Zero Project
Champions

Champions of Inclusive Spaces

Ten in-depth case studies, expert comments on Universal Design, and 20 short reviews of outstanding solutions from around the world.



Accessible PDF:

A publication by the Essl Foundation in cooperation with SG Enable

2025

Corridors and doorways wide enough to accommodate a variety of mobility devices (Harkin Institute for Public Policy & Citizen Engagement, Drake University, Les Moines, United States)



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Recent publications of the Zero Project:
Zero Project Report 2024: Education, and ICT
Zero Project Report 2023: Independent Living, Political Participation, and ICT
Zero Project Report 2022: Accessibility
Zero Project Report 2021: Employment, and ICT

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The composition of geographical regions and selected economic and other groupings used in this report is based on UN Statistics (www.unstats.org), including the borders of Europe, and on the Human Development Index (hdr.undp.org).

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Essl Foundation
Supporting social innovations for a world with zero barriers

in cooperation with

SG ENABLE
Inclusive society. Enabled lives.

“Outstanding projects that can be replicated!”



Michael Fembek
CEO of the Zero Project

The “Champions of Inclusive Spaces” report is a significant research project by the Zero Project, highlighting exemplary solutions for inclusive and accessible urban planning. Since its inception in 2008 the Zero Project has identified over 1,000 innovative solutions to improve the lives and rights of persons with disabilities. Among them have been many that aim for enhancing accessibility in public spaces strategically and comprehensively, often based on Universal Design principles. The selection is based on the Zero Project’s research and expertise, and it highlights outstanding solutions. But they are by far not the only ones or even the “best” ones: Accessibility is a journey, and with this publication we are showcasing some of those solutions that are leading the way.

Recognizing the fundamental role of the built environment in all aspects of life, the “Champions of Inclusive Spaces” publication highlights eight exceptional accessibility and two innovative urban planning initiatives from our portfolio. These champions have passed a rigorous selection process and contributed substantial documentation that informed this publication. It also features comments from renowned experts in accessible built environments, and twenty short reviews of innovative projects that have been implemented around the world.

“Champions of Inclusive Spaces” will be unveiled at the inaugural Zero Project Asia Pacific Symposium in November 2024. The event is organized by SG Enable, Singapore’s focal agency for disability and inclusion, and the Zero Project’s strategic partner in the region.

This publication reflects the significance of this partnership, which will help build bridges between our global network and regional innovation ecosystems. And it also marks the beginning of the next research period of the Zero Project. As a baseline, it will inform our global research and community-building efforts leading up to the Zero Project Call for Nominations 2026 (#ZeroCall26), which is set to launch in May 2025 on the topic of Accessibility.

“A more inclusive future, one space at a time!”



Ku Geok Boon
CEO of SG ENABLE

SG Enable is honoured to be a strategic partner to the Zero Project in the Asia-Pacific region, working towards building a world where inclusivity is not just an aspiration but a reality.

It is with great pride and enthusiasm that I present this foreword to the “Champions of Inclusive Spaces” report, an inspiring and essential contribution to the global movement for inclusive design.

Inclusive spaces are a fundamental aspect of creating societies in which every individual has the opportunity to participate fully and independently. Accessibility goes beyond physical infrastructure; it is a vision of communities that embrace diversity and promote equitable participation for all. This report, showcasing remarkable projects from across the globe, demonstrates how inclusive design can reshape public spaces, making them welcoming and accessible for all.

It is especially meaningful for us at SG Enable that two projects from Singapore – the Enabling Village and the Punggol Regional Library – are featured among the outstanding projects recognized in this report. Enabling Village is a beacon of inclusion and exemplifies Singapore’s commitment to building a more inclusive society. It is a model village, winning multiple awards, including the prestigious ULI Asia Pacific and Global Awards for Excellence, for its transformative impact in catalysing disability inclusion and strengthening social cohesion. Similarly, Punggol Regional Library sets new accessibility standards for public libraries, and we are proud to have contributed to this landmark project as the focal agency for disability and inclusion.

