertain to the Malay way of life, including the aspects of privacy, comfort and safety and security.

4.PROJECT REVIEW

This chapter reviews two types of KL public housing typology: the high rise high density PHP and the project's predecessor, a low rise high density Perumahan Awam (PA). The two typologies are examined for their design strengths and weaknesses in providing a homely environment from the aspects of privacy, comfort, safety and security.

The vast PHP projects in Kuala Lumpur are mapped in fig. 4.0.1 with more than 20 PHPs consisting of 32 437 house units (Mohd Yusoff, Tengku Hamzah and Alias 1).

Fig. 4.0.1 PHP flats identified in Kuala Lumpur. Source: Mapped by author with information sourced from Malaysia National Housing Department (Jabatan Perumahan Negara) and Google Maps.

Referring to the info-graphic provided by the Ministry of Urban Wellbeing, Housing and Local Government of Malaysia (fig. 4.0.2), PHP projects aim to provide housing to former *setinggan* dwellers and low income earners across Malaysia in the form of public housing. This is offered in the form of rental or home ownership through purchase. The house typology advertised includes terrace houses, 5-storey walk up flats and multi-story flats. However, as mentioned before, only multi-story PHP flats are available in KL due to the high land prices and high number of squatters to be relocated (Kosman et al. 15).

Fig. 4.o.2. Info graphic on PHP in Malaysia. Source: Malaysia Ministry of Urban Wellbeing, housing and local government. n.d. Web. 26 March 2016 <<http://www.kpkt.gov.my/index.php/pages/view/26>>

4.0.1 DASS Survey results

Before reviewing the PHP design in depth, it is important to analyse the Quality of Life of dwellers within the current PHP. Results of the DASS 21 survey of over 32 dwellers are tabulated (see Appendix 5) and analysed. Based on results tabulated in fig. 4.0.3, it is revealed that dwellers were generally in a good state as both the 72 per cent female and 28 per cent male participants' score came within the normal range of depression, anxiety and stress (see fig. 4.0.4). It must be recognized that the positive results may be veered in the survey as it was conducted near the time of Eid celebrations and the possibilities that public housing dwellers have adapted to their housing environment. In a study on low cost flats configuration in Malaysia, Abdul Aziz, Ahmad and Mahdzar stated that the nature to adapt in humans allow people to adjust themselves in situations when they have to settle for less and "appear satisfied with the deprived housing conditions when their options are limited" (269).

Despite promising results, the survey identified that overcrowding was a problem with around 16 per cent of the houses. Space and privacy becomes an issue as family grow. It was assessed that a quarter of the respondent group had overcrowding problems with the maximum number of family members living in 3 bedrooms was 10 people (See Appendix).

4.0.2 Short Interview Questions Results

Results (See Appendix 6) revealed that most dwellers thought guests liked the living space the most. There are mix responses on the guests' least favourable house space. This includes, from highest to lowest, the kitchen, toilet, bathroom and 1 for the living area. Despite the dislikes for the kitchen, bathroom and toilet, it is found that most dwellers do not mind hosting guests at their PHP houses. However, there are some who prefer to hold *kenduris* elsewhere with a larger space.

These survey findings indicate that quality of life in PHP houses are in a relatively good state. The design, however, may need to be improved in areas such as the kitchen, toilet and bathroom as indicated by the short questions results. A more in depth review on design of PHP units will be discussed next.

Male

Item	Sum	Average
Depression	42	4.7
Anxiety	38	4.2
Stress	104	11.6

Female

Item	Sum	Average
Depression	88	3.8
Anxiety	134	5.8
Stress	190	8.3

Fig. 4.0.3. Graphed DASS survey results by gender. Source: Tabulated and modeled by author.

DASS 21 Scoring values

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Fig. 4.0.4. DASS 21 scoring value for depression, anxiety and stress. Source: Lovibond, S. H. and P. H. Lovibond . Manual for the Depression Anxiety Stress Scales. Manual. Sydney: Psychology Foundation of Australia, 1995. Web. 2016 June 16. <<http://www2.psy.unsw.edu.au/dass>>

Fig. 4.1.1 Typical floor plan layout of a PHP block. Source: Redrawn by author based on Malaysia National Housing Department.

4.1.1 PHP: Public Space

Goh Ai Tee and Yahaya Ahmad conducted a study on design quality of PHP in KL. They used the Quality Function Deployment method (QFD), which 'managed design methods' and assessed design qualities that are determined by the dwellers (Goh and Ahmad 3). The research found that house safety is the main concern to be addressed in PHP housing among other aspects (Goh and Ahmad 8). The strengths and weaknesses observed at the public spaces are highlighted below:

Strengths: - Clusters of houses are offset to break the linearity (fig. 4.1.1 and fig. 4.1.2)
 - Provision of green space in front of block (fig. 4.1.8)

Weaknesses: - Dark internal corridors and courtyard (fig. 4.1.3)
 - Closed central core invites antisocial behaviour (refer to fig. 4.1.4 and 4.1.5)
 - Residents feel the necessity to install grilles, which reflect an unsafe public space (fig. 4.1.6 and 4.1.7)
 - Vehicle access surrounding green recreational space (fig. 4.1.8)

4.1 People's Housing Project (PHP)

Building Type: High rise public housing

Location: Kuala Lumpur

No. of story: 18 (Communal space or parking on Ground floor, housing from floor 1 to 17)

House units per floor: 10

House units per block: 170

Area per house unit: 63 m²

No. of bedrooms: 3

House unit occupancy: An average family of 5 (Ar. Chong Lee Siong as cited in Goh and Ahmad 8).

Fig. 4.1.2 Typical PHP block. Source: Modeled by author.

Fig. 4.1.3 Dark internal courtyard and corridors of PHP. Source: Author's photograph.

Fig. 4.1.4 Closed vertical circulation area invites anti-social behaviour. Source: Author's photograph.

Fig. 4.1.5 Vandalism at the closed central core holding lifts area of PHP. Source: Author's photograph.

Fig. 4.1.6. Grilles installed on accessible openings to prevent theft also allow cross ventilation. Source: Author's photograph.

Fig. 4.1.7 Grilles installed at toilet window openings for safety and privacy. Source: Author's photograph.

Fig. 4.1.8 Green space recreational area and parking space. Source: Author's photograph.

4.1.2 PHP: Individual House Unit

A standard PHP house unit consists of 3 bedrooms at 63sqm. The design and construction is kept simple as illustrated in fig. 4.2.1. Finishes are also provided at the minimal standard requirement.

Fig. 4.2.1 Typical floor plan of PHP unit. Source: Redrawn by author based on PHP unit typical floor plan by National Housing Department of Malaysia.

Author's fieldwork corroborates and adds to Goh and Ahmad's research, which gathered strengths and weaknesses on design aspects of PHP house units through dweller's comments. These are illustrated in fig. 4.2.2. Based on this, space sizing, practicality and safety issues will be addressed in the thesis design experiments.

Dweller's Comments on PHP unit design

Fig. 4.2.2. Dweller's comments on PHP house unit design. Source: Adapted by author with information from Goh and Ahmad.

The Uniform Building By-Law (UBBL 1984) and the national Housing Standard for Low Cost Flat CIS: 1998 have set out guidelines for the minimum floor area for a low cost flat house unit design. This is listed in fig. 4.2.3:

Room Function	UBBL 1984	CIS 2:1998	PHP (2000)
	m ²		
Living	Not specified	25.2	12.4 (4m x 3.1m)
Dining			11.8 (3.8m x 3.1)
Yard	Not specified		2.9 (2.4m x 1.2m)
Corridor	-		1.9 (1.3m x 1.5m)
Bedroom 1	11	11.7 (3.9m x 3m)	10.8 (3.5m x 3.1m)
Bedroom 2	9.3	9.9 (3.3m x 3m)	6.5 (2.1m x 3.1m)
Bedroom 3	6.5	7.2 (2.4m x 3m)	7.1 (3.1m x 2.3m)
Bathroom	2	1.8 (1.5m x 1.2m)	3 (2.2m x 1.4m)
Toilet	1.25	1.8 (1.5m x 1.2m)	1.8 (1.8m x 1m)
Kitchen	4.5	5.4 (1.8m x 3m)	4.9 (1.6m x 3.1m)
Total	-	63	63.1

Fig. 4.2.3 Standards and minimum requirement for low cost flats design. Source: Malaysia Uniform Building By Law (UBBL 1984), Construction Industry Standard (CIS 2:1992) and Malaysia National Housing Department's standard plan 2000.

Referring to fig. 4.2.3, it can be observed that room dimensions of Bedroom 1, Bedroom 2 and Bedroom 3 do not meet the requirements set out by both standards while the kitchen meets the requirement of UBBL 1984 but not the CIS 2:1998. This is a matter to be highlighted as it affects the comfort of dwellers, which is one of the important aspects of homeliness.

4.2 Perumahan Awam (PA)

Building Type: Low rise public housing

Location: Kuala Lumpur

No. of storeys: 5 (Mix of housing and amenities on Ground and housing from 1st to 5th floor)

House units per floor: 20

House units per block: 98

Area per house unit: Minimum 36m²

House unit occupancy: Not specified.

Fig. 4.2.1. PA Seri Labuan facade from street view. Source: Google street view.

PA flats (refer to fig. 4.2.1) are predecessors of PHP. It was first initiated in 1960s (Kosman et al.) The flat's greatest perceived weakness is the provision of only 2 bedrooms per unit and the small size. Despite this, PA is commended for its low height. The Ministry agreed that the low walk-up flats are more viable for housing compared to the 'high density urban housing' as it has lower construction and maintenance costs (Kosman et al.). PA is also equipped with some passive climatic design strategies that the PHP lacks. The use of louvers and ventilation brick as highlighted in fig. 4.2.2 provides thermal comfort to dwellers.

Fig. 4.2.2. Design features of PA. Source: Modeled by author with floor plans from Kosman, Kamarul Afizi, et al. *50 Tahun Perumahan Awam di Kuala Lumpur*. Selangor: ATMA Universiti Kebangsaan Malaysia, 2008: 143. Print.

The design of public houses in KL urgently needs to be reviewed and improved to pursue a more homely environment. This can happen through better design features from the aspect of privacy, comfort, safety and security. Design features within the typologies that are identified to have contributed to the homely aspects should be incorporated into future Kuala Lumpur public housing designs. Another very important component to review is the minimum comfortable size and room dimension relating to Malay domestic lifestyles.

5. SITE ANALYSIS

The site selected for this research investigation is at the location of Perumahan Awam (PA Seri Labuan) in Bandar Tun Razak, Cheras, Kuala Lumpur. According to Hairom and Abd Rahim, dwellers of PA Seri Labuan are offered relocation into the high rise high density, 41-storey housing development project next to the existing site. The new house unit offered is larger at 800sqft compared to the current 560sqft in PA Seri Labuan.

This thesis proposes that a low rise typology spread across a wider site may constitute a more homely environment and is more viable to maintain in the long run. The research site was selected in order to investigate opportunities for a more 'homely' public housing design in the context of KL's public housing. The site is explored in terms of location (fig. 5.1), connectivity and existing amenities (fig 5.2) and climate (fig. 5.3).

Fig. 5.1. Site Location. Source: Adapted by author with image from Google Maps.

