

Analysis of the Application of Universal Design Standards to Interior-Architecture Design

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Abstract A lot of research shows the findings of cases of public facilities that are not accessible to people with disabilities and see the importance of a design especially in the field of architecture-interior that is able to produce a user-friendly and barrier-free built environment) Accessibility rights for persons with disabilities are regulated in various regulations starting from the regulations in the central government in the form of laws, government regulations, to ministerial regulations on public works and regional regulations. There is one regulation of the minister of public works and Republic of Indonesia's public housing No.14 2017 which regulates the provision of facilities in buildings and the environment that meet the needs of all age groups and conditions of physical, mental, and intellectual, or sensory limitations based on the function of buildings users and visitors on activities in public buildings, but this guideline has not been discussed in detail. This study is intended to review the analysis of universal design standards in the Interior-Architecture design process specifically in public buildings.

Keywords Universal Design, Evaluation, Architecture, Interior, Design.

1. Introduction

The existence of cases of facilities in public building buildings cannot be accessed by users & visitors who have disabilities and this shows the importance of a design especially in the field of Interior-Architecture. According to Bahrul Fuad, CONFIDENT coordinator (Surabaya Center for Disabled Community Development and Empowerment), the term diffable first appeared in 1996, which resulted from the casual conversation of two activists from Mansour Fakhri (INSIST Jogja) & Setya Adi Purwanta (Dria Manunggal Jogja)) and began in 1998. Then the word diffable was disseminated and acknowledged by diffable movement activists in 1998. Disabled people are not only disabled from birth but also victims of natural disasters or wars who get disabilities in their journey of life and sufferers who

suffer from disruption to proper activities both physical disorders and mentally.

The World Health Organization (WHO) (Kasim, 2002) defines disability into 3 categories, namely: impairment, disability and handicap. Impairment is mentioned as a condition of abnormality or loss of psychological structure or function, or anatomy. Disability is incompetence or limitations as a result of impairment to carry out activities in ways that are considered normal for humans. While handicap, is a condition that is detrimental to a person due to impairment, disability, which prevents it from fulfilling the normal role (in the context of age, sex, and cultural factors) for the person concerned. Handicap can also be interpreted as a situation where individuals are unable to socialize and integrate with the environment due to the impairment and disability they experience.

This standard is needed because of the lack of re-

search on the application of universal design standards so that objective evidence and scientific facts in the field are difficult to know. Accessibility rights for persons with disabilities are regulated in various regulations starting from the regulations in the central government in the form of laws, government regulations, to ministerial regulations on public works and regional regulations. However, there are no regulations that specifically contain guidelines regarding accessibility in the open space. For Indonesia the regulation on universal design standards is regulated by Permen PUPR No. 14 / PRT / M / 2017 concerning the Ease Requirements for Building Buildings replacing and revoking the Minister of Public Works Regulation Number 30 / PRT / M / 2006 concerning Facility Technical Guidelines and Accessibility to Building Buildings and the Environment, it must be acknowledged the government's seriousness in paying attention to the ease of building issues still very minimal, and far behind the developing countries such as Malaysia.

2. Research methods

This research uses library research methods, namely a series of studies relating to library data collection methods, or research whose object of research is explored through various library information (books, encyclopedias, scientific journals, newspapers, magazines, and documents). Library research or literature review (literature review, research literature) is a study that critically examines or reviews the knowledge, ideas, or findings contained in the body of academic-oriented literature, and formulates its theoretical and methodological contributions to specific topics. The nature of this research is descriptive analysis, namely the regular decomposition of data that has been obtained, then given an understanding and explanation to be well understood.

3. Analysis

Public buildings with various accessibility which are generally used to describe the extent of devices, services, the environment, entities, buildings or facilities can be accessed by as many people as possible maybe. Accessibility in public buildings must be friendly to the environment and free from various obstacles, and still adjust to the needs of building use both in terms of architecture and interior. On the other hand, some public building facilities cannot be accessed by groups of people who have physical limitations that are commonly called diffables (people with different abilities). Law No.8 of 2016 concerning Persons with Disabilities Article 1 explains that what is meant by persons with disabilities is that anyone who experiences physical, intellectual, mental, and / or sensory limitations for a long period of time in interacting with the environment can experience obstacles and difficulties to participate fully and effectively with other citizens based on equal rights.

The Disability and International Development Consortium, in its statement on CRPD Article 9 Accessibility 10, notes that persons with disabilities or groups of people with

disabilities are largely ignored in general development policies and programs. The accessibility of society that is still ignored, including;

- Physical and / or environmental accessibility
- Accessibility for means of communication
- Intellectual accessibility by providing access to reading or speaking for a group of people with special needs
- Social accessibility and / or attitude in looking at community behavior towards communities with special needs
- Accessibility of one's social and economic rights

In general, the universal design principle in Permen-PUPR No. 14 / PRT / M / 2017 concerning the Ease Requirements for Building Buildings, taking into account the needs and abilities of Disabled Persons, children, the elderly, and pregnant women including; - equality of use of space;

- safety and security for all;
- easy access without obstacles;
- ease of access to information;
- independence of use of space;
- efficiency of user efforts; &
- ergonomic suitability of size and space.

