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COMPARISON OF SAFETY AND HEALTH IN BUILDING DESIGN OF ELDERLY HOUSE

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ABSTRACT

Due to the growing older population in Malaysia, elderly houses are valuable assets. Therefore, Malaysian senior homes should comply with the MS 1184:2014 universal design and accessibility in the built environment guidelines to ensure the elderly's right to safety and comfort in that old residence. However, violating act guidelines will make this situation global. This study examined the sorts of safety and health in building design in senior houses that can constitute a significant risk and compared them to MS 1184:2014 for the elderly. This study used qualitative methods and used the Malaysia Standard 1184:2014 Universal Design checklist for the three chosen case studies for observation. Using the checklist, the researcher sorted the data into three sections: space standard, door and access, fitting, switch, and socket outlet. In the final step of the study process, the researcher will present a total score box to compute the findings before moving on to the conclusion.

Keywords: *safety and health, building design, elderly house*

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INTRODUCTION

Malaysian industrial relations are increasingly recognising OSH challenges. In a 2000 operational analysis study, 80 percent of OSH Regulations-inspected establishments did not comply (Abdul Rahman, 2007). Malaysia is struggling to comply with OSH requirements despite its limited financial resources and efforts to stay competitive. According to a comparison of two developed countries' OSH implementation models, the US and UK, the public's involvement in policymaking, the development of appropriate infrastructure and human resources, enforcement autonomy, focused jobscope within department, appropriate language usage, training inclusive of all forms of workplace diversity, and appropriate penalty are key success factors. (Khoo et al., 2007).

According to Victoria O'Regan (2021), a hazard is a "possible source of injury," and all it takes to grasp the health and safety risks in a busy nursing home is to imagine one. Workers, family, and other professional entities may occupy them, many of whom are vulnerable owing to age, health, or movement. Along with personal care, medicine administration, cleaning, cooking, and other jobs, care homes sometimes move and handle people, merchandise, and equipment. The care facility residents may face hazards.

If you run a care facility, Liz Burton-Hughes (2018) advised prioritising fire safety. Risks may prevent staff and residents from leaving alone. Thus, you must take proper safety precautions. A care home may need to adopt more elaborate and intricate fire safety procedures than other workplaces. Thus, it's vital to understand your premises' security needs and frequently assess them.

LITERATURE REVIEW

Safety and Health

Every workplace prioritises safety. Safe and healthy workplaces protect employees, clients, and the public. Exposure to toxic goods, poor work procedures, and accidents can cause health and safety issues.

To safeguard their employees, employers must understand the health and safety concerns in their workplace. Employers must understand the potential consequences of these risks. Recognizing and managing workplace health and safety concerns can help protect workers from accidents, infections, and deaths.

Federal and state laws govern workplace safety. These laws mandate that companies protect workers from harm. The OSHA enforces these laws (OSHA). State agencies enforce health and safety laws.

Occupational Safety And Health (OSH)

Safety and health (OSH) is a multidisciplinary area that protects workers' health, safety, and well-being at work. This article utilises the names as an abbreviation for occupational safety and health department or department, and they connect to this subject's purposes.

OHS programs aim to protect workers in a safe and healthy workplace. Consumers, family members, employees, and co-workers might benefit from OSH. Occupational health and safety in the US protects non-work activities.

Building Design

Worth, M. (2023) stated that a building's design is its blueprint. The structure's inside and outside. It might comprise plumbing, electrical, and finish specs. Before development can begin, architects must register drawings with municipal governments.

Building entity connections may affect variable definitions. Buildings have systems, subsystems, and elements. Enclosure systems have walls, floors, and roofs. Walls have structural, insulation, and cladding layers. Wall type impacts functional layer order and material (Wang et.al., 2005).

Elderly House

The elderly may have housing issues. As the older population matures, housing becomes more important. Despite physical deterioration, health issues, and other causes, the percentage of seniors living alone is growing. Thus, designing older homes is becoming increasingly important (Suh et.al., 2015).

