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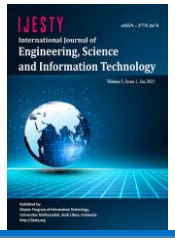

Analysis of Special Standardization of Accessible Toilet Facilities at Dharma Negara Alaya Arts Building, Denpasar, Bali

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Abstract

People with disabilities in Indonesia still often face limitations in accessing public facilities that meet their needs. This highlights the importance of providing disability support facilities that meet standards, especially in public spaces, for community interaction. One example of a public facility that accommodates the community is an art building, the Dharma Negara Alaya (DNA) Arts Building, located in Denpasar City, Bali Province. This study aims to analyze the standardization of supporting facilities for people with disabilities in the Dharma Negara Alaya Arts Building, focusing on accessible toilet facilities. The analysis was carried out based on the Regulation of the Minister of Public Works Number 30 of 2006, which regulates technical guidelines for facilities and accessibility in building structures and the environment. This study uses a descriptive qualitative approach through direct observation and interviews with building users to evaluate the adequacy and suitability of the design of accessible toilet facilities. The study results on the Implementation of accessible toilet facilities in the Alaya Building have followed the standards by the Regulation of the Minister of Public Works of 2006 concerning Guidelines for Technical Requirements for Buildings, and the availability of toilet facilities has been met. However, some design deficiencies still need to be fixed or improved, such as the use of door materials, the room size not yet optimal for standard movement, and no elbow ramps to help wheelchair users access. There are no sanitary facilities or special washbasins for people with disabilities. This research is expected to provide insight into fulfilling the needs of inclusive design for people with disabilities and provide recommendations for improving accessibility at the Dharma Negara Alaya Arts Building, especially for accessible toilet facilities.

Keywords: *Accessible, Facilities, Toilet, Standardization, DNA.*

1. Introduction

According to [1] [2], a minority group can be defined as a group of people who are fewer in number than the majority in a particular population. According to [3] [4], a minority group consists of people who have differences in specific characteristics or cultures, such as ethnicity (ethnic minority), race (racial minority), religion (religious minority), sexual orientation (sexual minority), or have a disability (disability). One minority group that has received less special attention is people with disabilities. In general, disability can be defined as a person's inability to carry out certain activities due to physical, mental, and sensory conditions [5] [6]. According to a survey conducted in 2019 by the Indonesian Ombudsman (2020), the availability of special services for users with special needs in Indonesia is still not optimal with details: 23.14% for the Ministry level, 32.21% for Institutions, 35.4% for Provincial Governments, 55.09% for Regency Governments, and 56.12% for City Governments. This data indicates the importance of implementing standards for disabled-friendly facilities in public buildings. The standards aim to ensure that people with disabilities can access public services and facilities easily and without barriers. Increasing accessibility will not only improve the quality of life of people with disabilities but also create equality for them in participating in social, economic, and political life [7] [8] [9].
Standardization of disability support facilities in public buildings is essential to ensure that people with disabilities can access various services and facilities safely and comfortably. This standardization involves determining the layout of the room, the size of the room,

accessibility, and technical requirements related to the regulations, which are stipulated in the Regulation of the Minister of Public Works Number 30 of 2006 concerning Technical Guidelines for Facilities and Accessibility in Buildings and the Environment. In Bali Province, disability issues require serious government and community attention. Based on the 2020 population census data submitted by the BPS of [10], Bali Province has a population of around 4,317,404 people. Of that number, around 24,614 people are people with disabilities. Thus, the percentage of the population of Bali that has people with disabilities is around 0.57% of the total population. Data regarding the number of disabilities and their characteristics will be presented in Table 1 below [11] [12].

Table 1. Total Number of People with Disabilities in Each Regency in Bali Province

No	Regency	Types of Disabilities					Total
		Blind	Speech Impaired	Limb Disability	Mental Disability	Multiple Disabilities	
1	**Jembrana**	268	219	305	245	173	1.210 soul
2	**Tabanan**	270	562	937	818	457	3.044 soul
3	**Badung**	248	433	1665	1095	337	3.778 soul
4	**Gianyar**	202	367	1156	620	299	2.644 soul
5	**Klungkung**	117	263	736	414	93	1.623 soul
6	**Bangli**	211	294	940	508	91	2.044 soul
7	**Karangasem**	517	503	1053	183	1223	3.479 soul
8	**Buleleng**	489	421	3549	365	479	5.303 soul
9	**Denpasar**	140	200	490	488	171	1.489 soul
Total		**2462**	**3262**	**10831**	**4736**	**3323**	**24.614 soul**

Source: Bali Province in Figures, 2022.

