Study of Art Gallery Museum Interior Elements Based on Inclusive Design in The Vitra Campus Area, Germany

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Abstract

Travelers with disabilities require accessible public facilities to ensure equitable participation in tourist activities and receive necessary accommodations. This study examines three prominent buildings on the Vitra Campus in Weil am Rhein, Germany-VitraHaus, the Vitra Design Museum, and the Vitra Fire Station—for their inclusive and accessible interior architecture. These buildings serve as examples of how art galleries or museums can integrate inclusive design to cater to visitors with disabilities. The research aims to assess the extent to which these structures provide inclusive environments, focusing on their achievements in offering accessible amenities. A qualitative research method was applied, using a formal evaluation approach grounded in a literature review, field observations, and comparative analysis. The evaluation framework draws upon PUPR Ministerial Regulation No. 14/PRT/M/2017 and principles of inclusive design, which incorporate accessible, sensory, deaf space, and universal design elements into a cohesive approach. The findings reveal that while the buildings implement some inclusive design features, certain areas and services remain inaccessible to visitors with disabilities.

Keywords: inclusive design, art gallery, museum, Vitra Campus, travelers with disabilities.

Introduction

According to the World Health Organization (WHO), over one billion people worldwide live with permanent disabilities, accounting for approximately 15% of the global population (WHO, 2011). In Indonesia, it is estimated that 15% of the population, or nearly 26 million people, are persons with disabilities, making up 9.7% of the total population. Furthermore, disabilities can be temporary, with short-term injuries or conditions affecting a person's interaction with their surroundings. Disabilities can also be situational, with each environment having a unique impact on a person's abilities. This demonstrates that inclusive design benefits not only people with permanent disabilities but also those who face temporary or situational challenges.

The international Convention on the Rights of Persons with Disabilities, ratified by Indonesia through Law No. 19 of 2011, protects various rights, including the right to family, independent living, and personal mobility. Tourism activities also meet basic human needs as temporary and voluntary excursions intended to view or enjoy destinations outside one's residence (Ekasari et al., 2023). Tourist attractions require accessible amenities to support tourists, including those with disabilities (Rochman, 2022). Therefore, public buildings must be designed to accommodate various needs, with inclusive design being one of the core concepts.

Inclusive design offers new insights into how human behavior interacts with built environments. It aims to create user-friendly spaces that support a diverse range of activities. This concept serves users with various needs, including those with invisible disabilities such as hearing and speech impairments, low vision, dyslexia, autism, mental illness, depression, and bipolar disorder. For example, an automatically opening door benefits not only children and individuals using walkers or wheelchairs but also those with hearing impairments who may be communicating via sign language or people with low vision.

The VitraHaus, Vitra Design Museum, and Vitra Fire Station buildings on the Vitra Campus in Weil am Rhein, Germany, are tourist attractions that emphasize public service quality and continuous innovation. The quality of public services can be seen in how effectively these spaces accommodate a wide range of visitors. Weil am Rhein's government is committed to promoting equitable urban development, integrating art gallery services and community access in existing buildings. However, new challenges arise regarding how inclusivity is embedded in the design of these art museum structures.

From the perspective of a disabled tourist, the experience of visiting the three buildings on the Vitra Campus is enjoyable, as many interior elements allow for easy access to the collections and spaces. Signage, symbols, and texts accompanying the artworks also provide sufficient information. However, additional features, such as braille or text-to-sound conversion and guide services, are necessary to enhance the experience for visually impaired tourists. This study aims to evaluate the achievements of these three buildings in providing inclusive art gallery or museum facilities

Research Method

The research employed a qualitative method with a formal evaluation approach. The evaluation focused on the architectural features of the VitraHaus, Vitra Design Museum, and Vitra Fire Station, assessing them against standard inclusive design principles. Data collection methods included a literature review and field observations. The literature review aimed to develop an evaluation instrument by identifying various barriers faced by individuals with disabilities, such as physical, visual, auditory, intellectual, and psychosocial barriers, in relation to the inclusive design concepts applied in the three buildings. Field observations involved a direct examination of each facility listed in the evaluation instrument to assess its compliance with inclusive design standards. The study variables included the following aspects.