Fig. 5.2. Existing connectivity and amenities on site. Source: Adapted by author with image from Google Maps.

1:2500

Climate Analysis of Site

Fig. 5.3. Climate analysis of site. Source: Modeled by author.

In summary, the site is located within a well developed area. There are plenty of amenities with well connected transportation within this residential area. The site gets daylight for most areas for most of the year. Areas where site is overshadowed by a neighbouring apartment will be considered for parking. A redevelopment on this site allow the test of several homely block typologies within a relatively irregular, long space.

6.PROGRAM ANALYSIS

To confirm the most viable 'homely' program for Malay PHP dwellers, this chapter examines the domestic living patterns of Malay PHP dwellers. During the author's fieldwork, the visit asked participants' permission to allow photography of their units (see VUW ethics approval in Appendix 1). Most dwellers were reluctant to allow their interior to be photographed and published. Some agreed for parts of the house interior to be photographed except for the bedrooms. The dwellers that allowed photography of their living spaces are representative of most of the spaces observed in the field study; they are presented in this chapter as a sample for program analysis and are recorded.

6.1 Proposed furniture layout in PHP unit

Fig. 6.1. Proposed typical layout of PHP flat unit. Source: Redrawn by author with floor plan from National Housing Department of Malaysia.

Fig 6.1 above shows the proposed standard furniture layout in PHP house units according to the intended space functions. Visits to the PHP units however revealed different furniture layouts indicating different functions from what were originally intended for some spaces. The ways dwellers have appropriated the spaces provide insights into their domestic living patterns.

6.2 Living and Dining

Fig. 6.2. Living and dining space in proposed typical layout of PHP flat unit. Source: Redrawn by author with floor plan from National Housing Department of Malaysia.

Based on visits to 32 dwellings, it appears that layout preferences for living and dining area are individually based. Despite the shared and open space allocated for dining and living, dwellers most often preferred separation between living and dining as evident in fig. 6.2.1 to 6.2.5. Most dwellers appropriated their living and dining space according to the standard proposed furniture and furnishing layout of PHP whereby dining space is closer to the kitchen area (refer to fig. 6.2.2, 6.2.3 and 6.2.4) . However, there are dwellers that appropriated the space inversely (fig. 6.2.1 and fig. 6.2.5). Some of the house units were furnished with more furniture than others. However, all units have embraced some form of modern, westernised furniture. Another observation made was a preference for the middle portion to be free from furniture to serve as informal relaxation space and informal entertaining area. It is important to note that some dwellers do sit on the floor even in the presence of furniture.

Fig. 6.2.1. Living and Dining 1.
Source: Author.

Fig. 6.2.2. Living and dining 2.
Source: Author.

Fig. 6.2.3. Living and Dining 3.
Source: Author.

Fig. 6.2.4. Living and Dining 4.

Source: Author.

Fig. 6.2.5. Living and Dining 5.

Source: Author.

6.3 Kitchen and Yard

Fig. 6.3. Kitchen and yard space in proposed typical layout of PHP flat unit. Source: Redrawn by author with floor plan from National Housing Department of Malaysia.

As observed, kitchen design in a standard PHP unit does not always meet PHP dwellers' needs for storage and female privacy. Based on figures 6.3.1 to 6.3.3, attempts to store cooking utensils neatly and out of public view have been made, more successfully in some cases (fig 6.3.1-1) and 6.3.2-1) than others (fig. 6.3.5). Built in cabinets provide a neater storage space. It is observed that dwellers often prefer to have cooking space in the yard area due to the space being hidden away from common view. Preference for this arrangement despite the undesirable conditions of toilet smells from the opposite side and the uncomfortable small space indicates that privacy of female dwellers is prioritised. However, dwellers have commented on the desire for the kitchen space to be enlarged (Goh and Ahmad 10), which will be further investigated in the design experiment components of the thesis.

Fig. 6.3.1. Kitchen and yard 1.
Source: Author.

Fig. 6.3.2. Kitchen and yard 2.
Source: Author.

Fig. 6.3.3. Kitchen and yard
3. Source: Author.

6.4 Bathroom and Toilet

Fig. 6.4. Toilet and bathroom space in proposed typical layout of PHP flat unit. Source: Redrawn by author with floor plan from National Housing Department of Malaysia.

From the author's fieldwork, it is found that toilets used by the Malay community typically have wet floors. This is due to the Islamic practice of taking ablution before each of their five times daily prayers and the use of shower instead of a bathtub. It is also a norm in the Malay community for Malaysians to use water for cleaning up after using the toilet, instead of toilet paper. The presence of a pail to store water (in fig. 6.4.2-1) and for cleaning closely resembles the traditional use of *tempayan* (water vessel) TMH (refer to Context Analysis chapter Fig. 3.12). A hose is spotted (fig. 6.4.2-2 and 6.4.3-2) to channel water for cleaning. Thus, waterproofing the bathroom and toilet floor is essential in multistory housing. More proper storage space is also needed as seen in fig. 6.4.1-2.

Fig. 6.4.1. Bathroom and toilet 1.

Source: Author.

1

2

Fig. 6.4.2. Bathroom and toilet 2.

Source: Author.

1

2

Fig. 6.4.3. Bathroom and toilet 3.

Source: Author.

1

2

6.5 Corridor and Entrance

Fig. 6.5. Corridor and entrance space in proposed typical layout of PHP flat unit. Source: Redrawn by author with floor plan from National Housing Department of Malaysia.

Observations made on the corridor area show that it can be improved to be more vibrant, welcoming and as a potential social space such as the *anjung* of TMH. In addition, proper space for drying clothes and more storage space must be provided to avoid spillage of these activities (as evident in fig. 6.5.1-1 and 6.5.3-1) over into the public corridor.

These needs are identified from the placement of benches (Fig. 6.5.2-1) outside of the house entrance, by the unfavourable way dwellers use the corridor for drying clothes (fig. 6.5.3-1) and filled water bottles functions as weights over clothes that are hanged to dry on the corridor railings. The recessed space by the entrance provides a good space for a shoe rack. Fig. 6.5.1-1 shows corridor had been personalised by a dweller to enhance the area.

Fig. 6.5.1. Corridor and Entrance 1.

Source: Author.

Fig. 6.5.2. Corridor and Entrance 2.

Source: Author.

Fig. 6.5.3. Corridor and Entrance 3.

Source: Author.

6.6 Bedrooms

Fig. 6.6. Bedrooms in proposed typical layout of PHP flat unit. Source: Redrawn by author with floor plan from National Housing Department of Malaysia.

From the field study, it was observed that bedroom 3 is the most impractical bedroom. Being next to the corridor, it lacks privacy that is needed for sleeping; hence the room is almost always used as storage space. Although traditionally the Malay's sleeping area is quite open within TMH, it is removed from the public sphere, separated by the raised level and a garden compound acting as a buffer zone between the house and the public street as illustrated in Context Analysis chapter, fig. 3.12. As observed in fig. 6.6.2, prayer space is an important part of Malays' Islamic practice. Thus, privacy of bedrooms and prayer space must be taken into account in home design for the majority Malay community of PHP.

Fig. 6.6.1. Bedrooms 1.
Source: Author.

Fig. 6.6.2. Bedrooms 2.
Source: Author.

6.7 Home Space Dimension

Due to the difference in minimum requirements from design guidelines for public housing units in Malaysia identified in fig. 6.7.1, it is important to review the most suitable sizes required for spaces in a Malay home, based on living patterns identified.

Room Function	UBBL 1984	CIS 2:1998	PHP (2000)
	m ²		
Living	Not specified	25.2	12.4 (4m x 3.1m)
Dining			11.8 (3.8m x 3.1)
Yard	Not specified		2.9 (2.4m x 1.2m)
Corridor	-		1.9 (1.3m x 1.5m)
Master Bedroom	11	11.7 (3.9m x 3m)	10.8 (3.5m x 3.1m)
Bedroom 2	9.3	9.9 (3.3m x 3m)	6.5 (2.1m x 3.1m)
Bedroom 3	6.5	7.2 (2.4m x 3m)	7.1 (3.1m x 2.3m)
Bathroom 1	2	1.8 (1.5m x 1.2m)	3 (2.2m x 1.4m)
Toilet	1.25	1.8 (1.5m x 1.2m)	1.8 (1.8m x 1m)
Kitchen	4.5	5.4 (1.8m x 3m)	4.9 (1.6m x 3.1m)
Total	-	63	63.1

Fig. 6.7.1. Residential space sizing across Uniform Building By-Law (UBBL:1984), Construction Industry Standard (CIS 2:1998) and the current PHP house unit design.

In Islamic practice, Muslims pray facing towards Mecca. The direction is called Qiblah. It is 292. 54 degrees from Malaysia (Qiblaway.com n.d.) as shown in diagram 6.7.2 below.

Fig. 6.7.2. Qiblah direction from Malaysia. Source: Adapted by author with map from Lim Jee Yuan, *The Malay House : Rediscovering Malaysia's Indeginoues Shelter System*, Pulau Pinang, 1991: 14. Print.

The Qiblah orientation in relation to the bedroom space may vary depending on the site position and bedroom orientation (fig 6.7.3). Thus, it is important to allocate prayer space for each room due to the tight space in public housing design.

Fig. 6.7.3. Prayer posture in relation to qiblah direction. Source: Author's image.

Bedroom 1

Fig. 6.7.4. Bedroom 1 dimension in relation to activity patterns.
Source: Author's image.

Minimum workable space for Bedroom 1 (Master Bedroom) is 3.9m x 3.0m. The space allows room for circulation, prayer space with essential furniture and furnishings only when arranged efficiently as shown in fig. 6.7.4-B,C and D, not in fig. 6.7.4-A.

Bedroom 2

Fig. 6.7.5. Bedroom 2 dimension in relation to activity patterns. Source: Author's image.

In figures 6.7.5-A and B, the minimum workable space of 3.3m x 3m for Bedroom 2 as specified in CIS 2:1998 is sufficient to hold essential furniture and fittings and provide circulation and praying space.

Bedroom 3

Fig. 6.7.6. Bedroom 3 dimension in relation to activity patterns. Source: Author's image.

As shown in fig. 6.7.6-A, 3.0m x 2.4m is a tight space for a bedroom. For Malay dwellers, the lack of extra space for prayers will lead to an uncomfortable room. Fig. 6.7.6-B and C show that a room of minimum 3.1m x 3.0m is able to comfortably service a single bed bedroom with space for circulation and prayers.

Seated toilet

Fig. 6.7.7. Seated toilet room dimension in relation to activity patterns. Source: Author's image.

Squatting toilet

Fig. 6.7.8. Squatting toilet room dimension in relation to activity patterns. Source: Author's image.

Bathroom

Fig. 6.7.9. Bathroom dimension in relation to activity patterns. Source: Author's image.

As shown in fig 6.7.7-A, 6.7.8-A and 6.7.9-A, CIS 2:1998 dimensions of 1.5m x 1.2m for a toilet and a bathroom are small. An increment to 1.3m x 1.8m for squatting toilet (fig. 6.7.8-C), 1.2m x 2.3m (fig. 6.7.8-B) and 1.7m x 1.3m (fig. 6.7.9-B) for bathroom provides a comfortable space.

Kitchen

Fig. 6.7.10. Kitchen dimension in relation to activity patterns.
Source: Author's image.