The data in the table above shows a significant number of individuals with disabilities spread across all districts in Bali Province. This indicates the need for disability support facilities that meet standards, especially in public art building facilities. Art buildings are included in the category of semi-public spaces designed to provide entertainment to the public through performances [13] [14]. One of the art buildings in Bali Province that is currently active and widely visited is the Dharma Negara Alaya (DNA) Arts Building located in Denpasar City. This building provides performance space and other facilities visitors can enjoy, such as a coworking space, cafeteria, open area, library, art gallery, meeting room, and other public support facilities. The DNA Arts Building already has disability support facilities such as ramps, lifts, standard space for movement, and accessible toilets. One of the essential facilities for people with disabilities in public buildings is toilets. According to Suprapto and Kuswardini (2019), toilets are basic facilities everyone needs for toilet activities, and they cannot be postponed. A good toilet is designed with attention to the physical condition of its users, especially for those with special needs. Therefore, this study will focus on analyzing the standardization of supporting facilities, especially toilets for people with disabilities, at the Dharma Negara Alaya Denpasar Arts Building, which is based on the Regulation of the Minister of Public Works Number 30 of 2006, concerning Technical Guidelines for Facilities and Accessibility in Buildings and the Environment (2006). This study will provide an in-depth understanding of fulfilling the need for inclusive toilet design for people with disabilities. To investigate how toilet facilities can be more inclusive for people with disabilities by paying attention to standards that are by applicable laws and regulations. This study aims to provide a deeper understanding of public building design that pays attention to the needs and comfort of people with disabilities and increases empathy from the government and designers. Specially intended for the Dharma Negara Alaya Arts Building in Denpasar City, Bali Province. So that DNA building can be more inclusive and meet the needs of people with disabilities [15] [16].

2. Research Method

This study uses a descriptive qualitative approach to understand the suitability of toilet facilities for people with disabilities based on applicable building facility standards, focusing on describing phenomena that are not widely known. According to [17] [18], this study collects detailed qualitative data through observation, interviews, and document studies. Data were collected through direct observation of toilet facilities, interviews with disabled users and building managers, and literature studies related to standards. This study aims to provide a detailed description of the phenomenon being studied, with the main object being the toilets of the Dharma Negara Alaya Denpasar Arts Building and the focus of the study on toilet facilities for people with disabilities. The analysis process includes identifying facility elements, such as room dimensions, accessibility, and the presence of assistive devices, and then comparing them with established standard criteria, such as room dimensions, accessibility, assistive devices, and user comfort. In addition, the experience of disabled users is analyzed to assess the level of comfort and ease of use of the facilities [19] [20] [21] [22]. This analysis provides a basis for determining the gap between existing conditions and standards, evaluating the extent to which the accessible toilet facilities meet the established accessibility standards, and offering recommendations for appropriate improvement solutions. Later, the results of the analysis are expected to provide recommendations for improving facilities to be more inclusive and meet the needs of people with disabilities [23] [24].

3. Result and Discussions

3.1. Identification of Building Conditions in Research Objects

Fig 1. Site Plan of Alaya Building, Denpasar
Source: Google Earth, 2023

The research was conducted at the Dharma Negara Alaya (DNA) Building in Denpasar, Bali. This building is located on Jl. Mulawarman, Dauh Puri Kaja, Kec. North Denpasar, Denpasar City, Bali 80231 (Figure 61. The DNA Building is a public building adjacent to several government offices, such as the Denpasar City Industry Office, the Denpasar City Tourism Office, the UPTD and Waste Management Office, and the Denpasar City Communication Office in the north. To the south of the building are the Lumintang Tennis Court, the Denpasar City Fisheries and Food Security Office, and the Denpasar City Livestock, Fisheries and Marine Office and Lumintang Field. To the east of the building is the Lumintang City Park. At the same time, to the west, it borders the Klatak Cemetery, the Denpasar City MDA Office, and the Denpasar City Population and Civil Registration Office. The purpose of building this building is to involve and support creative activities by Denpasar residents, including performances, exhibitions, discussions, and workshops (Puspaningrum, 2021). This building is often used for exhibitions, workshops, cultural events, and other activities. This building is equipped with various very complete facilities, including Discussion Room, Coworking Room, General Classroom, Audiovisual Room, Taksu Ballroom, Library, Hallway, Amphitheater, Exhibition Room, Main Lobby, Radio Room, Shopping House, Indoor Performance Room, VIP Room, and many more. This building has dimensions of 90x60 m2 and consists of two main floors. In addition, a basement floor is used as a parking area for visitors' private vehicles.