Medical, recreational, and supporting senior living is becoming a viable business. Higher earnings and urbanisation have raised demand for attached housing (apartments), yet housing competition, noise pollution, traffic congestion, high maintenance expenses, and other issues have made seniors more likely to go back to the country. Retirement-age seniors on fixed incomes need affordable housing with some personal welfare services, Kim (2003).




This chapter enables further understanding of the types of elderly houses that are exposed to risk, assessment of potential home hazards, and solutions for improving the safety and health system. The literature review above shows that every elderly house must have at least a weakness nor potential hazards.

METHODOLOGY

Observation is used in comparing these three cases. In qualitative, observation is a method for gathering data as qualitative observation is used in a variety of context including social studies, daily life, and academic research. It involves gathering data based on subjective, qualitative characteristics qualities, or descriptions of certain issues or subjects.

This study used an elderly checklist from Act MS 1184:2014 to collect data. Comparing data is optimal for this investigation. Thus, investigators chose (3) elderlyhouse as Perak case study: -

Table 1: Case Study

CASE STUDY 1	CASE STUDY 2	CASE STUDY 3
 <p>Figure 1 : Case Study 1</p>	 <p>Figure 2 : Case Study 2</p>	 <p>Figure 3 : Case Study 3</p>
<p>Name: Rumah Seri Kenangan Seri Iskandar Address: Bandar Baru Seri Iskandar 32600 Bota, Perak Phone: 05-373 1530</p>	<p>Name: Rumah Seri Kenangan Ulu Kinta Address: Jalan Stesen, 31250 Tanjung Rambutan, Perak Phone: 05-533 1875</p>	<p>Name: The Palm Retreat Nursing Home Address: Jln Kota Bahru, Kg Tersusun Kg Rawa, Perak Phone: 012-452 0077</p>

Data Collection

Analyses require data collecting to gain knowledge and study. This data collection gathers and organizes all the data needed to complete the research and share knowledge. This study employed a secondary and main approach to collect data. The secondary method uses literature reviews, articles, books, journals, and online or library materials. Use sources to gain more particular knowledge through observation.

Primary Data

Qualitative analysis is used to track its surroundings, infrastructure, and circumstances. One of the most essential ways to acquire information on analyses and compare the fundamental safety and health in building design given in these senior houses with MS 1184:2014 for the elderly is through observing. The study's aim was covered in a systematic checklist based on MS 1184:2014. This study employed an observation survey to investigate three elderly residences in Perak.

Secondary Data

The researcher collected secondary data when the main data was unavailable. Secondary data sources include databases, journals, and internet publications.

Researchers use secondary data from their sources. A survey of literature, books, journals, and articles from previous investigations. The internet and Perpustakaan Tunku Abdul Razak provide secondary data. The literature review relies on every journal, book, and article excerpt. Only the MS 1184:2014 senior homework scope is stated. Building design influenced its selection.

Internet research may expand knowledge. Previous studies can be found online. Online outlets include academic articles, journals, and postings. Researchers can research online.

DISCUSSION

The researcher prepared a checklist with three sections—Space Standard, Door and Access, and Fitting, Switch and Socket Outlet—to analyse and evaluate the fundamental safety and health in building design given in these residences with guideline MS 1184:2014 for old. This portion will help researchers arrange their findings. Displayed data:

Table 2: Section A

Clause	Requirements	MS Compliance		
		Case Study 1	Case Study 2	Case Study 3
Space Standard				
6.1	Accessible parking max 50m from main door.	/	/	/
6.2	At least 1 accessible parking provide	/	/	/
6.3	Min width 3600 x 5400mm	/	/	O
11.2	Min width for corridor shall be 1200mm	/	/	/
19.3	Minimum 1500 x 1500mm entry manoeuvring space	/	x	/
25.2	Minimum toilet clearance is 900 x 900mm.	/	x	/
	Slip-resistant, anti-glare, and firm bathroom floors	/	x	x
25.4.1	Accessible bathrooms must be 1700 x 2200mm.	/	/	/
25.16	Showers feature level entrance and no permanent components.	/	/	/
	Wet showering area is minimum 900 x 1300mm	/	/	/
29	Dry and damp floors are solid and slip-resistant.	/	x	x

For section A: Space Standard may address things like space dimensions, ceiling heights, circulation patterns, and accessibility the results for case study 1 come withfully comply and for case study 2 and case study 3 both of them got 7 and 8 comply.