As shown in fig. 6.7.10-A, CIS 2:1998 kitchen dimensions of 3.0m x 1.8m is small and does not have enough space for food preparation and storage. The circulation space available is similar to a corridor. An increment to 3.0m x 2.2m (fig. 6.7.10-C) provides some space for food preparation while at 3.5m x 2.7m (fig. 6.7.10-B) provides enough room for kitchen workspace and a walk-way to the yard or garden, that are usually connected to the kitchen.

Yard

Fig. 6.7.11. Yard dimension in relation to activity patterns.
Source: Author's image.

As shown in fig. 6.7.11-A, yard area designed at 2.4m x 1.2m in a PHP unit offers limited space for a person to be able to place a washing machine and to dry clothes. The minimum should be increased to 2.4m x 1.5m for a workable yard space as shown in fig. 6.7.11-B.

Based on the observations above, a summary of proposed minimum workable dimension of spaces for public home is provided below.

Room Function	UBBL 1984	CIS 2:1998	PHP (2000)	Proposed Design
			m ²	
Living	Not specified	25.2	12.4 (4m x 3.1m)	15.8 (4.5m x 3.5m)
Dining			11.8 (3.8m x 3.1)	10.5 (3.5m x 3.5m)
Yard	Not specified		2.9 (2.4m x 1.2m)	3.3 (1.3m x 2.5m)
Corridor	-		1.9 (1.3m x 1.5m)	5.6
Bedroom 1	11	11.7 (3.9m x 3m)	10.8 (3.5m x 3.1m)	11.7 (3.9m x 3m)
Bedroom 2	9.3	9.9 (3.3m x 3m)	6.5 (2.1m x 3.1m)	8.4 (2.4m x 4m)
Bedroom 3	6.5	7.2 (2.4m x 3m)	7.1 (3.1m x 2.3m)	8.8 (2.5m x 3.5m)
Bathroom 1	2	1.8 (1.5m x 1.2m)	3 (2.2m x 1.4m)	4 (2m x 2m)
Bathroom 2	-	-	-	4.6 (1.3m x 3.5m)
Toilet	1.25	1.8 (1.5m x 1.2m)	1.8 (1.8m x 1m)	-
Kitchen	4.5	5.4 (1.8m x 3m)	4.9 (1.6m x 3.1m)	7.7 (2.2m x 3.5)
Balcony	-	-	-	2 (2m x 1m)
Total	-	63	63.1	82

Fig. 6.7.12. Residential space sizing across Uniform Building By-Law (UBBL:1984), Construction Industry Standard (CIS 2:1998), PHP house unit design and the proposed design.

Observations made on PHP dwellers' living patterns through the way they have appropriated their house space revealed interesting preferences. It is observed that most dwellers preferred at least some open space within the living and dining for sitting on the floor. The preference for a kitchen to be private, hidden from common view is significant whereby all of the dwellers appropriated the yard as cooking and washing space. In the bathroom and toilet, design for wet floors and space for a pail to store water must be taken into account. The common corridor signals a more socially inclusive design while bedrooms require privacy for them to function.

7. THEORIES OF HOUSE AND HOME

7.1 Making sense of home

The term 'home' is rich with meaning and can translate differently across different situations. Social Policy Professor, Shalley Mallet of the University of Melbourne in her research on the meaning of home found that home meaning is complex because it has many different dimensions (62) and thus, changes slightly depending on the context in which it is discussed (84).

Firstly, it is important to discuss the distinction between house and home. For many theorists, the house is understood as a physical concept and the home as a psychological concept. Gifford as cited in Omar et al (352) differentiated home from house, based on its psychological construct containing "cultural, demographic and psychological meaning" pertaining to the house, as compared to understanding the house based on its mere physical built attributes.

Oliver (2006a) followed a similar understanding of house and home wherein he states:

The house is a denotative concept, describing the physical nature of the building, whereas 'home' is a connotative concept. Home is a symbol of the lives spent within it, which means it is connotative of the deep structures of a social systems and how these are reflected in the family's relationships to the domestic space it occupies.

(Oliver as cited in Zavei and Jusan 314)

Sandy G. Smith in her PhD thesis also argued that the physical environment is experienced psychologically when conjuring home meaning, along with the social and personal dimensions. Though there is a distinction in perception between the house and home, it must be highlighted that the house design in its physical form plays an integral part of providing a home construct within the mind.

Fig 7.1 Forms of human behaviour used when dealing with home space.

People are usually able to differentiate between house and home space by processing and analyzing qualities of spaces within their minds. According to Stoneham and Smith in the article "The House and The Home: The Balance of Architecture and Psychology within the Residential Home", the way we perceive home space psychologically can be understood by adapting Lawson's forms of human behavior model (3). Referring to Lawson's model in fig. 7.1, there are four stages in human behavior, namely instinctive, conative, cognitive and skills (Stoneham and Smith 3). According to Stoneham and Smith, the first three stages are utilised when people deal with home space (3). The authors argue that we start to perceive qualities in spaces by having an immediate instinct or intuition of the space, followed by developing an emotional response toward the space in the conative phase, and when we analyse the space in the cognitive stage (3). Hence, the identification of qualities in home spaces are experienced physically but interpreted within the mind.

Dwellers find homely qualities in spaces through what they deem as positive traits of the house design, ones that are in tune with their domestic lives by satisfying needs and aspirations. As evident in home environment studies, once the physical house is believed to have had a meaningful impact towards the lives of its dwellers by satisfying the dwellers needs and aspirations, the house is considered as a home (Smith 43). In contrast, when the physical house design does not match or satisfy the dwellers' needs, dwellers will find it difficult to relate to the house instinctively, followed by the feeling of frustration that may result in dwellers having to passively adapt to the space they have, modify it, or move (Jusan and Zavei 316) (Mohit, Ibrahim and Rashid 19).

Efforts to connect designers with dwellers' needs and desires in a home can be seen in a study by Toby Israel. In the book *Some Place Like Home: Using Design Psychology to Create Ideal Places*, Israel developed a framework called the Design Psychology Toolbox, which deeply looks into an individual's needs and ideals in a home (209). Israel believed that such detailed inquiry into a person's self-actualisation needs and desires in a home would assist designers to create the ideal home for the client (167). However, this is difficult when applied to a mass housing environment. In the article "Exploring Housing Attributes Selection" based on Maslow's Hierarchy of Needs, Zavei and Jusan proposed that exploration of 'home' in the mass housing context can be differentiated into two design phases, namely: "the design phase of the initial housing unit followed by the personalization works by the occupants" (315). While this omits the individual connotation of home at the design stage, it provides opportunities for designers to engage home for dwellers of mass housing as a collective community.

Sense of home is built on meaningful relationships between the physical house and the dweller. It is understood when dwellers are able to appreciate positive traits of the physical space at a psychological level. For a physical house to become a home requires spatial qualities that resonate with the dwellers' domestic lifestyles, needs and aspirations. A true home is created on an individual basis; but in the face of mass produced housing, the home can be designed to meet the collective domestic lifestyle, needs and aspirations at the very least.

7.2 Home in Public Housing

Architecturally, the design of public houses is bound by cost restriction. Thus, designers often adopt low cost solutions for mass produced, dense, high rise modernist flats for public houses, which often leads to a monotonous and basic outcome, leaving an unhomely environment for the dwellers.

Mohit, Ibrahim and Rashid carried out an assessment of satisfaction among dwellers of KL's existing public housing and found that dwellers are moderately satisfied with the overall house units (24). However, dwellers are typically unsatisfied with design of the housing unit in terms of sizing in certain spaces, and their perception that its social environment lacks 'security control' and is a place for crime (Mohit, Ibrahim and Rashid 24).

The article "Moving Past Picket Fences: The Meaning of Home for Public Housing Residents" by sociology professors Griff Tester and Adia Harvey Wingfield also identified the physical space and social environment as crucial factors for developing the construct of home, and that they interrelate (81). Tester and Wingfield found that the social dimension was central to forming 'home' meaning and it "organized the material (physical) and activity dimensions of home" (81). The way dwellers 'negotiate' physical aspects of public housing is influenced by its social environment (75). Though common ideals of home space whereby the house is regarded as a safe place to seek "comfort, privacy and relaxation" (Mallet as cited in Tester and Wingfield 72) is often not associated with the common public housing, it is signaled in Tester and Wingfield's article that dwellers do strive for those ideals. The most desirable qualities for home identified include privacy, comfort, and safety and security.

Privacy

Privacy is universally accepted as a basic need in a home environment (Smith 32). However, there is often a lack of privacy due to close proximity between the public realm and the private realm in dense housing (Yahaya and Hashim 27). Tester and Wingfield's study shows that public housing dwellers, especially males, value their house unit as home because they are able to find 'solitude and peace' in the private spaces of home, away from the pressures of neighbours (79). According to Juhani Palasmaa in his book chapter "Identity, Intimacy and Domicile", home as a private domain allows dweller to be at one with the self, away from public engagement (7). The ability to have a personal moment allows the dweller to express freely, contemplate privately and recuperate from exhaustion from social activities (Smith 32). Dwellers' control over space means a control over their social engagement level and this can result in a sense of privacy (Altman as cited in Smith 32).

The nature of privacy being bound by the personal dimension and physical dimension simultaneously (Stoneham and Smith 6) provides designers with a strong platform to construct meaningful relationships between the dwellers and their homes. However, careful considerations must be taken when designing for privacy in homes as the degree of privacy varies according to the dwellers' domestic lifestyle, culture and religious practices (Mohamad Rasdi "Crisis of Malaysian Architectural Thinking" 112). Mohamad Rasdi criticised application of functionalist, modern design in Malaysian houses, such as the dense flats for public housing, due to its insensitivity toward local privacy needs (33).

Design of eastern homes requires greater privacy than the western home due to gender segregation practice in Islam (Mohamad Rasdi "Housing Crisis" 26). Thus, privacy design must be tackled according to the dwellers' degree of privacy needs that is indicated by domestic lifestyle, culture and religious practices.

Comfort

Comfort is commonly associated with the home environment but often not with public housing. However, it is important to note that public housing dwellers do seek and appreciate whatever comfortable spaces they have. According to Tester and Wingfield, a public housing dweller may be particularly protective of her or his place of comfort (the front porch) against negative social activities as especially in summer, the space provides a cooler environment than inside the house (78). The dweller's action is reflective of a human's natural quest for comfort in homes.

Our further understanding of comfort over the years suggests that our understanding of levels of comfort has evolved from what Aloisio Leoni Schmid describes as "a state of relief from pain and restraint" (Silva and Santos 142) to the "comfort zone", explained by Olgyay as the ability for mankind to conserve energy by being synced with the environment (Silva and Santos 144).

From the physical house aspects, Silva and Santos identify safety, environmental adjustment and efficiency as attributes that support comfort (143). These attributes are identified based on people's early attempts to safeguard themselves from nature's harm by building the primitive hut (Rykwert as cited in Silva and Santos 143), then adjusting the living conditions relating to aspects of temperature, ventilation, acoustics, smell, landscape and more to achieve "biological balance between the body and the environment" (Silva and Santos 144) and lastly in the later generation, taking into account ergonomics (Lida as cited in Silva and Santos 146) and spatial efficiency (Fredrick as cited in Silva and Santos 146) to obtain maximum levels of comfort in contemporary times.