Fig 2. Floor Plan 1 of DNA Denpasar
Source: Management of Dharma Negara Alaya Building, Denpasar

In Figure 2, the 1st floor of the DNA Denpasar building is dedicated as an exhibition area. According to the layout shown, 24 rooms can be rented by applying for the DNA Denpasar building manager. Usually, this building is used as a coworking space and for holding exhibitions by various communities, agencies, campuses, and governments.

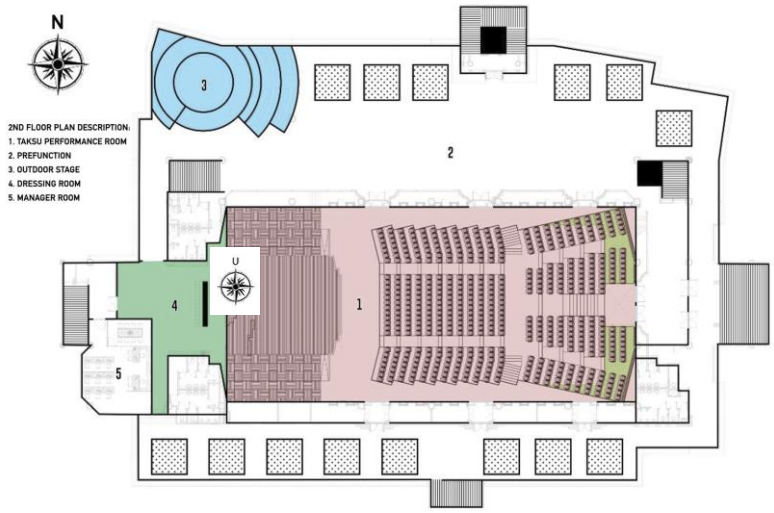

Fig 3. Floor Plan of the 2nd Floor of the DNA Building, Denpasar
Source: Management of the Dharma Negara Alaya Building, Denpasar, 2023

As seen in Figure 3, the 2nd floor of the DNA Building has five main areas, including the outdoor area, amphitheatre, and Taksu performance space. These areas are usually used for cultural events and other significant events. In terms of accessibility, visitors using wheelchairs need to use the elevator located in the parking basement to go up to the 2nd floor. The Alaya Building has 29 rooms from the 1st to 2nd floors. This building has hosted various events, such as celebrating the Day of the Disabled, dance performances, university seminars, government events, and theatre events.

3.2. Implementation of Disability Toilet Facility Standards at the Dharma Negara Alaya Arts Building

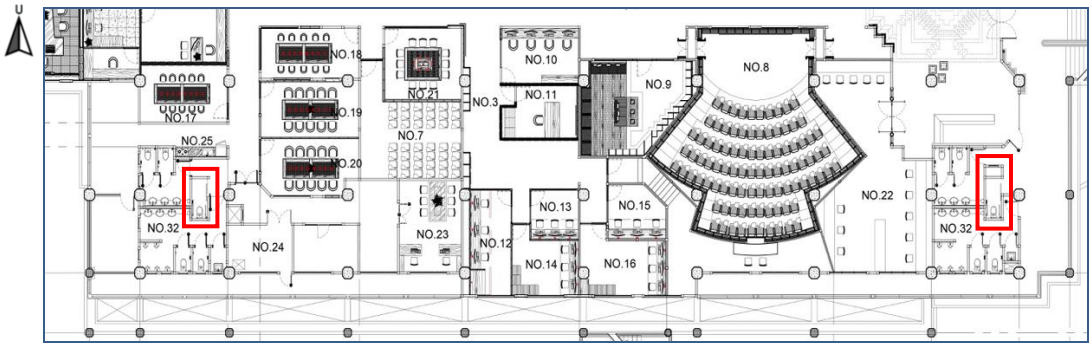

Fig 4. Location of the Toilet on the 2nd Floor of the Alaya Building (red box)
Source: Alaya Building Management, 2023