Tabel 1. Variable available facilities based on Standars of Inclusive design principle

Variable	Standars of Inclusive Design Principle									
	physical impairment		Visual impairment		Hearing impairment		intellectual impairment		mental impairment	
	available	not	available	not	available	not	available	not	available	not
Main Entrance	V		V		V		V		V	
Guiding block				V						
Parking area	V		V		V		V		V	
Entrance	V		V		V		V		V	
Ramp	V				V		V		V	
Stair	V		V		V		V		V	
Lift	V		V		V		V		V	
Lobby	V		V		V		V		V	
Waiting room	V		V		V		V		V	
Toilet	V		V		V		V		V	
Sink	V		V		V		V		V	
Sign	V		V		V		V		V	
Lighting	V		V		V		V		V	
Travel guide	V			V	V		V		V	

Source : Inclusive design principles. Description : available and not available

The analysis approach of this study was comparative analysis, which involved assessing the availability of inclusive design features in the VitraHaus, Vitra Design Museum, and Vitra Fire Station in Weil am Rhein for different types of disabilities. Data analysis was conducted by comparing various data sets, identifying patterns, and establishing relationships to draw further conclusions. Data validation was achieved through source triangulation, supplemented by insights from the author's personal experience as an individual with disabilities, to ensure accuracy and reliability.

Discussion

Existing Condition of *VitraHaus, Vitra Design Museum dan Vitra Fire Station*

1. VitraHaus

VitraHaus was designed to showcase Vitra's Home Collection and includes key amenities such as a reception area, shop, canteen, and conference room on the ground floor (Kries, 2016). Positioned at the northern part of the Vitra Campus, it serves as a new gateway, complementing other iconic structures like Frank Gehry's Vitra Design Museum and Tadao Ando's Conference Pavilion. The building faces a diverse landscape, bordered by the urbanized Rhein plain on one side and the scenic Tüllinger Hills on the other (Herzog and de Meuron, 2010).

The layout of VitraHaus is relatively straightforward. The ground floor is multifunctional, hosting an exhibition of iconic chair designs that overlook the campus. This area also doubles as a commercial space facing the Rhein plain, which serves as a venue for talks and various events (Kaltenbach, 2017). The café, shop, and reception area overlook the surrounding forest, and together, they form a central courtyard decked in wooden planks.

The upper floors are dedicated to a furniture showroom. The architects emphasized creating a welcoming environment by designing connections between the interior and exterior spaces. On the first floor, two glass-enclosed showrooms offer views of the Vitra Design Museum and Conference Pavilion on one side, and the Rhein River on the other. These spaces are connected by a third showroom. The second floor provides views of the nearby school and woodland, while the third floor offers an expansive view of the Rhein River, with the top floor providing the broadest panorama.

A notable feature of the building is a "worm-like" staircase that links all levels. Visitors can either ascend gradually through the building or use the elevator to return to the starting point.

Figure 1 Front view of the Vitra Design Museum building. Source : doc. Author, 2023

Figure 2 and 3 Access to the building and main lobby using a ramp in accordance with inclusive design standards, but not guiding blocks elements for visual impairment. Source : doc. Author, 2023

Figure 4 see the floor element using a 7° ramp height is in accordance with inclusive design standards can be used by everyone including wheelchair users and Deaf people. Source : doc. Author, 2023

Figure 5 The Exhibition halls with plain or untextured wall elements and assisted written text guides unless braile is not available. Bright lighting in accordance with standard inclusive design principles. Source : doc. Author, 2023

Figure 6. showroom under the stairs. Source: doc. Author, 2023

Figure 7 to the upper floors via stairs or elevator in accordance with inclusive design principles. Source: doc. Author, 2023

Tabel 2. Variable available facilities of VitraHaus based on Standars of Inclusive design principles

Variable	Standars of Inclusive Design Principle									
	physical impairment		Visual impairment		Hearing impairment		intellectual impairment		mental impairment	
	available	not	available	not	available	not	available	not	available	not
Main Entrance	V		V		V		V		V	
Guiding block				V						
Parking area	V		V		V		V		V	
Entrance	V		V		V		V		V	
Ramp	V									
Stair			V		V		V		V	
Lift	V		V		V		V		V	
Lobby	V			V						
Waiting room	V		V		V		V		V	
Toilet	V		V		V		V		V	
Sink	V		V		V		V		V	
Sign	V		V		V		V		V	
Lighting	V		V		V		V		V	
Travel guide	V			V		V			V	

Source : Analysis Author, 2024. Description : available and not available

2. Vitra Design Museum

Vitra Design Museum

Built by renowned constructivist architect Frank Gehry, the Vitra Design Museum is a widely acclaimed and privately owned international design museum in Weil am Rhein, Germany. Vitra CEO Rolf Fehlbaum founded the museum in 1989. The two-story, 8,000-square-foot building houses one of the world's largest furniture collections, spanning periods and styles from the 19th century to the modern era. This building volume, which is a functional mix of tower, ramp and cube, was designed based on lighting and programming requirements.