Safety and Security

Public housing dwellers typically values the ability of the physical house to protect and safeguard dwellers from threats and harm that are known to be a norm in the social environment of public housing. Earlier studies have concluded that public housing dwellers project home meaning to their houses when they see it as a "place of security from many threats" (Tester and Wingfield as cited in Rainwater 72). To the dwellers, the physical separation put up by their public houses against the negative social environment within the community contributes significantly to the sense of home (Tester and Wingfield 77).

However, the role of physical aspects in providing safety and security must cater beyond the physical house wall. Mohamad Rasdi in his book "Housing Crisis: Back to a Humanistic Agenda" addresses concerns about lack of safety in other spatial designs of high rise flats, which present dangers to children (14) and attract potential crimes (21). He urged that design details pertaining to safety must be enhanced further than the standardised solutions, particularly in the corridors where children play (14), roof design (21) and window design (22) when windows are accessible to criminals. Safety measures must be incorporated in design in a less intrusive way in order to project a homely feel. While active security measures such as camera surveillance can prove to be valuable for providing a sense of guardianship, it can also reduce the sense of privacy and may hinder communities from socialising within the space (Tester and Wingfield 80). Instead, passive security measures such as well-designed social spaces can be designed to provide opportunities for neighbors to interact and in turn enhance a sense of community, which contributes to the safe feeling about the home environment. As evident in Tester and Wingfield's interview, a resident commented that she felt safe regardless of the crimes happening outside because she was "familiar with her community" (78).

Safety and security through the basic physical house shell is a need and does contribute to a homely feel; however, there are opportunities for homely qualities that also need to be explored in a subtle and homely manner. Passive security measures of safer and more secure design solutions in favor of a positive social environment covering the wider public housing design would enhance the spaces in a more homely sense.

The way physical aspects are perceived in public housing is influenced by the social environment, and it projects that privacy, comfort, safety and security are qualities that dwellers need in the physical aspect of public housing for the house to feel homely. Thus, these qualities must be addressed in relation to other contexts and in a manner meaningful to the dweller for a more homely environment in public housing.

8. PRELIMINARY DESIGN & EXPLORATIONS

The Preliminary Design experiments integrate and build upon direct observations from the field study in the program analysis, information gained from the project review and literature review (presented in Chapters 3-7).

Privacy, comfort, safety and security were established to be of highest importance in establishing the sense of 'home', and these four aspects need to be incorporated into the design in ways that explicitly suit Malay dwellers and their particular cultural and domestic needs. Preliminary Design Concept 1 began by looking at 2-storey solutions for a single house unit, and Preliminary Design Concept 2 then investigated 1-storey solutions for a single house unit. A typical building block will equate to the height of a 5 storey block. The preliminary explorations next investigated how the units might be best configured together into block typologies.

Preliminary design started with exploration of several space planning variations that represent the Malay social and cultural sensitivities. The space plan configurations are based on gender segregated space arrangements similar to the TMH as illustrated in fig. 8.o.1.

Fig. 8.o.1. Space planning iterations. Source: Author's image.

The initial stage of the iterative design process was to divide the spaces according to dominant gender use as shown in fig. 8.o.2 and fig. 8.o.3.

Fig. 8.o.2. Gender division of spaces.
Source: Author's image.

Fig 8.o.3. Gender segregated spaces inform layout.
Source: Author's own.

8.1 Preliminary Design Concept 1: 2 storey option

Schematic Layout for Preliminary Design Concept 1 (fig. 8.1) consists of 2 levels per house unit with the more public part of the house on the lower level and private family areas on the upper floor. This was developed into 2 design iterations as shown in fig 8.1.1 and fig. 8.1.2.

Fig. 8.1. Schematic Layout for Preliminary Design Concept 1. Modeled by author.

Preliminary Design Concept 1: Iteration 1

The notations below reflect on ways in which privacy, comfort, safety and security have been considered in Design Iteration 1.

Items 1 and 8 reflect on two weaknesses in the initial experiment.

Fig. 8.1.1. Design Concept 1 first Iteration. Modeled by author.

Single house unit

Neighbouring house unit relation

Legend

- Female Domain
- Mix Domain
- Male Domain
- Public Corridor

House units are mirrored in pairs to maintain gender segregated spaces and encourage social interaction between neighbours.

Fig. 8.1.1.1 Strengths and weaknesses of design concept 1: Iteration1. Modeled by author.

Strengths

- Ventilation brick wall at staircase provides natural ventilation to both floors.
- Multiple access to the house facilitates gender segregation
- Privacy of family bedrooms is protected on the upper floor

Weaknesses

- Less privacy, safety and security on lower floor as house is in the middle of two corridors
- Multiple access may increase risk of thefts
- *Anjung* being in the path of two entrances may cause congestion and uncomfortable space for an *anjung*
- The close proximity between *selang* (female domain) and *anjung* (male domain) reduces the true feel of the spaces
- *Anjung* space designed further back from the corridor limits sightline to only the same floor

Preliminary Design Concept 1: Iteration 2

The notations below reflect on ways in which privacy, comfort, safety and security have been considered in Design Iteration 2.

Fig. 8.1.2. Design Concept 1 second iteration. Modeled by author.

Single house unit

Neighbouring house unit relation

House units are mirrored in pairs to maintain gender segregated spaces and encourage social interaction between neighbours.

Fig. 8.1.2.1 Strengths and weaknesses of design concept 1: Iteration1. Modeled by author.

Strengths

- Ventilation brick wall at staircase facilitates natural ventilation to both floors.
- Dual access to the house at the front entrance facilitates gender segregation.
- Privacy of family bedrooms are protected on the upper floor
- Single corridor entry allows easier control of safety and security
- Balcony on the upper floor provides space for private relaxation and passive surveillance.

Weaknesses

- *Anjung* being in the path of two entrances may cause congestion and uncomfortable space for an *anjung*
- The close proximity between *selang* (female domain) and *anjung* (male domain) reduces the real nature of the spaces.
- *Anjung* space designed further back from the corridor limits sightline to only the same floor

Critical Reflections and Conclusions Prelim Design Concept 1

The 2-storey options investigated in Preliminary Design concept 1 each had strengths and weaknesses:

Privacy: Separation between the more public and private spaces of the home into two levels, with the private bedrooms for the family upstairs and the more public family area downstairs. This separation allows for a more comfortable visitation by guests, without sacrificing privacy of private areas.

Comfort: The close proximity of living room to public corridor space restricts the use of porous walls or installation of windows, leaving the living room with poor ventilation and dark.

Spaces are provided according to the revised minimum dimensions for a comfortable fit with the Malay lifestyle.

Safety and Security: Close proximity of house entrance to the public corridor space presents opportunities for theft.

8.2 Preliminary Design Concept 2: 1-storey option

Schematic Layout for Preliminary Design Concept 2 (fig. 8.2) consists of one single level per house unit with the male domain part of the house nearer to the corridor while the female areas are set back. This is explored in 5 forms with several iterations as shown in fig 8.2.1 to fig. 8.2.6.1.

Fig. 8.2. Schematic Layout for Preliminary Design Concept 2. Modeled by author.

The first form is derived from gender segregated arrangement of ideal traditional and modern spaces for a house unit.

Preliminary Design Concept 2: Form 1

Fig. 8.2.1. Iterations derived from Form 1. Modeled by author.

Preliminary Design Concept 2: Form 1: Iteration 1

25.6% main circulation
Total GFA = 111m²

Strengths :

- Louvers at end of corridor provide means of natural air flow.
- Setback using gaps defines house unit territory, provides psychological privacy and acts as air well.
- Louver air vents on lower part of wall extract cooler air.

Weaknesses :

- Long main circulation path may produce a dark corridor.
- Cooking fumes directed to clothes drying in the yard.
- Large area for circulation may be seen as wasted space.

Fig. 8.2.1.1. First iteration of Form 1. Modeled by author.

Preliminary Design Concept 2: Form 1: Iteration 2

20% main circulation
Total GFA = 93m²

Strengths :

- Indoor *selang* provides space for female chit chat, extension of kitchen, storage or food preparation for *kenduris*.
- Louver air vents at top of wall passively exhaust warm air.
- Roof frame provides shading from glare, heat gain and rain.

Weaknesses :

- Door may increase privacy for female area but restricts cross ventilation along the internal corridor.

Fig. 8.2.1.2. Second iteration of Form 1. Modeled by author.

The second form tests a more compact form from the first.

Preliminary Design Concept 2: Form 2

Fig. 8.2.2. Iterations derived from Form 2. Modeled by author.

Preliminary Design Concept 2: Form 2: Iteration 1

18.8% circulation
Total GFA = 104m²

Strengths :

- Ventilation block provides a more porous wall for natural air flow.
- Door frame provides option for dwellers to cover the female domain with curtains.
- Roof frame acts as shading device.
- Full length louver window and ventilation brick wall invites air flow for cross ventilation through *selang* to kitchen.
- Reduced circulation area.
- Bathrooms are located away from public area to enhance privacy.

Weaknesses :

- Narrow *anjung* space.
- Replacement of louvers with toilets at both ends of main circulation space reduces air flow.

Fig. 8.2.2.1. First iteration of Form 2. Modeled by author.

Preliminary Design Concept 2: Form 2: Iteration 2

15.9% circulation
Total GFA 112.4m²

Strengths :

- Cross ventilation for Bedroom 2.
- Storage room included.
- Reduced circulation space percentage to total GFA.

Weaknesses :

- Bathroom 1 placement is closer to the corridor resulting in less privacy.

Fig. 8.2.2.2. Second iteration of Form 2. Modeled by author.

The third form explores privacy, safety and security improvement by providing a setback between the more private domains from the public corridor.

Preliminary Design Concept 2: Form 3

Fig. 8.2.3. Iteration derived from Form 3. Modeled by author.

Preliminary Design Concept 2: Form 3: Iteration 1

20% circulation
Total GFA = 75.6m²

Strengths :

- Female domain recessed back from public corridor.
- Natural ventilation through porous ventilated brick wall in *selang* walkway.
- Bathroom 1 and Bedroom 2 both receive natural ventilation and daylight.

Weaknesses :

- Though yard is set back away from public corridor, it is orientated facing the corridor which is unfavourable.
- Dining area faces neighbouring unit and can be seen from the corridor area.

Fig. 8.2.3.1. Iteration of Form 3. Modeled by author.

The fourth form tests potential arrangement for the private back of house activities (laundry, airing clothes).

Preliminary Design Concept 2: Form 4

Fig. 8.2.4. Iteration derived from Form 4. Modeled by author.

Preliminary Design Concept 2: Form 3: Iteration 1

17.8% circulation
Total GFA = 82.2m²

Strengths :

- Kitchen is hidden away from direct view from both sides, the public corridor and public front-age.
- *Anjung* space extended beyond the corridor space provides passive surveillance space and visual connection between neighbours.
- Louvers at floor level increase cool air flow into the house.

Weaknesses :

- Cooking fumes from kitchen may stick to clothes in yard area.
- Louvers at floor level may be blocked with furniture or items and may clogged with dust from sweeping.

The fifth form introduces a courtyard-like space for an individual house unit to restore female domain's privacy and provide some part of the mixed domain.

Preliminary Design Concept 2: Form 5

Iteration 1

Fig. 8.2.5. Iteration derived from Form 5. Modeled by author.