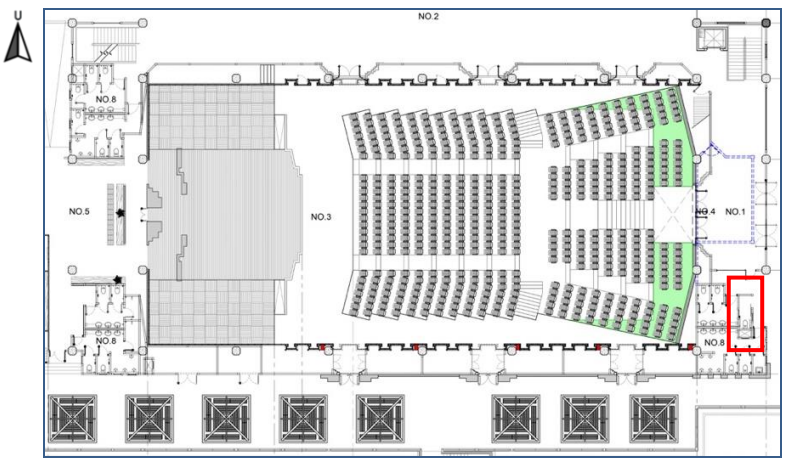

Fig 5. Location of the Toilet on the 2nd Floor of the Alaya Building (Red Box)
Source: Alaya Building Management, 2023

Alaya Building has a total of 3 accessible toilets. Of these, two toilets are on the 1st floor and one on the 2nd floor. After taking measurements at the research location, the net width of the bathroom was 100x220cm. The toilet on the 1st floor has a door opening width of 60cm and a 3cm thick solid wood door. The circulation groove on the front of the toilet is 140cm wide. Meanwhile, the toilet on the 2nd floor is the same size as the toilet on the 1st floor; the only difference is the door opening width, which reaches 79cm.

Fig 6. Accessible Toilet
Source: Personal Documentation, 2023

The Implementation of supporting facilities to meet standardization refers to the Regulation of the Minister of Public Works of 2006 concerning Guidelines for Technical Requirements for Building Construction. The results of field observations show that there is conformity and non-conformity with the guidelines presented in more detail regarding toilet facilities in the Dharma Negara Alaya building in the table below:

Table 2. Results of Accessible Toilet Analysis

Area	No	Provisions Based on PERMEN PU No. 30 of 2006	Regions of the Alaya Building
			Accessible toilet
Toilet	1.	Accessible public toilets or restrooms must have a sign/symbol display with an embossed "Disabled" system on the outside.	Not quite right,
	2.	Public toilets or restrooms must have enough room for wheelchair users to enter and exit.	Less appropriate
	3.	The toilet seat height must follow the height of the wheelchair user, approximately 45-50 cm.	In accordance
	4.	Public toilets or restrooms should be equipped with handrails positioned and height-adjusted to accommodate wheelchair users and disabled people. It is recommended that handrails have a right-angled shape pointing upwards to assist wheelchair users in their movement.	Not quite right,
	5.	The location of tissue paper, water, water taps or showers, and equipment such as soap dispensers and hand dryers must be installed so that they are easy for people with physical disabilities to use and can be reached by wheelchair users.	It is not by
	6.	All taps should use a lever system when installed on sinks, etc.	It is not by
	7.	Floor materials and finishes must be non-slip.	In accordance
	8.	Doors should be easy to open and close to facilitate wheelchair users.	Not quite right
	9.	Toilet locks or latches are chosen so that they can be opened from the outside in case of emergency.	Not quite right
	10.	In easily accessible places, such as at the entrance, providing an emergency sound button is recommended in case something unexpected happens.	It is not suitable; there are no facilities mentioned in the toilet.

Source: Author's Analysis, 2023

The results of the analysis of the toilets in the table above have things that are following and not by the ministerial regulations listed, some of which include:

1. The toilet only has paper that is easy to remove on the marker located on the door
2. The accessible toilet on the 1st floor only has a door opening width of 60 cm, and on the 2nd floor, it is 79 cm
3. The height of the toilet seat is by the provisions given, which is 45 cm
4. There is no handle on the accessible toilet

5. The toilet lacks a water tap or other facilities such as a hand dryer, tissue holder, or soap dish.
6. There is no sink equipped with a lever
7. The material in the toilet uses non-slip material
8. The sliding doors in the building use solid and thick wood, which is quite heavy enough for people with disabilities to slide independently.
9. The lock or latch is not by the provisions listed
10. There is no emergency button on the toilet.