It is known from this that architectural design and barriers limit social, economic, cultural and civil affairs for public affairs. The number and population growth of people with disabilities that continue to increase from year to year, it requires the construction of public facilities both in architectural and interior forms that are designed "universally" so that all people get full access to public services by adjusting needs safely, comfortably and independent. Caan (2011) explains that in a design not only processing the physical environment, but also considering the impact or mental and psychological aspects, because space or area is not only used as a place for physical activity. The human body's system has organs to process perceptions and tastes to respond to everything, not to escape a design or an undesigned environment. A city facility adjusts its structure and services to be accessible specifically to the elderly and people with disabilities with varying needs and capacities (WHO, 2007).

Universal design is a design term created by Ronald L. Mace, an architect, a product of a very influential designer

and educator. He stated the term universal design as a product design concept and environment for people's needs, regardless of their age, ability or status in life. Universal design designers provide adaptability, flexibility, and comfort, universally designed environments can help reduce the impact of the human life cycle on their quality of life and encourage them to participate in the community. This is sourced from Niya (2014); Hashim (2012); Sukanto (2013); Keumala (2016); Persson (2014).

According to the Center for Universal Design at NCSU, universal design principles can be applied to evaluate existing designs, guide the design process and educate designers and consumers about the characteristics of products that are more useful and environmental. The universal design concept has seven principles used from Persson (2014); Bittencourt (2015); Masruroh (2015), including;

- 1) Fair Use. This design can be used by various groups of people.
- 2) Flexibility in Use. This principle accommodates a variety of circumstances and individual abilities that aim to provide choices in the method of using a product.
- 3) Use of Simple and Intuitive Use. Design that is easy to understand, regardless of user experience, knowledge, and language skills.
- 4) Clear Information Design communicates, information that is needed effectively to the user, regardless of the surrounding conditions or the user's sensor capabilities.
- 5) Tolerance for Errors. Design minimizes hazards and bad consequences of accidents or unintentional actions.
- 6) Low Physical Efforts Design can be used efficiently and comfortably. In this principle it allows the user to maintain a neutral body position; use a reasonable facility; minimize repetitive actions.
- 7) Size and Space for Approach and Usage Size, appropriate design and space are provided for approach, range, manipulation and use regardless of body size, user's posture or mobility. This principle provides enough space for the use of assistive devices or personal assistance.

With the Universal Design standard, the independence of a person will arise by itself both in thinking and doing activities in accordance with their own desires and needs without having to depend on others and provide maximum benefit for someone. As explained in the UN Convention on the Rights of Persons with Disabilities, explaining "Universal Design means the design of products, environments, programs and services to all people, to the greatest extent possible, without the need for adaptation or specialized design". The application of universal standards of design is an effort to facilitate all groups without the need for special adaptation in it.



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Figure 1. Universal Design Standards in the architecture category

Source: Universal Handbook, p.11

A universal building design is a building that can be used by all people from both disability and non-disabled groups. One of them, by providing circulation path facilities in the form of ramps for wheelchair users who are a disability group. The design of the ramp has a slope field that should not exceed 7° in order to facilitate the disability group to pass it.



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Figure 2. Universal Standard Design for Interior category

Source: Universal Design Handbook, p.43

The universal application of interior design is one example of toilet design that can be accessed by people with disabilities by facilitating handrail. This aims to minimize the occurrence of accidents so that users will feel safe and with handrail can provide ease of activity for users of disability without relying on others.

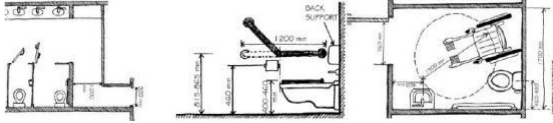


Figure 3. Map of toilet facilities for disability

Source: Analysis of Function Improvement of Public Buildings Through-Accessibility Design Efforts, p. 4 taken from the Alberta Building Code 2006 3.8.2.3. and 3.8.3.8. to 3.8.3.13.

4. Conclusion

The right to get facilities for persons with disabilities, children, the elderly, and pregnant women has regulations, but there are still many public facilities that cannot be accessed because of the Universal Design designer that has not been implemented in the construction of public buildings. The design of Universal Design for public buildings is very important and useful for all people in the world, especially those who are classified as persons with disabilities, children, the elderly, and pregnant women. The existence of public buildings in the form of architecture and interior that are friendly and feasible that refers to the principle of Universal Design, aims to make people with disabilities, children, the elderly, and pregnant women able to access facilities in public buildings comfortably; easy; and independent without having to depend on others.

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