Table 3: Section B

Door and Access				
8.3	Width of ramp must not than 1200mm	/	/	/
10.5	Main entrance minimum width; 900mm	/	/	/
18.1.1	Minimum door width; 850mm	/	/	/
	Level threshold for external and internal door (entrance)	/	x	/
18.1.3	Minimum 600mm manoeuvring space between door leading edge and wall perpendicular to doorway (entrance)	/	/	/
25.2	Bathroom door should open outwards	/	O	x
36.3.2	Clearly indicated good signage	/	O	O
	Have a good lighting	/	/	/

For section B: Door and Access must be well-placed, large, and built for pedestrian movement. Properly built doors and access systems improve building security. The highest score of comply got to case study 1 with 8 and coming in second case study3 with score 6 and lastly case study 2 with 5 score of comply.

Table 4: Section C

Fitting, Switch and Socket Outlet				
18.1.12	Locks, handles, and bells are 800–1000mm high.	/	/	/
18.3.2	Remote control hardware, shutters, and switches are 800–1100mm.	/	/	/
25.3	Lever-type flushing is on the right side of the cistern while seated.	x	x	x
25.9	Washbasins are 750–850mm from the floor.	/	O	/
	Taps should be mixer, lever or sensor operated	/	O	/
25.14	Provision of an assistance alarm	O	O	O
34.2	Electrical wall socket outlets, telephone points, and television sockets 400–1000mm above floor level.	/	/	/
34.2.1	800–1100mm door knobs.	/	O	/
	U-shaped door handles to reduce risk	x	O	x

	Push-pull doors should not need grabbing.	x	O	x
Total Score		25	15	20
MS1184:2014 compliance in percentage		86.2%	51.7%	70%

For section C: Case Study 1 and Case Study 3 both comply with the Act with 6 elements and Case Study 2 comply with the Act with 3 elements only. In conclusion, the total score for highest got case study 1 with 25 score of compliance and second place with 20 score to case study 3 and lastly case study 2 with 15 total of score. The general conclusions collected are shown, with case study 1 complying with the checklist to a 86.2% level, case study 3 receiving a 70%, and case study receiving a 51.7% rating overall for the MS 1184:2014 (Universal Design And Accessibility In The Built Environment) checklist.

Building age or date of establishment is one key factor that might have affected the outcomes. In short, these elements pose a major risk. Specific maintenance tasks require greater attention and emphasis the older a building is. Shah Ali, A. (2009).

The results will affect elderly people by several factors:

- Safety

Due to the inequitable staff-to-elderly-resident ratio, constant vigilance is required to ensure the safety of everyone in the facility. Researchers found no difference in the absence of a fire alarm system (including smoke detectors and heat detectors) across the three case studies they examined. There may be a fire extinguisher on the premises, but it may be beyond the capabilities of the older residents.

- Comfort

Construction of senior housing required to adhere to act MS 1184:2014 must take into account both the needs of the residents and the requirements of the law. According to the data, three case studies had positive results, with zero percent of senior homeowners experiencing any damage.

- Mental Health

Although privacy is of paramount importance for the elderly, both Case Study 2 and Case Study 3 share similar compliance guidelines in which a few doors and access in toilets do not meet the requirement and the bedrooms are set up in a dorm style, meaning that all the residents sleep in one large room. This may have a negative impact on the mental health of the elderly.

CONCLUSION

This chapter concludes with the research's findings and recommendations. The research determined if the goal was met. All objectives were met, and we now know the sorts of safety and health in building design in senior houses that might cause major hazards and compare them to MS 1184:2014 for elderly. The researcher cannot determine what is needed to increase fire safety without this investigation.

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