The analysis results above are reinforced by similar research that analyzes the facilities and interior of one of the public buildings, namely the market. The study resulted in evaluation findings regarding the facilities and interior design of the Badung Market building, showing that some were still less effective in meeting user needs (Deilova, dkk, 2023).

3.3. Special Standardization for People with Disabilities

After conducting observations, it was found that there were already three accessible toilets in the DNA arts building, but their Implementation was still inadequate. Some of the deficiencies found included the absence of handrails for physical disabilities, the use of door materials that were too heavy, and rooms that were too narrow so that they were challenging for wheelchair users to access. The following are some solutions and standards that can be used as a reference in designing accessible toilets according to the Regulation of the Minister of Public Works Number 30 of 2006.

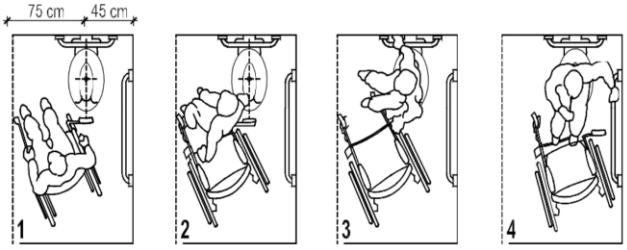

Fig 7. Diagonal Approach
Source: PERMEN PU No.30 of 2006

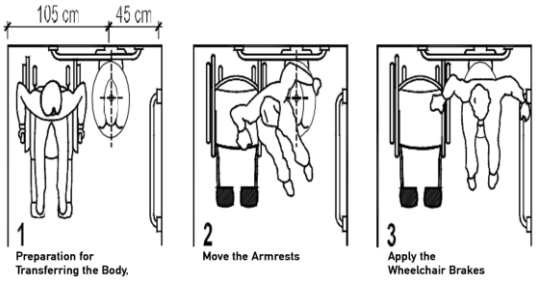

Fig 8. Side Approach
Source: PERMEN PU No.30 of 2006

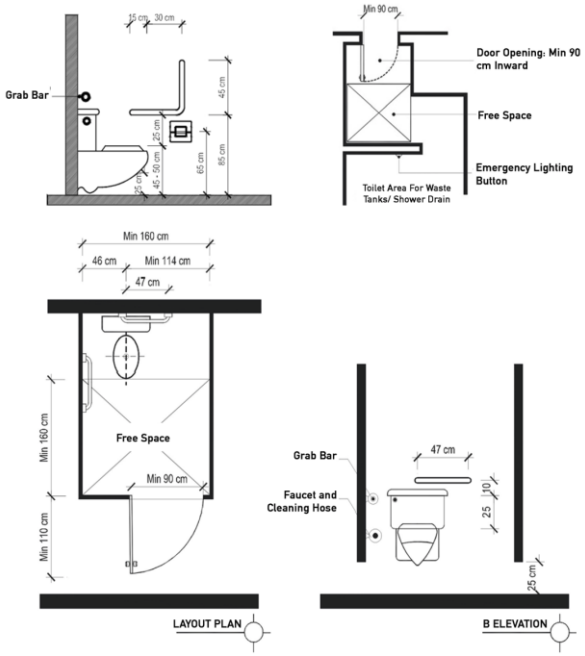

Fig 9. Toilet Height and Space Placement
Source: PERMEN PU No.30 Th 2006

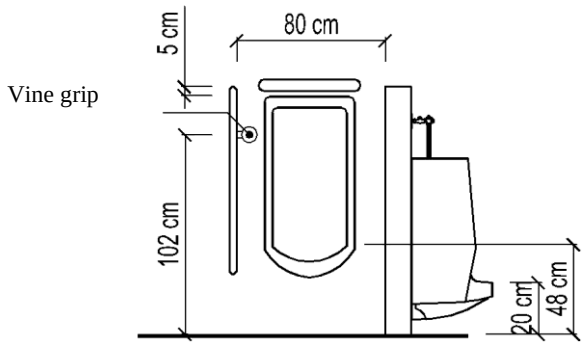

Fig 10. Placement of Urinal
Source: PERMEN PU No.30 of 2006

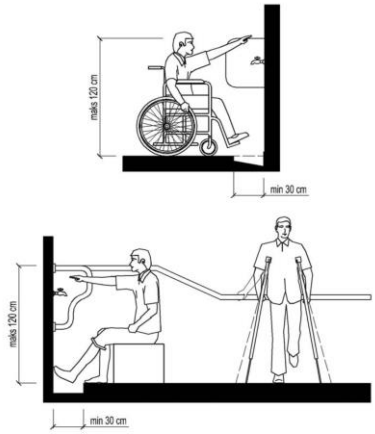

Fig 11. Placement of Ablution Taps for the Disabled
Source: PERMEN PU No.30 Th 2006