The rear of the museum consists of an industrial hall which is about the same size and height as the adjacent Nicholas Grimshaw building. The functional relationship between the museum and other areas, such as production rooms, exhibition rooms, test laboratories, cafeterias, multipurpose rooms and offices, can be seen through the existence of towers and ramps that connect these various areas.

Figure 8 Front view of the Vitra Design Museum building. Source : doc. Author, 2023

Figure 9 Entrance can be through the side using the stairs. Source : doc. Author, 2023

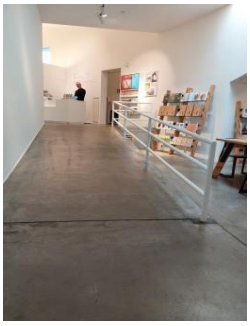

Figure 10 Access to the building and main lobby using a ramp in accordance with inclusive design standards. See the floor element using a 7° ramp height is in accordance with inclusive design standards can be used by everyone including wheelchair users and Deaf people. Source : doc. Author, 2023

Figure 11 The reading room in the library is accessible for all users with disabilities but the books are not available in braile. Source : doc. Author, 2023

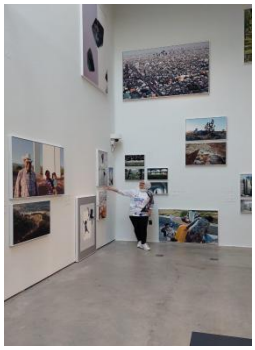

Figure 12 heading upstairs to the exhibition halls of some of the artists' works is guided through captions unless braile is not available. The lighting in this room is quite bright Source : doc. Author, 2023

Figure 13 layout of the museum's design concept space some facilities are suitable for users with disabilities but signs or markings are not given a disabled logo. Source : doc. Author, 2023

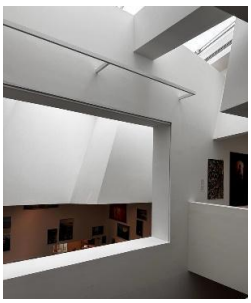

Figure 14 Artificial lighting through windows with glass material is bright enough

Tabel 3. Variable available facilities of Vitra Design Museum based on Standars of Inclusive design principle

Variable	Standars of Inclusive Design Principle									
	physical impairment		Visual impairment		Hearing impairment		intellectual impairment		mental impairment	
	available	not	available	not	available	not	available	not	available	not
Main Entrance	V		V		V		V		V	
Guiding block				V						
Parking area	V		V		V		V		V	
Entrance	V		V		V		V		V	
Ramp	V									
Stair			V		V		V		V	
Lift		V								
Lobby		V								
Waiting room	V		V		V		V		V	
Toilet	V		V		V		V		V	
Sink	V		V		V		V		V	
Sign	V		V		V		V		V	
Lighting	V		V		V		V		V	
Travel guide	V			V	V		V		V	

Source : Analysis Author, 2024. Description : available and not available

3. Vitra Fire Station

Dame Zaha Mohammad Hadid, also known as Zaha Hadid, was the first female architect to receive a prestigious architectural award, earning her the nickname "the world's queen of curves." Hadid's first major project was the Vitra Fire Station (1989–1993), located in Weil am Rhein, Germany. The structure consists of a series of sharply angled planes, resembling a bird in flight, and covers an area of 842 m².

The Vitra Fire Station began with a commission to construct a fire station in the northeastern part of Vitra's expansive furniture manufacturing complex, along with designs for boundary walls, bicycle sheds, and smaller details. Since the site already featured large-scale factory buildings, the focus shifted to organizing the area as a zone within the industrial landscape, stretching from the main gate to the location where the fire station would stand.