Our collaboration with the Zero Project has been an invaluable platform for exchanging ideas, amplifying best practices, and fostering innovation in disability inclusion. As we jointly unveil this report at the inaugural Zero Project Asia Pacific Symposium in Singapore, we are reminded that the journey towards inclusivity is ongoing. The selection of these ten exceptional projects is a call to action for governments, businesses, and communities worldwide to prioritize accessibility in their design and planning.

SG Enable remains steadfast in our mission to create equitable opportunities for persons with disabilities through thought leadership, sustainable innovation, and impactful partnership. I congratulate all the champions featured in this report and commend Zero Project for its tireless efforts in working towards a world with zero barriers. Together, we are creating a more inclusive future, one space at a time.

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The Zero Project and the Champions of Inclusive Spaces

A NEW PUBLICATION BY THE ZERO PROJECT

For the first time, the Zero Project harnesses its global network and collective expertise to spotlight champions and leaders in one of the most crucial areas of disability inclusion and accessibility: The Built Environment.

Founded by the Austrian non-profit Essl Foundation in 2008, the Zero Project is a global and research-driven initiative to support the implementation of the United Nations Convention on the Rights of Persons with Disabilities (CRPD).

Over the past decade, the Zero Project has established a global network of 10,000+ experts, policy makers, corporates, academics, and other persons with and without disabilities with the shared mission of advancing the implementation of the CRPD. The network contributes to the Zero Project's work and continues to grow, fostering a global community for disability inclusion.

Each year the Zero Project conducts research into innovations worldwide. Following a call for nominations (#ZeroCall) and an extensive selection process, exemplary solutions receive a Zero Project Award for their innovativeness, scalability, and impact. The vetted and peer-reviewed solutions identified through this research process are promoted across a variety of publications, events, initiatives, and marketing communication.

"At the Zero Project, we believe that Inclusive Spaces and Universal Design are the foundation of societies where everyone can participate equally. Through collaboration with global changemakers and by sharing innovative solutions, we're working for a future where accessibility is standard, empowering every person to thrive."

MARTIN ESSL, FOUNDER AND CHAIRMAN OF THE ESSL FOUNDATION

Sharing innovative solutions worldwide

The Zero Project works with a global network of experts with and without disabilities, from all sectors of society, from UN Agencies to self-representatives, from global business leaders to academics, DPOs and foundations and grassroots initiatives. By fostering close collaboration within this vast network, the impact of proven solutions can be amplified and replicated elsewhere. This is achieved through different initiatives, such as the Zero Project Scaling Solutions Programme, the Zero Project Technology Forum, an Inclusive Arts Community, and data-driven tools to support decision-making.

Moreover, established partner organizations in Latin America (Fundación Descúbreme), India (Youth-4Jobs and Enable India), and Singapore (SG Enable) carry out regional activities to encourage global networking, supporting innovation and collaboration.

Champions of Inclusive Spaces

Building on this network and research of replicable solutions, the Zero Project and SG Enable created the "Champion in Inclusive Spaces" publication to showcase some outstanding examples of Universal Design in public spaces. Among the examples featured in this report are architectural projects, such as office buildings, banks, community centres, hotels, airports, museums, and urban developments.

Ten in-depth case studies and twenty short reviews have been selected in a rigourous process. Their contributions are complemented by expert insights on topics ranging from certification to accessible orientation systems.

The "Champions in Inclusive Spaces" report will be unveiled during the inaugural Zero Project Asia Pacific Symposium in Singapore on November 28 and 29, 2024. Designers and representatives of the selected projects will be present to share their experiences and insights.

Frameworks for Inclusive Spaces and Universal Design in the Built Environment

ABOUT UNIVERSAL DESIGN, INTERNATIONAL CONVENTIONS, AND SUSTAINABLE FINANCE PRINCIPLES

The framework and theoretical background of building accessible and inclusive spaces for the public has made enormous progress in the past two decades.

Inclusive spaces and accessible urban planning aim to create environments that accommodate the diverse needs of all individuals, regardless of their abilities. The theoretical foundation of this concept is rooted in the principles of Universal Design, pioneered by architect Ronald L. Mace. Universal Design advocates for creating products and environments inherently accessible to people of all ages and abilities, eliminating the need for adaptation or specialized design.