Preliminary Design Concept 2: Form 5: Iteration 1

14.5 % circulation
Total GFA = 100m²

Strengths :

- Kitchen is hidden away from direct view from both sides, the public corridor and public frontage.
- *Anjung* space extended beyond the corridor space provides passive surveillance space and visual connection between neighbours.
- Yard and kitchen are orientated away from direct view of the public corridor.
- Female domain is recessed the furthest from public realm.
- Formation of personal airwell for house at each level improves privacy, acoustics.

Weaknesses :

- Part of living and dining may be viewed from the public corridor.

Fig. 8.2.5.1. Iteration of Form 5. Modeled by author.

Critical Reflections and Conclusions: Preliminary Design Concept 2

The 1-storey options investigated in Preliminary Design Concept 2 each had strengths and weaknesses, but overall they provide a more viable solution for a public 'home' than Preliminary Design Concept 1.

Privacy

Privacy and gender segregated space can still be designed in single floor unit through setbacks from public areas.

Comfort

Thermal comfort is enhanced through climatic passive design solutions like ventilated brick walls, louvers, grille screens and overhangs for sun shading.

A single floor home unit ensures a lower building height for a walk up flat public housing.

Space ergonomics is achieved through ample space for dwellers' domestic activity.

Safety and Security

The *anjung* and *serambi* allow dwellers to carry out passive surveillance of the public area from their homes.

Five forms of individual house units were explored for concept 2 as shown in fig. 8.2.6. Developments from form 1 to 5 showed that in a single floor house unit, setbacks can provide privacy and safety especially for the female domain. The presence of *anjung* and an area that bridges the corridor to the house act as the house's territorial demarcation area. It also ensures a gradual change between the public corridor to the private house units.

On comfort, a void between the corridor and house helps improve ventilation and natural lighting for units on the lower floors. In form 5, walls are designed to be more porous with the use of ventilated brick walls and louvers to allow regular flow of air and some natural light. Space ergonomics was considered by providing a good amount of space for Malay dwellers' domestic activities and introducing 'traditional spaces' into the house. This has been explored from form 1 to 5.

In terms of safety and security, the entrance space, when designed in an open manner, allows the house entrances to also be seen by the neighbours for safety and security.

Preliminary Design Concept 2 Developments

Fig. 8.2.6. Five design forms derived for Preliminary Design Concept 2. Modeled by author.

8.3 Block Typologies

Linear block

This typology is advantageous for low cost projects. It is less suitable for housing as it tends to look institutionalized and cramped. While it captures a strong directionality, too long a corridor leads to a rigid and dreary pathway. Referring to fig. 8.3.1, an internal corridor (c) reduces access of daylight and makes the entrance of the house unsafe. External corridor in a block typology such as in (a,b,d and e) provides better sense of security.

(a)

(b)

(c)

(d)

(e)

8.3.1. Linear blocks of past KL public houses. Image adapted by author from Kosman, Kamarul Afizi et. al, 50 Tahun Perumahan Awam di Kuala Lumpur, Bangi: Institut Alam dan Tamadun Melayu (ATMA) UKM, 2008: 120,143,144,145. Print.

Linear block with internal courtyard

The courtyard has been an important feature of Malaysian homes including in public houses (Refer to fig. 8.3.2). Traditionally, courtyards provide daylight access and assist natural ventilation through the houses. They provide the house an open space that is private to the house. However, incorporating courtyards in a high rise built diminishes these advantages due to the scale of the block. An internal courtyard by the corridors often becomes a depressing core that end up as a parking area for motorcycles. As the block rises, a larger courtyard is needed to receive good amounts of daylight and ventilation.

8.3.2. Linear block with internal courtyard of past KL public houses.
Image adapted by author from Kosman, Kamarul Afizi et. al, 50 Tahun Perumahan Awam di Kuala Lumpur, Bangi: Institut Alam dan Tamadun Melayu (ATMA) UKM, 2008: 145. Print.

Linear block arrangement on site

The linear blocks arrangement on the site is shown in fig. 8.3.3. The blocks are orientated closer along the east-west axis to reduce solar gains on house units following the norm of TMH orientation. The end wall of blocks protect interior of the house from the east-west sun movement. Openings of the individual house will align closer to the north-south axis.

Fig. 8.3.3. Linear type block arrangement on proposed site. Modeled by author.

L-shaped block

The L-shaped block provides a good gradual flow from open to enclosed cornered space as illustrated in fig. 8.3.4. The changes provide a varying feel of space which is much more interesting than the linear block.

8.3.4. L-shaped block of past KL public houses. Image adapted by author from Kosman, Kamarul Afizi et. al, 50 Tahun Perumahan Awam di Kuala Lumpur, Bangi: Institut Alam dan Tamadun Melayu (ATMA) UKM, 2008: 143. Print.

U-shaped block

Referring to fig. 8.3.5, the U-shaped block provides dwellers with a space of retreat and allows observation out the open end. It suits a large housing block better due to being able to provide some degree of enclosure for the corridors while retaining a central courtyard.

8.3.5. U-shaped blocks of past KL public houses. Image adapted by author from Kosman, Kamarul Afizi et. al, 50 Tahun Perumahan Awam di Kuala Lumpur, Bangi: Institut Alam dan Tamadun Melayu (ATMA) UKM, 2008: 120, 143. Print.

L-shaped block arrangement on site

The best arrangement for L-shaped blocks on the site is shown in fig. 8.3.2. Two L-shaped blocks are arranged to form a courtyard-like opening between them. This produces a more intimate core for the community. A long path in the middle connects all the blocks. While community connection may be improved in this arrangement, houses on the north-south axis are exposed to the sun. This must be mitigated through other passive design solutions to reduce solar radiation.

U-shaped block arrangement on site

The best arrangement for U-shaped blocks on the site is shown in fig. 8.3.3 which is similar to the previous. The U-shaped block provides a semi-open courtyard for recreational area. A pathway in the middle connects all the blocks. Other passive design measures must also be provided to houses facing the east-west direction to protect from the sun.

Fig. 8.3.2. L-shaped type block arrangement on proposed site. Modeled by author.

Fig. 8.3.3. U-shape block arrangement on proposed site. Modeled by author.

Critical Reflections and Conclusions: Block Typologies

The block typology options each had strengths and weaknesses, but overall the U-shaped block arrangement presented the more cohesive social network between blocks without sacrificing privacy of house units. The U-shaped block's corridor provides good viewing points towards the overall corridor and over the courtyard. This is good for passive surveillance to maintain safety and security. The enclave that the U shape has provides an intimate space yet on that is open for the housing community.

Simple solutions such as reorganizing house spaces according to the TMH layout, providing buffer zones between public realm and private house for privacy, climatic passive design solutions and conducive ergonomics of space for comfort and the design of space that allows for social interactions and passive surveillance for safety and security.

9.DEVELOPED DESIGN

This chapter presents the Developed Design outcomes for the design research investigation. Findings from previous chapters have helped produce a more locally informed home space from the aspects of Privacy, Comfort, Safety and Security.

From preliminary design experiments, several design strategies were identified to help contribute towards a sense of home through a more localised approach of privacy, comfort, safety and security. Design iterations from concept 1 to concept 2 tested different ways to improve privacy, comfort, safety and security. It is found that compromises between the 3 aspects are unavoidable when designing in a mass housing environment. From the experiments, form 5 was found to have the most optimum solution to fit the 3 aspects well.

For privacy, the developed design incorporates gradual mediation between the public spaces and spaces considered private by the locals. This can be provided with social spaces at the entrance of the house or a setback between the house and the public realm. Dual entrances can assist in privacy through gender segregated spaces. In terms of comfort, passive design measures such as site orientation, porous walls, larger openings to provide ventilation for the whole body length are low cost measures to ensure thermal comfort. For space ergonomics, to increase safety and security in a less invasive manner, sociable spaces that can support passive community surveillance can be introduced.

The developed design experiment for a public home development consists of low rise 5 storey walk up flats with single storey house units to ensure a medium density environment and long term low maintenance cost. It is found that the absence of mechanical systems in low rise typology provides a lower long term maintenance cost for the dwellers (Kosman et al. 15). The U-shape block is chosen to encourage passive community surveillance and social connectivity. A pathway acts as a spine to connect all the blocks. The developments are illustrated in fig. 9.1 to 9.15.

Jalan

SOUTH BLOCK

Proposed Site Plan

1: 1000

Fig. 9.1. Proposed Master Plan.
Source: Produced by author.

Occupancy

Overall: Around 1500 dwellers

Per block: 150 dwellers

Per floor: 30 dwellers

Surau (communal prayer hall) is required for muslim dwellers (CIDB CIS 2:1998 13).

Multipurpose communal hall is required at a minimum of 0.25 hectare for every 100 - 1000 dwelling unit (CIDB CIS 2:1998 14).

Long pavement connects the blocks, provides community access to the overall public housing area.

Landscaping defines territory for safety and security and privacy in female dominated areas.

Airwell provides setback which facilitates natural lighting, ventilation into the

Airwell space shared between different domains of a home unit distance the spaces physically but may be connected visually and enhances the sense of territoriality for security and safety.

Other design features

Recreational and sports area (i.e. garden, playground, badminton, futsal, etc.) in central court space.

Orientation of home units responds to site's form and direction of Qiblah (Mecca) to ensure prayers can be carried out in each bedroom. Toilets are orientated away from Qiblah.

House units are mirrored to ensure some separation between female and male domains.

Landscaping as buffer for safety and security and privacy between home units and public circulation.

Fig. 9.2. North block proposed ground floor plan. Source: Produced by author.

Landscaping as buffer for safety and security and privacy between home units and public circulation.

NORTH BLOCKS

GROUND FLOOR

1:300

Anjung extending out from the corridor space as place for passive surveillance and social interactions.

Two fire staircases for each block meet running distance of 45m (UBBL:1998 84) at 42m.

Two meter setback from public corridor provides a 'buffer' between the public and private of homes.

0 5 10 20m

NORTH BLOCKS

UPPER FLOOR
1:300

Fig. 9.4. South block proposed ground floor plan. Source: Produced by author.

Fig. 9.5. South block proposed upper floor plan.
Source: Produced by author.

Fig. 9.6. Elevation from external side of block. Source: Produced by author.

0 5 10m

Fig. 9.7. Elevation from internal centre court of block. Source: Produced by author.

Fig. 9.8. Typical ground floor plan.
Source: Author's own image.

Typical Ground Floor plan
1 : 100

Overall Home

82 m²
883 ft²

Fig. 9.9. Typical upper floor plan.
Source: Author's own image.

Typical Upper Floor plan
Overall Home
82 m²
883 ft²

Fig. 9.10. Male domain area.
Source: Author's own image.

Predominantly Male Domain

Male social gathering and meeting space at the *anjung*.

Anjung also functions as space for passive surveillance over block's courtyard, corridor and women's entrance. As well as openness of the corridor, a well surveillance and active corridor enhances safety and security of the block.

The shared bathroom is dedicated to son's bedroom, parent's room and guests. Though it is shared, the bathroom entrance is hidden for son's privacy and close for convenience.

Fig. 9.10.1. Perspective A: *Anjung* as space for predominantly males socialising and passive surveillance. Source: Author's own image.