The image above is the standardization of facilities and standards for movement space in accessible toilets according to the provisions of the Minister of Public Works Regulation No. 30 of 2006, which can be used as a reference for the design or improvement of accessible toilets. The following are solutions to improve accessible toilet facilities in the Dharma Negara Alaya Building:

1. Although sliding doors are a good idea, the materials used should be replaced with lighter ones. This will facilitate access in and out of the accessible toilet. The choice of lightweight materials will ensure the user can quickly move the door.
2. It is essential to provide a handrail that matches the elevation and position required by wheelchair users. This handrail will be an aid that allows wheelchair users to use the toilet independently with a diagonal approach or side approach. With the handrail, wheelchair users can move more safely and efficiently from their wheelchairs to the bathroom and vice versa.
3. Expand the accessible toilet space to provide sufficient space for wheelchair users. A more expansive space will facilitate maneuvering and accessibility for wheelchair users.
4. Add special sink facilities that wheelchair users can reach. A low sink with ample space underneath will allow wheelchair users to wash their hands independently.
5. Ensure that accessible toilets are equipped with necessary assistive devices, such as toilets of appropriate height, flushing aids, and other assistive devices that make it easier for people with disabilities to use the toilet.
6. Provide clear and visible signage for accessible toilets, including a dedicated door sign and universally recognized accessibility symbols.
7. Involve people with disabilities in the planning and improvement of accessible toilet facilities so that their needs are adequately considered.
8. Conduct routine maintenance and inspections of accessible toilets to ensure all facilities remain functional and meet accessibility standards.

9.

Fig 12. Accessible Toilet of West Java International Airport
Source: Facebook PT. West Java International Airport, 2019

By implementing these solutions, the accessible toilet facilities in the DNA building will be more in line with the needs of users, especially people with disabilities. People with disabilities can access the toilet more independently and safely and feel more comfortable during use. As seen in Figure 6, an accessible toilet at West Java International Airport meets the standards for accessible toilet facilities. This is also clarified by research on one of the public spaces, namely a restaurant in Denpasar, which provides solutions, namely designing space according to needs, paying attention to design standards, considering design safety, providing exceptional facilities, using environmentally friendly materials, and implementing the green design concept *(Dewi, dkk, 2023)*.

4. Conclusion

Implementing supporting facilities in the Alaya Building has followed the standards by the Regulation of the Minister of Public Works in 2006 concerning Guidelines for Technical Requirements for Buildings, and the availability of facilities has been met. However, there are still some shortcomings in terms of design that need to be fixed or improved to meet better accessibility standards for people with disabilities, especially in toilet facilities.

Toilets for people with disabilities in the Alaya Building. However, there are some shortcomings in terms of design. The toilet door has a sliding door system to facilitate wheelchair users. Still, it uses heavy solid wood, so it is challenging to open and close the door independently. Also, the size of the room is not optimal for having free movement space, the width of the door opening is entirely lacking, and the a lack of elbow rams so that wheelchair users can approach the toilet seat. Accessible toilet facilities need to be improved by applicable considerations, such as replacing the toilet door with a lighter material so that it can be accessed independently, widening the door opening so that it can be entered by wheelchair users, adding unique markings so that there is no confusion among visitors, and adding supporting access so that they can reach this point easily.

The research findings suggest that to improve the comfort standards of disabled users in the Dharma Negara Alaya arts building toilets, namely in the use of door materials, it is recommended to use lighter materials for sliding doors, add a vine handle to the toilet wall by following the standards as an aid for wheelchair users to move from chair to toilet, expand the toilet room to facilitate movement activities and comfort for wheelchair users, add sink facilities that meet standards so that users can wash their hands independently, ensure that disability facilities are equipped with the necessary aids such as the appropriate height, provide clear and easily visible markers, and can involve people with disabilities in the planning process and pay more attention to standardization by the regulation of the Minister of Public Works No. 30 of 2026.

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