Universal Design principles

The seven principles of Universal Design include:

1. Equitable Use: The design is useful and marketable to people with diverse abilities.
2. Flexibility in Use: Accommodates a wide range of individual preferences and abilities.
3. Simple and Intuitive Use: Easy to understand, regardless of the user's experience or language skills.
4. Perceptible Information: Communicates necessary information effectively to the user.
5. Tolerance for Error: Minimizes hazards and adverse consequences of accidental actions.
6. Low Physical Effort: Can be used efficiently and comfortably with minimal fatigue.
7. Size and Space for Approach and Use: Appropriate size and space are provided for approach, reach, manipulation, and use.

The Sustainable Development Goals (SDGs), particularly Goal 11, are closely linked to inclusive spaces and accessible urban planning.

CRPD, SDG, and ESG

A significant framework guiding inclusive urban planning is the Convention on the Rights of Persons with Disabilities (CRPD), adopted by the United Nations in 2006. Article 9 of the CRPD emphasizes accessibility as a fundamental right, mandating that environments be accessible to all, including persons with disabilities. It integrates Universal Design principles and calls for legislative reforms and practical implementations, such as technology use and design adaptations. The CRPD is integral to the 2030 Agenda for Sustainable Development, which includes specific goals related to disability inclusion.

The Sustainable Development Goals (SDGs), particularly Goal 11, are closely linked to inclusive spaces and accessible urban planning, which are essential for creating equitable and sustainable communities. SDG 11 aims to make cities and human settlements inclusive, safe, resilient, and sustainable. It explicitly mentions accessibility in targets such as 11.7, which focuses on providing universal access to safe, inclusive, and accessible green and public spaces, and 11.b, which encourages integrated policies for inclusion and resilience

Environmental, Social, and Governance (ESG) frameworksemphasize the importance of social responsibility, which aligns with the goals of creating accessible and inclusive urban environments. By integrating Universal Design principles into urban planning, organizations can ensure that their projects are not only environmentally sustainable but also socially inclusive.

From a business perspective, incorporating ESG principles into urban planning can enhance a company's reputation and increase its attractiveness to investors who prioritize ethical and sustainable practices. Projects that prioritize accessibility can also tap into a broader market by catering to the needs of persons with disabilities, thereby increasing potential user bases and customer satisfaction.

The principles of Universal Design have been pioneered by architect Ronald L. Mace, who wrote the first accessibility-focused building code in the United States (1973).

Research Framework

Several key papers and reports have shaped the discourse on inclusive urban planning:

- World Bank's "Inclusive Cities Approach Paper" (2015): Outlines strategies for creating inclusive, resilient, and sustainable cities, highlighting the need for accessible infrastructure and services to promote social inclusion and economic growth.
- UNDP's "Sustainable Urbanization Strategy" (2016): Emphasizes integrating inclusivity into urban development to achieve the Sustainable Development Goals (SDGs), advocating participatory planning processes that consider marginalized groups.
- G3ICT's "Model ICT Accessibility Policy Report" (2019): Provides a framework for governments to develop policies ensuring that information and communication technologies are accessible to all, reinforcing digital inclusion.
- UN-Habitat's "New Urban Agenda" (2016): Sets a global standard for sustainable urban development, focusing on inclusive urban economies and environmental sustainability, calling for cities designed to foster social cohesion and equity.
- "Universal Design: Creating Inclusive Environments" by Edward Steinfeld and Jordana Maisel (2012): Delves into Universal Design principles, offering practical guidance for architects and planners.
- "Accessibility and Development" by the World Bank (2016): Discusses integrating accessibility into development efforts to ensure persons with disabilities benefit equally from progress.
- Reports by the Special Rapporteur on the Rights of Persons with Disabilities: Provide insights and recommendations on implementing the CRPD, highlighting best practices and challenges in promoting accessibility.
- Zero Project Reports emphasize the importance of accessibility and inclusion through various principles and innovative solutions.