Fig. 9.11. Mix domain area.
Source: Author's own image.

Fig. 9.11.1. Perspective B: Mix domain of living and dining space for family relaxation and eating respectively. Source: Author's own image.

LEGEND

- Public
- Semi
- Private
- Mixed Domain

Fig. 9.12. Mix domain area during kenduris.
Source: Author's own image.

Mix Domain during *kenduri*

Living and dining turn into 'Serambi' that caters for small kenduris and for those occupying the space the traditional way and preferring an uncluttered space.

Fig. 9.12.1. Perspective C: Living and dining cum *serambi* space during *kenduris*. Source: Author's own image.

Predominantly Female Domain

Women and children enter via the yard and kitchen during *kenduris* to greet female host and help out with cooking.

Women may use this bridged entrance when males have social gathering at the 'Anjung'.

A bathroom dedicated for female use is attached to the daughter's bedroom to maintain privacy from males and ease ablution process before prayers.

Fig. 9.13.1 Perspective D: Female domain access through the kitchen. Source: Author's own image.

Short Section A-A

0 1 2m

Gas cooking stove positioned slightly away from window to avoid fire from being extinguished by breeze.

Typical Upper Floor Section A-A

Typical Ground Floor Section A-A

Balcony for female. Chit chat space, extend prep area for cooking, planting herbs or extra space.

Heat and cooking aroma escapes through high fixed louver aluminium panels.

Fig. 9.15. Section B-B. Source: Author's own image.

Air well provides natural stack ventilation effect and privacy to home units through the setback. Individual void space (courtyard like) for house unit at each level controls sightline and acoustic level within the individual house domain up to certain extent.

Louver openings at body level draw in cooler air.

Natural ventilation through ventilation brick walls.

230mm reinforced concrete as party wall.

Long Section B-B 1:50

A sense of home in architecture is built upon positive and meaningful relationships between the house space and dweller. Design for home in public housing is crucial to uphold dwellers' needs and suitability in house space that relates well with the dwellers' domestic lives. To enable sense of home within KL's public housing realm, it is discovered that privacy, comfort, safety and security must be reinstated within the house design according to the locals' lifestyle.

The reintroduction of traditional spaces such as the *anjung*, *serambi* and *selang* mediates between public and private, at the same time providing gender segregated spaces. To enhance thermal comfort, climatic passive design measures such as ventilated brick wall and louvers can be incorporated into the public home. To improve ergonomics of the house, space design must be informed by dwellers' living patterns. It is important that the design recognises some of the 'modern' changes in Malay dwellers' lifestyles such as the use of furniture. A safer and more secure public home environment can be achieved with passive surveillance from its community. Thus, spaces such as the *anjung* and balconies should be included to enable passive surveillance.

Homely spaces are created from a balance between appropriate (suitable) house spaces designed for the dwellers and the appropriation process by dwellers. The architects' role is the former, in providing appropriate house spaces for dwellers to enable and encourage home making process later.

10.CRITICAL REFLECTIONS & CONCLUSIONS

Conclusion

The thesis has identified that the cause for unhomeliness in the KL public housing is partly due to poor design in a bid to reduce costs. The application of modern design for public housing is an economical choice but the design is based on western lifestyles, an assumption that is not always suitable for Malaysians to call home. This mismatch causes discomfort for KL public housing dwellers, which are mostly rural to urban migrants. It is important to note that over the years, some dwellers come to embrace some modern lifestyle choices like the use of furniture and activities such as watching the television while still maintaining some of their cultural and religious practices like kenduris and performing the obligatory daily prayers. Thus, the thesis recognises the need to reevaluate the design of KL public housing units toward a more suitable housing environment for Malays to call home.

A new public 'home' design is needed to facilitate public housing dwellers who are mostly rural to urban migrants to settle into the new urban environment in ways that are sympathetic to their customs and lifestyles. Literature and context analysis pointed out that a sense of home can be achieved by reinstating privacy, comfort, safety and security into the public house design and this was explored in the thesis at the individual house unit and community level. Each aspect must be addressed in a way that aligns with the Malays' domestic lifestyle so that dwellers are able to continue practicing their cultural and religious practices in a familiar and comfortable manner. Only then can dwellers relate with the house spaces on a meaningful level.

Constraints and Limitations

Some constraints and limitations of the findings were identified. The change in future generation's lifestyles may influence the way dwellers use their domestic space differently. This may lead to dwellers having different expectations about privacy, comfort, safety and security for the public house to become a home. In addition, the rising land cost may push the typology towards a higher block typology and higher density, which will challenge current design strategies from contributing to a homely environment in the different typology. Research carried out for the thesis also had limitations whereby only a small number (32) of KL's public housing dwellers participated. A larger pool of participants will provide better data for analysis.

Potential Application of Study

Findings from the study nevertheless may be tested and applied within other modern housing in Malaysia. From the research, it was observed that through the method of looking into the way a house is appropriated, we can analyse the domestic living patterns carried out by dwellers. The living patterns informed dwellers' lifestyles, and this may include cultural practices that were previously missed by designers. This method of analysis can be used to inform decisions on home design in other modern housing for the future.

Potential Study Advancement

Design strategies for home through the aspects of privacy, comfort, safety and security can be explored for a larger dwelling that houses other family types, beyond the nuclear family that is presumed for the thesis. A couple's home and a home for families living with multiple generations would have a different dynamic to their lifestyles and would be an important direction for further research. The scope of the thesis design strategies for home must also be studied for its flexibility to be expanded and tailored to the lifestyles of Chinese, Indians and other races that live in KL's public housing.

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APPENDICES

Appendix 1: Ethics Approval by VUW Ethics

Phone 0-4-463 6028
Email judith.loveridge@vuw.ac.nz

MEMORANDUM

TO	Nadrah Ibrahim
FROM	Dr Judith Loveridge, Convenor, Human Ethics Committee
DATE	26 May 2016
PAGES	1
SUBJECT	Ethics Approval: 0000023012 When does a house become a home? A case study in low cost housing in Kuala Lumpur

Thank you for your application for ethical approval, which has now been considered by the Human Ethics Committee.

Your application has been approved from the above date and this approval is valid for three years. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Kind regards

Judith Loveridge

Convenor, Victoria University Human Ethics Committee

Note: Title of the thesis from "When does a house become a home? A case study in low cost housing in Kuala Lumpur" has been changed to "Can architecture enable a home in Kuala Lumpur public housing?" to narrow the scope and focus of thesis.

Appendix 1: Information sheet for participants

Make Yourself At Home.

Can architecture enable a sense of home in Kuala Lumpur's public housing?

INFORMATION SHEET FOR PARTICIPANTS

Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to take part, thank you for considering my request.

My name is Nadrah Ibrahim and I am a Masters student in Master of Architecture (Professional) at Victoria University of Wellington. This research project is work towards my thesis.

Aim of the research

This project aims to research ways to design a home in low cost housing in Kuala Lumpur. This research has been approved by the Victoria University of Wellington Human Ethics Committee (00000023012).

How can you help?

If you agree to take part you will be asked to photograph spaces in the house that you define as home. You will use a disposable film camera given by the researcher. The photos will be developed and collected as data to be analysed for the research. I will interview you at a public place. I will provide a quality of life survey for you to fill and ask questions about your current house. The short interview and survey will take about 10 minutes to complete. I will record the short interview and as the transcriber, write a summary of the interview. You can stop the interview at any time, without giving a reason. You can withdraw from the study by 31 August 2016. If you withdraw, the information you provided will be destroyed or returned to you.

About the information you give

This research is confidential. I will not name you in any reports, and I will not include any information that would identify you. Therefore, it is advisable that the photos do not contain any personal items or be taken at a distance or angle that would obscure personal items. Only my supervisor and I will have access to the original photographs and recorded interview. The photographs, surveys, any summaries and any recordings will be kept securely and destroyed 3 years after the research ends.

What will the project produce?

The information from my research will be used in my Master's thesis. I may also use the results of my research for conference presentations, and academic reports. You will not be identified in my report.

Your rights as a research participant

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question;
- ask for the recorder to be turned off at any time during the interview;
- withdraw from the study before 31 August 2016;
- ask any questions about the study at any time;
- receive a copy of your interview recording;
- read over and comment on a written summary of your interview;
- agree on another name for me to use rather than your real name;
- be able to read any reports of this research by emailing the researcher to request a copy.

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact either:

Student/Researcher:

Name: Nadrah Ibrahim

University email address:
ibrahinadr@myvu.ac.nz

Supervisor:

Name: Regan Potangaroa

Role: Supervisor

School: Faculty of Architecture and Design,
Victoria University of Wellington

Telephone: +64 4639 530

Email: Regan.Potangaroa@vu.ac.nz

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Victoria University HEC Convener: Associate Professor Susan Corbett. Email susan.corbett@vu.ac.nz or telephone +64-4-463 5480.

Appendix 1: Information sheet for participants (Malay translation)

Jadikan seperti rumah sendiri.

***Bolehkah seni bina menjana suasana kediaman di perumahan awam
Kuala Lumpur?***

LAMPIRAN MAKLUMAN BAGI PESERTA

Sila baca lampiran ini sebelum membuat keputusan untuk menolak atau mengambil bahagian dalam kajian ini. Jika anda membuat keputusan untuk mengambil bahagian dalam kajian ini, terima kasih. Jika anda memilih untuk tidak mengambil bahagian, terima kasih kerana sudi mempertimbangkan usul ini.

Nama saya Nadrah Ibrahim, seorang pelajar Master jurusan seni bina (Profesional) di Victoria University of Wellington. Kajian yang dijalankan akan menjurus ke arah thesis saya.

Tujuan kajian

Kajian ini dijalankan dengan tujuan untuk mengkaji cara-cara mereka bentuk kediaman bagi perumahan awam. Kajian ini telah diluluskan oleh Jawatankuasa Etika Manusia Victoria University of Wellington. (00000023012)

Bagaimana anda boleh membantu?

Jika anda ingin mengambil bahagian dalam kajian ini anda akan diminta untuk mengambil gambar ruang rumah anda yang anda kenal pasti sebagai kediaman. Anda akan menggunakan kamera digital yang akan dipinjamkan oleh pengkaji. Gambar-gambar tersebut akan dikumpul sebagai data bagi kajian ini. Anda akan ditemu ramah di tempat awam. Saya akan memberi borang kaji selidik kualiti kehidupan untuk di isi dan bertanyakan tentang rumah yang anda kini diami. Temu ramah pendek dan kaji selidik akan mengambil masa dalam 15 minit untuk disiapkan. Saya akan merakam dan selaku pencatat, akan mencatat ringkasan temu ramah tersebut. Anda dibenarkan untuk menghentikan temu ramah pada bila-bila masa tanpa memberi sebarang sebab. Anda boleh menarik diri daripada temu ramah kaji selidik ini sebelum 31 Ogos 2016. Jika anda menarik diri, maklumat yang anda berikan akan dimusnahkan atau dipulangkan kepada anda.

