UNIVERSITI PUTRA MALAYSIA

USABLE AND ACCESSIBLE DESIGN FEATURES IN MALAYSIAN HOUSES FOR THE INDEPENDENT AGED

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USABLE AND ACCESSIBLE DESIGN FEATURES IN MALAYSIAN HOUSES FOR THE INDEPENDENT AGED

By

NORANITA MANSOR

Thesis Submitted To The School Of Graduate Studies, Universiti Putra Malaysia, In Fulfilment Of The Requirement For The Degree Of Master of Science

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment
Of the requirement for the degree of Master of Science

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NORANITA MANSOR

AUGUST 2008

Chairman: Associate Professor Azizah Salim Syed Salim, PhD

Faculty: Design and Architecture

Most houses built today will most likely be occupied in the next fifty years. The houses that people choose to reside in are unchanged and often tend to disregard the changes in people's life especially toward age and ability. For that reason, this research attempts to evaluate the existing design features in house environment to accommodate life transitions as the population grows by using Universal Design (UD). UD is an integrated, inclusive and creative form of design that evaluates whether design features in house environment are usable and accessible for a diverse population by a set of seven principles. The UD principles are adopted as the theoretical framework in this research. The case study method was used in this research consisting of six purposive non-random samples selected from residents residing at a local housing development in Malaysia as the unit of analysis. The residents of these units average fifty-five and above in age and have resided their homes since 1980-1985. Three stages of data collection were used to link the findings to the proposition. They are i) In-

depth interview, ii) Site Survey Checklist with Walk-Through Observation and iii) Universal Design Performance Measure. Findings from the research shows that the existing design features tend to generate problems to the residents as their physical abilities change with age. Hence, this research concludes that there is need for a new design approach basing on UD for creating usable and accessible design features to support people living independently in their chosen environment as they age. The results are expected to become the basis for housing professionals, architects, interior designers, policy-makers in future environmental design for the aging population. Future studies are recommended to develop a UD performance measure for Malaysia that could address the need to support the growing aged population in the country.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Master Sains

CIRI REKA BENTUK YANG MUDAH DIGUNAPAKAI DAN SENANG DICAPAI DI DALAM RUMAH DI MALAYSIA UNTUK HIDUP BERDIKARI DI USIA TUA

Oleh

NORANITA MANSOR

Disember 2007

Pengerusi: Profesor Madya Dr. Azizah Salim Syed Salim, PhD

Fakulti: Rekabentuk dan Senibina

Kebanyakan rumah yang dibina hari ini, akan terus didiami lebih dari pada lima puluh tahun akan datang. Rumah yang dipilih untuk didiami boleh dikatakan satu reka bentuk yang kekal dan tidak berubah seperti mana penghuninya terutama ianya tidak mengikut peredaran umur dan keupayaan manusia. Atas sebab tersebut, kajian ini akan mengkaji semula ciri reka bentuk sedia ada yang terdapat di dalam rumah untuk didiami oleh penghuninya disepanjang hidup mereka sejurus peningkatan populasi umur manusia dengan menggunakan "Universal Design" (UD). UD adalah gabungan menyeluruh antara kreativiti dan rekabentuk dalam menghasilkan reka bentuk yang mudah digunapakai dan senang dicapai oleh berbagai populasi manusia melalui tujuh rangkaian prinsip UD dan ianya digunakan sebagai landasan teori utama di dalam kajian ini. Kajian

kes merupakan teknik utama digunapakai, melibatkan enam *"purposive non-random"* responden yang terdiri dari penduduk yang menduduki Taman perumahan tempatan sebagai analisa unit. Responden adalah yang berusia di dalam lingkungan umur lima puluh lima tahun keatas dan telah mendiami rumah mereka sejak dari tahun 1980-1985. Tiga peringkat pengumpulan data dibuat untuk mengaitkan penemuan dengan usul kajian iaitu; i) temu bual secara mendalam, ii) "*Site Survey Checklist with Walk-Through Observation*" dan iii) "*Universal Design Performance Measure*". Hasil dari pengumpulan maklumat, kajian ini mendapati responden mengalami beberapa masalah semasa menggunakan reka bentuk sedia ada di dalam rumah disebabkan perubahan keupayaan dan peningkatan usia . Sebagai kesimpulan keseluruhan, UD adalah satu cara yang praktikal yang patut digunakan untuk membantu penghuni terus tinggal secara berdikari di dalam rumah sedia ada.. Hasil kajian ini diharap bakal menjadi rujukan kepada badan profesional yang terlibat dalam bidang perumahan seperti arkitek, para pereka , pemaju dan penggubal polisi pada masa hadapan dalam mereka bentuk persekitaran yang mudah digunapakai dan senang dicapai. Kajian lanjutan adalah mengembangkan "UD performance measure" untuk persekitaran rumah di Malaysia yang akan menitikberat kepada sokongan pertambahan bilangan penduduk yang meningkat usia tua di negara ini.

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Most importantly, I would like to thank my family. Their devoted love and supports made this work possible. To my parents Tuan Haji Mansor Abdullah and Puan Hajjah Maimunah, my sister Mardziah and to all my bothers I am grateful for their love and support that they always showed me. Without their love, I could not finish this work.