FURTHER INFORMATION

Several key papers and reports have shaped the discourse on inclusive urban planning:

World Bank's "Inclusive Cities Approach Paper"

worldbank.org

UNDP's "Sustainable Urbanization Strategy"

undp.org

G3ICT's "Model ICT Accessibility Policy Report"

g3ict.org/publication/model-ict-accessibility-policy-report

UN-Habitat's "New Urban Agenda"

unhabitat.org/about-us/new-urban-agenda

Reports by the Special Rapporteur on the Rights of Persons with Disabilities

ohchr.org/en/special-procedures/sr-disability

"Accessibility and Development" by the World Bank

un.org

10 learnings from the Champions

LEARNINGS AND TAKE-AWAYS FOR REAL-ESTATE EXPERTS AND URBAN PLANNERS

From the integration of Assistive Technology and Navigation to inclusive employment programmes, from multisensory environments to emergency and safety measures – this is a summary of features that many of the Champions have in common.

1. Universal Design as a foundation

Universal Design principles make spaces inherently accessible for everyone, covering features such as wide aisles, tactile paving, non-slip floors, and intuitive layouts that support mobility, sensory, and cognitive needs.

Mary Free Bed YMCA exemplifies this with features like a central ramp visible from the entrance, high-contrast colours for visibility, and friction-enhanced floors to reduce slips. Similarly, ILUNION Hotels in Spain incorporates Universal Design in all properties, with level entrances, extra-wide doors, and spacious, open layouts that improve accessibility in high-traffic areas like lobbies, restaurants, and meeting spaces.

The House of Disability Organizations in Copenhagen, Denmark, goes even further. In their call for tenders, qualitative criteria that correspond to the principles of Universal Design were rated higher than price.

2. A need for individualized design

It can also be seen that, while building on the principles of Universal Design, there is still a need for individualized solutions. For example, Gallaudet University has developed 'DeafSpace' guidelines that include the architectural and spatial requirements of people with hearing disabilities, while Simon Humphreys has developed '12 Design Pillars for Autism'.

3. Multi-sensory and Adaptive Environments

Multi-sensory environments cater to individuals with sensory sensitivities, such as those with autism, ADHD, or PTSD, by offering quiet areas, soft lighting, and interactive, sensory-adjustable spaces.

Punggol Regional Library in Singapore provides Calm Pods with adjustable lighting, soft furnishings, and sensory tools. In Enabling Village, the Caregivers Pod includes a VR Cave that uses immersive visuals to engage children in need of calming interactive experiences.

The Rijksmuseum in Amsterdam has also created quiet areas and offers people with various disabilities the opportunity to visit the museum outside normal opening hours or as part of special tours.

The online platform WelcoMe lets participating businesses know in advance that they cannot tolerate loud music or need a quiet place, for example.

4. Assistive technology integration

Assistive technology – such as screen readers, hearing loops, and alternative input devices – allows users with disabilities to interact independently with digital and physical environments.

The Central Bank of Ireland offers staff the opportunity to adapt their workstations, and induction loops are available in meeting rooms for people who are hard of hearing. Enabling Village's Tech Able centre loans out devices such as speech-to-text tools, screen readers, and eye-tracking software,

At Punggol Regional Library, digital catalog stations feature high-contrast keyboards, screen magnifiers, and trackball or joystick mice.

5. Collaborative planning and participatory design

Collaborating with persons with disabilities, disability-led NGOs, and other stakeholders, starting from the planning and design process, ensures spaces meet real user needs and adapt to evolving accessibility standards.

iGA Istanbul Airport partnered with over 25 NGOs and individuals with disabilities to design features such as tactile paths and customized indoor navigation for the blind. Punggol Regional Library involved disability organizations to implement high-contrast signs, Braille displays, and easily accessible wayfinding systems.

In the city of Varanasi in India, co-design workshops with community stakeholders were held to identify the needs of people with disabilities living there. The results had a significant impact on the design and features of Namo Ghat, for example, a famous monument and riverfront steps, which is now a symbol of inclusive Varanasi.

6. Training and certification programmes for staff

Accessibility training and certifications for staff ensure that facilities maintain high accessibility standards and

employees can offer effective, sensitive assistance.

ILUNION Hotels in Spain provides extensive training in accessibility awareness, including hands-on modules for assisting guests with disabilities and regular staff assessments to uphold UNE 170001-2 accessibility standards. iGA Istanbul Airport delivers accessibility training to all frontline staff and key stakeholders, such as airlines and security teams.