Bekenaan maklumat yang diberi

Kajian ini adalah sulit. Nama dan maklumat mengenai identiti anda tidak akan diterbitkan di dalam laporan. Oleh itu, dinasihatkan bahawa gambar-gambar tidak mengandungi sebarang barangan peribadi atau gambar ditangkap dari jarak jauh atau sudut yang tidak menampakkan barangan peribadi dengan jelas. Hanya saya dan penyelia saya yang mempunyai akses kepada

Note: Malay version of participant information form

gambar dan rakaman temu ramah tersebut. Semua gambar, borang kaji selidik, ringkasan dan rakaman akan disimpan di tempat selamat dan akan dimusnahkan selepas 3 tahun kajian tamat.

Apa hasil projek ini?

Hasil maklumat dari kajian ini akan digunakan ke arah thesis Master. Hasil kajian ini mungkin di gunakan untuk pembentangan persidangan dan laporan akademik. Anda tidak akan dikenali di dalam laporan ini.

Hak anda sebagai peserta kajian.

Anda dibenarkan menolak tawaran ini. Jika anda berminat untuk mengambil bahagian, anda mempunyai hak untuk:

- Tidak menjawab sebarang soalan;
- Minta rakaman ditutup pada bila-bila masa ketika temu ramah dijalankan.
- Tarik diri daripada kajian sebelum 31 Ogos 2016.
- Bertanyakan sebarang soalan tentang kajian pada bila-bila masa;
- Terima salinan temu ramah;
- Semak dan komen salinan bertulis temu ramah;
- Bersetuju untuk menggunakan nama samaran;
- Membaca sebarang laporan kajian ini dengan mengemukakan permohonan salinan kepada pengkaji melalui emel.

Jika anda mempunyai soalan atau kemusykilan, siapa anda boleh hubungi?

Jika anda mempunyai sebarang pertanyaan, sila hubungi:

Pelajar/Pengkaji:

Nama: Nadrah Ibrahim

Alamat emel universiti:
ibrahinadr@myvu.ac.nz

Penyelia:

Nama: Regan Potangaroa

Jawatan: Supervisor

Fakulti: Fakulti Seni Bina dan Reka Bentuk,
Victoria University of Wellington

Nombor telefon: +64 4639 530

Emel: Regan.Potangaroa@vu.ac.nz

Makluman dari Jawatankuasa Etika Manusia

Jika anda mempunyai sebarang kebimbangan tentang pengendalian etika kajian ini, anda boleh menghubungi Pengarah Jawatankuasa Victoria University of Wellington: Professor Susan Corbett. Emel: susan.corbett@vu.ac.nz atau di nombor telefon +64-4-463 5480.

Note: Malay version of participant information form

Appendix 2: Consent sheet for participants

Make Yourself At Home.

Can architecture enable a sense of home in Kuala Lumpur's public housing?

CONSENT TO PHOTOGRAPHY AND INTERVIEW

This consent form will be held for 3 years.

Researcher: Nadrah Ibrahim, School of Architecture and Design, Victoria University of Wellington.

- I have read the Information Sheet and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.
- I agree to photograph spaces of home in my house for data collection and research purposes.
- I agree to take part in a survey and an audio recorded interview.

I understand that:

- I may withdraw from this study by 31st August 2016 and any information that I have provided will be returned to me or destroyed.
- The information I have provided will be destroyed 3 years after the research is finished.
- Any information I provide will be kept confidential to the researcher and the supervisor. I understand that the results will be used for a Masters report and may be used in academic reports and/or presented at conferences.
- My name will not be used in reports, nor will any information that would identify me.

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Appendix 2: Consent sheet for participants (Malay translation)

**Jadikan seperti rumah sendiri.
*Bolehkah seni bina menjana suasana kediaman di perumahan awam
Kuala Lumpur?***

KEBERNARAN UNTUK GAMBAR FOTO DAN TEMU BUAL

Borang ini akan disimpan selama 3 tahun.

Pengkaji: Nadrah Ibrahim, School of Architecture and Design, Victoria University of Wellington.

- Saya telah membaca Lampiran Penerangan Makluman dan maklumat tentang projek telah diterangkan kepada saya. Soalan yang saya kemukakan telah dijawab dengan jelas. Saya faham bahawa saya boleh mengemukakan sebarang pertanyaan baru pada bila-bila masa.
- Saya bersetuju untuk mengambil gambar kediaman di dalam rumah saya bagi pengumpulan data dan tujuan kajian.
- Saya bersetuju untuk mengambil bahagian dalam kaji selidik dan ditemu bual melalui rakaman audio/video.

Saya faham bahawa:

- Saya dibenarkan untuk menarik diri daripada kajian ini sebelum 31 Ogos 2016 dan segala maklumat yang telah saya berikan akan dipulangkan kepada saya atau dimusnahkan.
- Segala maklumat yang telah saya berikan akan dimusnahkan selepas 3 tahun setelah kajian selesai.
- Sebarang maklumat yang saya berikan akan disimpan secara sulit oleh pihak pengkaji dan penyelia. Saya faham bahawa maklumat akan digunakan untuk laporan peringkat Master dan mungkin digunakan dalam laporan akademik dan/atau dikemukakan di persidangan.
- Nama saya dan sebarang maklumat yang dapat menyebabkan identiti saya dikenalpasti tidak akan digunakan di dalam laporan.

Tandatangan peserta: _____

Nama peserta: _____

Tarikh: _____

Butir untuk dihubungi: _____

Appendix 3: Quality of Life survey (DASS)

Quality of Life Survey - DASS		Group:	Number:	Date:	
<p>Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you <i>over the past week when you are in your house</i>. There are no right or wrong answers. Do not spend too much time on any statement.</p> <p><i>The rating scale is as follows:</i></p> <p>0 Did not apply to me at all 1 Applied to me to some degree, or some of the time 2 Applied to me to a considerable degree, or a good part of time 3 Applied to me very much, or most of the time</p>					
1	I found myself getting upset by quite trivial things	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I just couldn't seem to get going	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
8	I found it difficult to relax	0	1	2	3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting upset rather easily	0	1	2	3
12	I felt that I was using a lot of nervous energy	0	1	2	3
13	I felt sad and depressed	0	1	2	3
14	I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)	0	1	2	3
15	I had a feeling of faintness	0	1	2	3
16	I felt that I had lost interest in just about everything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3

18	I felt that I was rather touchy	0	1	2	3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life wasn't worthwhile	0	1	2	3
22	Have you felt lonely the last week?	0	1	2	3
23	Does your family say that things are going to get better?	0	1	2	3
24	How often do you get involve with communal activities such as at the mosque, in sports, helping out in the community and others in your free time?	0	1	2	3
25	How close is your family relationship?	0	1	2	3
26	I can easily get traditional food and traditional events	0	1	2	3
27	I have access to the internet	0	1	2	3
28	Highest education level in your family				
29	Age				
30	Gender				
31	No of family members living in the house				
32	No of bedrooms in the house				
33	<p>Important issues to be tackled to ensure a wholesome family life. (Please tick 1 for the most important and 3 for the least important) (Choose 3 only)</p> <p> ☐ Housing ☐ Health ☐ Job ☐ Crime and drug problems </p> <p> ☐ School ☐ Higher education after </p>				
	Comments				

Short Questions

1. Does your extended family and friends like being in your house?
2. Do you get compliments regarding your house?
3. Do you get complaints regarding your house?
4. In your opinion, which is the guests' favourite area of your house?
5. In your opinion, which is the guests' least favourite area of your house?
6. How often do you invite guests into your house?
7. Do you prefer to have feasts at your house or somewhere else?

Appendix 3: Quality of Life survey (DASS) (Malay translation)

Kaji selidik kualiti kehidupan - DASS		Kumpulan:	Nombor:	Tarikh:	
Sila baca setiap kenyataan di bawah dan bulatkan pada nombor 0,1,2 atau 3 bagi menggambarkan keadaan anda sepanjang minggu yang lalu ketika berada di rumah anda. Tiada jawapan yang betul atau salah. Jangan mengambil masa yang terlalu lama untuk menjawab mana-mana kenyataan.					
Skala pemarkahan adalah seperti berikut:					
0	Tidak langsung menggambarkan keadaan saya				
1	Sedikit atau jarang-jarang menggambarkan keadaan saya.				
2	Banyak atau kerap kali menggambarkan keadaan saya.				
3	Sangat banyak atau sangat kerap menggambarkan keadaan saya				
1	Saya dapati diri saya sukar ditenteramkan	0	1	2	3
2	Saya sedar mulut saya terasa kering	0	1	2	3
3	Saya tidak dapat mengalami perasaan positif sama sekali	0	1	2	3
4	Saya mengalami kesukaran bernafas (contohnya pernafasan yang laju, tercungap-cungap walaupun tidak melakukan senaman fizikal)	0	1	2	3
5	Saya sukar untuk mendapatkan semangat bagi melakukan sesuatu perkara	0	1	2	3
6	Saya cenderung untuk bertindak keterlaluan dalam sesuatu keadaan	0	1	2	3
7	Saya rasa menggeletar (contohnya pada tangan)	0	1	2	3
8	Saya rasa saya menggunakan banyak tenaga dalam keadaan cemas	0	1	2	3
9	Saya bimbang keadaan di mana saya mungkin menjadi panik dan melakukan perkara yang membodohkan diri sendiri	0	1	2	3
10	Saya rasa saya tidak mempunyai apa-apa untuk diharapkan	0	1	2	3
11	Saya dapati diri saya semakin gelisah	0	1	2	3
12	Saya rasa sukar untuk relaks	0	1	2	3
13	Saya rasa sedih dan murung	0	1	2	3
14	Saya tidak dapat menahan sabar dengan perkara yang menghalang saya meneruskan apa yang saya lakukan	0	1	2	3
15	Saya rasa hampir-hampir menjadi panik/cemas	0	1	2	3
16	Saya tidak bersemangat dengan apa jua yang saya lakukan.	0	1	2	3
17	Saya tidak begitu berharga sebagai seorang individu	0	1	2	3
18	Saya rasa yang saya mudah tersentuh	0	1	2	3
19	Saya sedar tindakbalas jantung saya walaupun tidak melakukan aktiviti fizikal	0	1	2	3

	(contohnya kadar denyutan jantung bertambah, atau denyutan jantung berkurangan)				
20	Saya berasa takut tanpa sebab yang munasabah	0	1	2	3
21	Saya rasa hidup ini tidak bermakna	0	1	2	3
22	Adakah anda berasa sunyi pada minggu lepas?	0	1	2	3
23	Adakah keluarga anda mengatakan keadaan bertambah baik	0	1	2	3
24	Berapa kerap anda melibatkan diri dengan aktiviti masjid, surau, kelab sukan, gotong-royong dan lain-lain pada masa lapang	0	1	2	3
25	Bagaimanakah keakraban hubungan keluarga anda?	0	1	2	3
26	Saya boleh mendapatkan makanan tradisi dan majlis tradisional	0	1	2	3
27	Saya mempunyai akses kepada internet	0	1	2	3
28	Peringkat pengajian tertinggi dalam keluarga anda				
29	Umur				
30	Jantina				
31	Bilangan ahli keluarga				
32	Bilangan bilik tidur di rumah yang sedang didiami				
33	Isu penting harus ditangani bagi kesejahteraan keluarga anda. (Sila tanda 1 bagi terpenting sehingga 3 bagi kurang penting) (Pilih 3 sahaja) ☐ Perumahan ☐ Kesihatan ☐ Pekerjaan ☐ Jenayah dan Dadah ☐ Persekolahan ☐ Pengajian selepas sekolah				
	Sebarang komen				

Soalan pendek

1. Adakah rakan-rakan dan saudara mara (tetamu) suka berada di rumah anda?
2. Adakah anda menerima pujian terhadap rumah anda?
3. Adakah anda menerima aduan terhadap rumah anda?
4. Bahagian rumah anda yang tetamu paling gemar?
5. Bahagian rumah anda yang tetamu kurang gemar?
6. Berapa kerap anda menjemput tetamu ke rumah anda?
7. Adakah anda lebih suka mengadakan jamuan di rumah anda atau di rumah saudara terdekat?