I certify that an Examination Committee has met on date of viva to conduct the final examination of **Noranita Mansor** on her Master of Science thesis entitled The "Usable And Accessible Design Features In Malaysia Houses To Enable People To Live Independently As They Age" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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Date: 10 December 2009

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

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NORANITA MANSOR

Date: 14.10.2009

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LIST OF ABBREVIATIONS

1. UD Universal Design
2. UDPM Universal Design Performance Measure

CHAPTER I

INTRODUCTION

Research Background

Most buildings today especially public and commercial buildings are heading towards accessible and barrier-free design to accommodate special group of population such as the elderly and disable people in supporting their active life (Ward, 2006). However, private houses are still lagging behind in this issue. In line with this issue, the study tried to fill in the gap in order to support the elder occupants to live independently in their current house, as they age. This research intended to evaluate the current house environment that people choose to reside, can accommodate them to live independently when they grow older.

For most people, a house is more than a building: it is a state of mind, an expression of personality, and the place where it is possible to accommodate them at any circumstances in life. In recent years it has become widely recognized that residential design need to address a dynamic range of people and abilities (Ward, 2006). This is because, the world today is approaching a crossroad where the population of older people is increased and this including Malaysia. In year 2005, Malaysia has been classified as an ageing nation (Department of statistic, Malaysia 2000). The number of elderly citizen rise to 1.7

million (7.2 percent of the population) and by year 2020, Malaysia will be a mature society with 9.5 percent of the population aged 60 and above (Department of statistic, Malaysia 2000). This statistic means that 1.4 million older people today will be more than double in their numbers in 16 years time. This shift in demographic is caused by declining fertility and mortality rates and it has a multifaceted impact on our society especially in residential design.

Although many studies have been conducted in attempting to design better houses, interiors and products for people, most of the research results are more toward a special population rather then overall solution that can accommodate all type of people. The result categorized consumers into two standards group of people. There is a group of so-called average people such as young, healthy, fit and able body, and the other group is categorised as “special population”, that includes the disable and older people. In addition, The result were more on special designs, special requirements and special devices to be added to new or after the house was ready which often stigmatising, embarrassing, different looking, and usually more costly for the occupants to add on.

Generally, living environment or houses regardless the costs have been designed for use by one “average” physical type of people only, such as young, fit, and adult (Imrie, 2006). The fact is that only some of us fit into those descriptions, and none of us can be described in that way for a lifetime. For example people are growing older everyday through their life transition; people

become temporarily disable because of sickness, accident, broken limb, serious illness, or pregnancy. As a result, none of us can be described as an average people for a life time. Therefore, this research attempts to employ a new design paradigm known as Universal Design (UD), yet to be well established in developing country; to make recommendations and options to house developers, government and other professional bodies to design a house with a usable and accessible design features to all people rather than focusing on special group of people only.

As stated by Covington and Hannah (1997) the goal of UD is to accommodate as many people as possible as they pursue the activities in their daily life. UD concept in this research is intended to support everyone to live independently in their current house as they growing older by making more usable and accessible design features in house environment. UD is also known as inclusive design for everyone, therefore in this research low-cost houses have been chosen as a model to set a baseline that UD is not an exclusive design approach. For that reason, design features of standard building and products that consist in all types of building inclusive low-cost houses will be evaluated.

The evaluation on the accessible and usable design features will be assessed on the fundamental of how one use and access standard building components such as:

1. Opening features; for instance how resident approach, reach and access the entrance and interior doors.
2. Vertical circulation for transporting resident to use and access upper and lower level of the space.
3. Accessing and using electrical appliances.

Hence, this study will try to make a practical and economic sense that all family members in the house can use and access the same amenities with equal comfort, rather than to make use of duplicate and separate circulation paths, vertical access, and other facilities when their ability or age change. In this regard, understanding of use and access of one environment should be evaluated to determine whether the house that one choose to reside allow them to perform their daily activity independently regardless of their age and ability throughout their life transition. So, this research is heading in a pro-active direction to support people to stay independently in their current house as they age.

Aizan (1999) reported that majority of Malaysian prefer to remain in their current house as they get older. This indicate older Malaysian prefer to age in place rather than moving to a totally new environment or to a public institution. In that respect, it showed that older Malaysians demand the same choice and control in their everyday lives to continue to live in their familiar environment independently. An accessible and usable design features in a house is one of the option to

enables an individual to do what he or she needs and desires as independently as possible (Centre for UD 1997).

Even though there is no legal and specific requirement for private houses to be made accessible and usable to all occupants, but with the demographic change and preference to age in place expressed by majority of older Malaysian, it is hard to ignore the design features provided in house environment. Therefore, a new shift of thinking in residential design and giving an option to occupants to use and access the design features in their environment at any stage of their circumstances is significant. The bottom line is that all house environments must be considered as capable of being utilised (use and access) by everyone, and must provide for their differing needs simultaneously. As a result this research is a relatively instinctive approach in built environment, resulting from concern for our own future needs and the proportions of older people in Malaysia.

Statement of the Problem

The problem addressed in this research deals with the dynamic nature of people's lives and the houses in which they choose to reside. As household members grow older, their habits, lifestyles, and use of space change (Dobkin & Peterson, 2000), yet residents often tend to regard the physical environment in which these changes occur that the house remain as unchangeable. As reported by Dobkin and Peterson (2000), the ageing process is not the main issue that