The Rick Hansen Foundation provides independent advice and certification and has assessed more than 900 organizations and over 1,950 buildings in Canada and the USA. G3ICT and IAAP also certify staff and procedures to ensure accessibility and disability-inclusion.

There are also training and certification programmes for special spaces. One example is the Pan American Health Organization's Inclusion for Disaster Risk Management in Hospitals (INGRID-H) initiative.

7. Combination with inclusive employment programmes

Employment models that integrate individuals with disabilities showcase inclusive hiring practices, creating opportunities for meaningful work and representation in various industries that supports 'lived inclusion' and ensures that inclusively built spaces stay inclusive and are constantly adapted and developed.

ILUNION Hotels employs people with disabilities in a range of roles, from front desk staff to management, with 42 per cent of the workforce having a disability. At Enabling Village, individuals with disabilities work as guides, tech trainers, and support staff.

A flagship project is Taiyo-no-ie (House of the Sun) in the city of Beppu, Japan. Under the motto 'Not Charity, but a Chance', Taiyo-no-ie provides not only therapeutic care, but also training and employment opportunities where people with and without disabilities work together.

8. Accessible navigation and wayfinding

Intuitive wayfinding systems support users in navigating spaces independently through tactile pathways, high-contrast signs, and auditory cues.

iGA Istanbul Airport, for example, features tactile paths from entry points to gates. Punggol Regional Library incorporates large, high-contrast signage, tactile flooring, and Braille labels, allowing visually impaired visitors to access books and digital stations with ease. Contrasting colours, such as those used to great effect in the Mary Free Bed YMCA and the House of Disability Organizations, also help to make things clear.

9. Accessibility of health, wellness, recreational, and artistic spaces

Health and wellness facilities designed with accessibility in mind provide equal opportunities for physical activity and rehabilitation for people of all abilities.

Mary Free Bed YMCA includes wheelchair-accessible equipment, sensory-friendly workout areas, and adaptive sports facilities such as wheelchair basketball courts, which encourage people of all abilities to participate in fitness programmes. ILUNION Hotels offers accessible wellness facilities, such as swimming pools with hydraulic lifts, gym equipment with adaptive controls, and accessible spa areas. The Brookfield Zoo uses life-size figures of animals and many other elements to enable the zoo experience for all.

The Rijksmuseum in Amsterdam has installed a variety of innovative methods and technologies, enabling visitors with various disabilities to experience the works of artists such as Rembrandt.

Changing Places in Dublin offers designs and templates to build toilettes that can be used by persons with disabilities for additional privacy.