Appendix 4: DASS 21 Scoring Instructions and Cut-offs

DASS-21 Scoring Instructions

The DASS-21 should not be used to replace a face to face clinical interview. If you are experiencing significant emotional difficulties you should contact your GP for a referral to a qualified professional.

Depression, Anxiety and Stress Scale - 21 Items (DASS-21)

The Depression, Anxiety and Stress Scale - 21 Items (DASS-21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress.

Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest / involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset / agitated, irritable / over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items.

The DASS-21 is based on a dimensional rather than a categorical conception of psychological disorder. The assumption on which the DASS-21 development was based (and which was confirmed by the research data) is that the differences between the depression, anxiety and the stress experienced by normal subjects and clinical populations are essentially differences of degree. The DASS-21 therefore has no direct implications for the allocation of patients to discrete diagnostic categories postulated in classificatory systems such as the DSM and ICD.

Recommended cut-off scores for conventional severity labels (normal, moderate, severe) are as follows:

NB Scores on the DASS-21 will need to be multiplied by 2 to calculate the final score.

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety & Stress Scales. (2nd Ed.) Sydney: Psychology Foundation.

Appendix 5: Quality of Life survey tabulated results

Question No.	Item	TOTAL NUMBER of Interviewee =																												32			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30	31
1		1	0	3	1	0	1	0	1	1	1	0	3	2	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	1
2		0	0	0	1	3	0	1	0	1	1	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0
3		1	0	1	0	1	0	0	1	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4		0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5		1	0	3	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	1	0	1	0	0	0	1
6		0	1	1	0	0	1	1	2	2	2	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7		0	0	0	0	0	1	2	1	1	0	2	0	0	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8		1	0	3	1	1	1	1	2	3	3	1	2	2	0	2	0	0	0	1	1	1	1	0	1	0	1	1	2	2	0	0	0
9		1	0	0	0	0	1	1	0	0	0	0	3	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0
10		0	1	1	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11		0	0	1	1	0	0	0	3	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12		1	0	3	1	0	1	0	2	2	2	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0
13		0	0	3	0	0	1	0	3	0	0	2	0	1	1	0	1	0	0	1	0	1	0	1	0	1	1	0	1	0	0	0	0
14		1	1	2	1	1	1	0	1	3	3	0	3	0	0	1	1	0	1	0	0	2	0	1	0	0	0	1	1	1	0	0	0
15		0	1	2	0	0	1	0	1	1	1	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1	2	0	0
16		0	2	1	1	1	1	0	1	1	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
17		0	1	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0
18		1	0	3	2	1	1	0	1	1	1	0	3	0	0	1	0	0	0	1	1	1	1	0	1	0	1	1	1	0	0	0	0
19		0	0	0	1	1	1	1	0	2	2	1	3	0	0	0	2	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0
20		1	1	1	1	1	1	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
22	Lonely	0	0	0	0	0	0	0	0	1	1	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
23	Getting better	1	0	2	1	2	2	1	2	2	2	2	2	3	0	3	3	3	3	0	1	3	1	3	1	3	1	3	3	0	3	0	0
24	Help in spare time	3	0	0	2	3	2	1	3	2	2	2	3	3	1	2	0	3	1	0	2	2	1	3	2	3	3	3	2	3	1	0	2
25	family connection	2	0	1	2	0	2	1	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3	3	3
26	Trad food access	1	0	0	1	2	1	0	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3	3	2
27	Internet access	2	0	0	1	0	1	2	3	0	3	0	3	3	2	0	0	0	2	0	0	3	0	2	3	0	3	0	3	0	3	3	0
28	Education level	3	0	0	1	0	1	0	3	0	2	2	2	3	2	0	1	1	1	4	2	3	1	3	2	1	1	1	2	2	2	2	1
	o primary1 ss 2tech 3Uni 4Post	52	35	44	56	65	55	66	52	35	23	40	59	56	43	35	58	39	25	73	49	40	45	38	60	53	62	57	50	55	54	60	60
29	Age (Years)	M	F	F	F	F	F	F	M	F	M	F	F	M	F	F	F	F	F	M	F	F	F	F	M	F	F	M	F	F	F	M	
30	Sex (M/F)	4	5	10	2	5	2	8	6	9	4	5	4	5	4	4	4	6	2	9	6	6	2	4	4	3	2	4	6	8	4	5	2
31	Family size	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
32	Number of bedrooms	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
33-1	priority 1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
33-2	priority 2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
33-3	priority 3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1 housing	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	2 health	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	3 job																																
	4 crime and drugs																																
	5 schooling																																
	6 education																																

Item	Answers			
	0	1	2	3
Lonely	26	5	0	1
Getting better	4	7	9	12
Help in spare time	5	5	11	N/A
family connection	2	2	6	22
Trad food access	3	3	6	20
internet access	15	2	5	10
education level	6	9	11	5
0 primary1 ss 2tech 3Uni 4Post				1
Age (Years)	average age	0	50	0
Gender (M/F)	M = 9 F = 23			
family size	av fam size	5	2	10
number bedrooms	room number	3		

ANALYSIS		TOTAL		32																												
Depression Anxiety Stress	4	8	18	2	8	6	0	12	8	8	0	12	0	4	2	2	2	2	0	10	0	0	2	4	0	6	0	0	2			
	4	4	6	6	12	10	8	8	12	12	4	24	2	0	10	8	2	0	2	2	12	0	0	2	4	2	8	6	0	0		
	10	4	32	14	6	12	4	24	26	26	2	30	8	0	12	6	2	0	10	8	4	10	0	2	6	6	16	8	0	2		
depression																																
Anxiety																																
TOTAL DOUBLE ONE																																
TOTAL =	0																															
SUM 1		18	16	56	22	26	28	12	44	46	6	66	10	4	24	16	6	6	32	0	2	6	14	8	30	14	0	2	4			
SUM 2		18	16	56	22	26	28	12	44	46	46	6	66	10	4	24	16	6	32	0	2	6	14	8	30	14	0	2	4			
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
TEST		OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK			
Males		1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1			
D	4								12	8			0							10				0	6			2				
A		4							8	12			2							2				2	8			0				
S		10							24	26			8							10				6	16			2				
Female		0	1	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0			
D		8	18	2	8	6	0	8	0	12	8	0	12	4	2	2	2	0	10	0		2	4	0	0	0	0	0				
A		4	6	6	12	10	8	12	4	24	0	24	0	10	8	2	0	2	2	12	0		2	4		6	0	0				
S		4	32	14	6	12	4	26		2	30	2	30	0	12	6	2	0	8	4	10	0		2	6		8	0	2			
TEST		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
BY GENDER																																
Females	23		Females	Sum	Av			Males	Sum	Av																						
Males	9		D	88	3.8			D	42	4.7																						
TOTAL	32		A	134	5.8			A	38	4.2																						
TEST	OK		S	190	8.3			S	104	11.6																						
BY AGE																																
		Sum			Depression		Anxiety	Stress																								
Less than 30 years		2			4.0		6.0	13.0																								
30 to 39 years		5			4.0		5.6	8.8																								
40 to 49 years		6			4.3		4.3	9.3																								
50+ years		19			3.7		5.6	8.8																								
TOTAL		32																														
TEST		OK																														
		32																														
		32																														
OVERALL																																
AVERAGE																																
D		4.1																														
A		5.4																														
S		9.2																														

Appendix 6: Short interview tabulated results

Short Interview Questions Analysis and Summary

The table below record dwellers' response to the 7 short questions of:

1. Does your extended family and friends like being in your house?
2. Do you get compliments regarding your house?
3. Do you get complaints regarding your house?
4. In your opinion, which is the guests' favourite area of your house?
5. In your opinion, which is the guests' least favourite area of your house?
6. How often do you invite guests into your house?
7. Do you prefer to have feasts at your house or somewhere else?

Dwellers' answers are categorised according to the following group of answers for the purpose of tabulation and analysis. The value one indicates the answer from the dwellers. This allows the author to analyse the majority, average and the least popular type of respond (answers) for each of the questions to reveal the way Malay dwellers perceive their PHP units. A summary at the end described the results

Question No.	Ans	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Total	Summary
1	Y	1	1	1	1	1	1	1	1	1	1	1	1	1								1			1	1	1	1	1	1	1	1	1	22	Most guest like visiting relatives in PHPs
	N													1		1	1	1	1															6	
	S				1																		1	1										4	
	M																																	0	
	N/A																				1													1	
2	Y		1					1	1	1	1	1	1									1				1	1	1	1	1	1	1	1	15	Most dweller received compliment on their house units while 10 did not received.
	N				1	1	1					1		1	1	1	1	1	1															10	
	S	1		1					1														1	1							1			6	
	M																																	0	
	N/A																																	0	
3	Y																1	1					1					1						5	5 people received complaints regarding their PHP units.
	N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1		1	1	1	1	1	1	1	1	1	1	1	1	1	27	
	S																																	0	
	M																																	0	
	N/A																																	0	

Question No.	Ans	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Total	Summary
4	L	1	1	1		1	1	1	1	1	1	1	1								1	1	1	1	1	1	1	1	1	1	1	1	24	24 dwellers thought guests liked their living while 1 though guests liked their toilet and bathroom and 7 are unsure.	
	D																																0		
	K																																0		
	TB																			1												1			
	B1																															0			
	B2																																0		
	B3																																0		
	YD																																0		
N/A					1									1	1	1	1	1													7				
5	L																			1													1	There were mix responses on what space dwellers thought their guests dislike. 9 dwellers thought the kitchens are the least favourable space by their guest due to the small space, 7 mentioned toilet and bath with another 7 saying bedrooms, 1 with the living area and 8 are unsure.	
	D																																0		
	K		1					1					1								1	1	1		1							1	9		
	TB					1			1						1												1						7		
	B1																																0		
	B2																																0		
	B3	1			1				1									1	1							1						7			
	YD																																0		
N/A			1				1							1	1	1	1								1			1	1		8				
6	AL	1	1	1				1			1	1	1											1	1	1					1		11	Most regularly received visitors into their PHP units.	
	S					1	1		1	1				1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	18		
	N				1															1													2		
	N/A														1																		1		
7	H	1	1	1		1		1	1		1	1	1									1				1			1	1	1	1	1	16	Most prefer to host small events/feasts at home than outside while 9 prefer to have them else where with larger space.
	AW				1		1			1								1			1						1	1					9		
	N/A														1	1	1	1	1	1				1								7			

Note: Y= Yes, N= No, S= Sometimes, M= Maybe, N/A= Not available, L= Living, D= Dining, K= Kitchen, TB= Toilet & Bathroom, B1= Bedroom 1, B2= Bedroom 2, B3= Bedroom 3, YD= Yard, AL= Always, H= Home, AW= Away