A defining feature of the design is the series of stacked screening walls, punctuated and fragmented to suit the station's functions. The main interruption comes from the movement of the fire engine, which crosses the line of the wall and the surrounding landscape. As one walks through the structure, the bright red fire engine becomes the visual focal point. Just as the red line of the fire engine appears written on the asphalt, the firefighters' routines are choreographed within the space. The entire structure seems frozen in time, embodying the tension of constant vigilance, ready to spring into action at any moment.

Figure 15 Building and interior of Vitra Fire Station by architect Zaha Hadid. Source : doc. Author, 2023

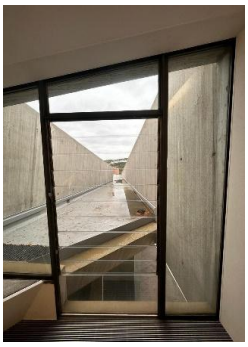

Figure 16 Artificial lighting through windows with glass material is quite bright.

Figure 17 Front view of the Vitra Fire Station building. Source : doc. Author, 2023

Figure 18 wooden stairs assisted by handrail with iron material. The size of the steps and the height of the handrail are in accordance with the standard inclusive design principles. Source : doc. Author, 2023

Figure 19 The meeting room sees rectangular furniture making it difficult for the Deaf to communicate with the interlocutor. Source : doc. Author, 2023

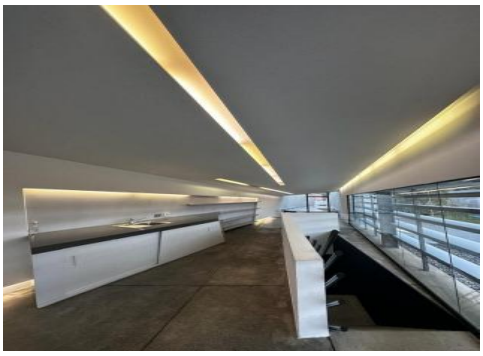

Figure 20 kitchen with a long wide area is enough for only 2 people in the opposite direction Source : doc. Author, 2023

Tabel 4. Variable available facilities of Vitra Fire Station based on Standars of Inclusive design principle

Variable	Standars of Inclusive Design Principle									
	physical impairment		Visual impairment		Hearing impairment		intellectual impairment		mental impairment	
	available	not	available	not	available	not	available	not	available	not
Main Entrance	V		V		V		V		V	
Guiding block				V						
Parking area	V		V		V		V		V	
Entrance	V		V		V		V		V	
Ramp	V		V		V		V		V	
Stair	V		V		V		V		V	
Lift		V								
Lobby	V		V		V		V		V	
Waiting room	V		V		V		V		V	
Toilet	V		V		V		V		V	
Sink	V		V		V		V		V	
Sign	V		V		V		V		V	
Lighting	V		V		V		V		V	
Travel guide	V			V		V	V		V	

Source : Analysis Author, 2024. Description : available and not available

Based on data from the facilities of the three buildings, researchers emphasized the specific accessibility requirements for art galleries or museums, taking into account the unique needs of individuals with disabilities. The following outlines the accessibility of these buildings, which are also recommended for inclusion as accessible tourism sites on the Vitra Campus in Weil am Rhein, Germany.

In summary, none of the three buildings provide guiding blocks for the visually impaired. For those who are hearing impaired or deaf, there is a need for information related to the exhibits in both text and visual formats, along with clear signage for instructions and guidance. Additionally, the visually impaired require enhanced auditory aids, such as audio guides or tactile models, to better understand the exhibits. People with physical disabilities need designated areas or features, such as ramps, elevators, and appropriately designed rest areas, to ensure full access and comfort within the facilities.

Conclusion

It is essential to adopt inclusive design to ensure that individuals with disabilities have a comfortable experience when visiting art galleries or museums. This study found that while individuals with hearing, intellectual, and psychosocial impairments experienced better access to tourist attractions, those with visual and physical disabilities faced greater challenges. Overall, the accessibility needs of disabled tourists have not been adequately addressed. Therefore, the management of these three buildings must increase awareness and understanding of accessibility requirements to meet the needs of all disabled visitors. Furthermore, the municipal government in Weil am Rhein, Germany, should encourage building managers and architects to prioritize inclusive, disability-friendly tourism in art galleries and museums.

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