10. Emergency accessibility and safety

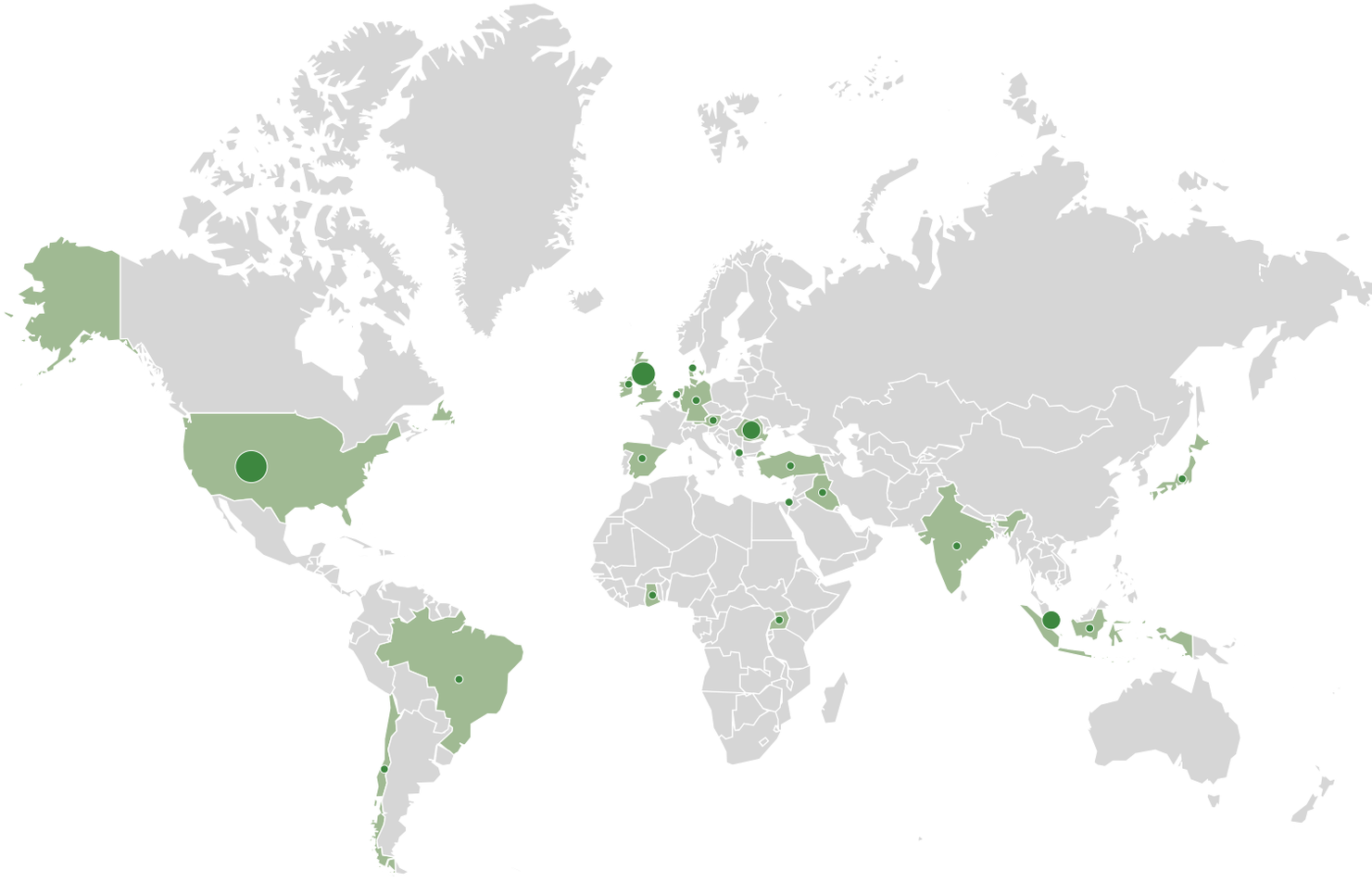
Accessible emergency features, including visual alarms, wide evacuation routes, and clearly marked assembly points, ensure safety during emergencies for users of all abilities.

Punggol Regional Library includes visual fire alarms and clear evacuation signage. At iGA Istanbul Airport, emergency call points, accessible assembly areas, and specially trained ambassadors enhance passenger safety.

The city of Beppu in Japan, which is particularly vulnerable to natural disasters, has designated evacuation routes, suitable accommodation, and specially trained city staff who can provide professional assistance in an emergency.

Overview of Inclusive Spaces

A WORLDMAP OF ALL INCLUSIVE SPACES MENTIONED



EXPERTS COMMENTS

- Iain McKinnon, CEO of the Global Disability Innovation Hub, on building inclusive spaces
- Utsav Choudhury, Programme Manager at the National Institute of Urban Affairs, New Delhi, India, on pathways towards inclusive urban planning
- Amanda Basi, Senior Programme Director at the Rick Hansen Foundation, on the need for accessibility certifications
- Christopher M. Lee, President of the Global Initiative for Inclusive ICTs (G3ict) and of the International Association of Accessibility Professionals (IAAP), on certification of accessibility and Universal Design professionals
- Susan Smit, Strategic Development Advisor, Guy Davis, Universal Design Consultant and Bernard Lombaard, part-time collaborator on accessible orientation system
- Mark Trieglaff, Founder of ACTServices, on Universal Design in planning exhibits
- Gerald Craddock, head of the Centre for Excellence in Universal Design at the National Disability Authority in Dublin, Ireland, on changing places-toilets

All Inclusive Spaces country by country, listed alphabetically

Case Study Short Review

Country	Theme	Organization/Solution
Austria	A parliament for all people	Austrian Parliament
Brazil	City simulation to practice navigation from home	Virtual Reality for Inclusion, Instituto Jô Clemente
Chile	Chile's first inclusive gastronomic neighbourhood	Fundación Crecendo
Denmark	A home for disability organizations as a model for accessible office buildings	House of Disability Organisations
Germany	Location-based accessibility data for almost 3 million places	Wheelmap.org
Ghana	A university committed to inclusive education	Kwame Nkrumah University of Science and Technology
India	One of the oldest continuously inhabited settlements becomes an inclusive, smart city	City of Varanasi
Indonesia	A public space designed by and built with the community	Inclusive Community Hub, Kota Kita
Iraq	Making a memorial accessible to all	Halabja Disabled Organization
Ireland	Using Universal Design principles to redesign a national bank	Central Bank of Ireland
Israel	Renovations and special programmes make an ancient museum accessible	Tower of David Museum
Japan	Being known as the "inclusive and healing city" requires a comprehensive approach	City of Beppu
Latin America	Preparing hospitals for emergencies and disasters	INGRID-H, Pan American Health Organization
North Macedonia	Accessible bank branches open 24 hours a day	ProCredit Bank MK
Romania	An inclusive waterfront on the Danube	Mahmudia, WOLFHOUSE Productions
Romania	Industrial heritage turned into an inclusive museum	Muzeul Apei, Association CED
Singapore	An inclusive space in the heart of a modern city-state	Enabling Village, SG Enable
Singapore	Opening a new chapter on accessibility in public libraries	Punggol Regional Library
Spain	A hotel chain employing people with disabilities, serving people with and without disabilities	Hoteles ILUNION
Netherlands	Bringing Rembrandt & Co to life for all your senses, including taste and smell	Rijksmuseum, Amsterdam
Turkey	An airport overcoming more than just geographical barriers	iGA Istanbul Airport
Uganda	A simple guide to building accessible schools	Humanity and Inclusion
United Kingdom	The 12 Design Pillars for Autism	Simon Humphreys Riba, Microlink PC
United Kingdom	Making accessible places personalized	WelcoMe, Neatebox
United Kingdom	A focus on visitor-centred accessibility strategies	Wellcome Collection
United States	Universally designed sports centre attracted 475% more members	Mary Free Bed YMCA
United States	Architecture for the hearing impaired	DeafSpace, Gallaudet University
United States	A building that represents the Americans with Disabilities Act	Tom and Ruth Harkin Center, Drake University
United States	A national park made 'audible'	Natural Bridge State Park, RightHear
United States	Bringing the blur back into focus	Re-Bokeh



‘Second Floor’ indicators
(Handicaporganisationernes Hus, Denmark)

Champions of Inclusive Spaces

Airport
iGA Istanbul Airport, Turkey

Community Centre
Mary Free Bed YMCA, United States

Community Space
Enabling Village, Singapore

Hotel
ILUNION Hotels, Spain

Library
Punggol Regional Library, Singapore

Museum
Rijksmuseum, Netherlands

Office Building
Central Bank of Ireland, Dublin
Handicaporganisationernes Hus, Denmark

Urban Planning
City of Beppu, Japan
City of Varanasi, India

Experts Comments
Seven experts on defined challenges to built inclusive spaces

Short Reviews
20 spotlights on innovative solutions from around the world

An airport overcoming more than just geographical barriers

Since opening in 2018, iGA Istanbul Airport has been committed to creating an inclusive environment and ensuring that all passengers with and without disabilities have a stress-free and enjoyable travel experience. In 2022 it became the first airport to be accredited an 'Accessible Airport' by the Airports Council International.

Among the airport's long list of certificates and awards, iGA Instanbul was voted the world's best airport for 2024 by the readers of Condé Nast Traveler, one of the world's leading luxury travel magazines; and in 2022 it became the first airport in the world to be accredited an 'Accessible Airport' by the Airports Council International.

Accessible travel is possible

With a planned capacity of up to 200 million passengers per year, iGA Istanbul is one of the largest airports in the world. The decision to build it was taken in 2010 after the old Ataturk Airport outgrew its capacity. Construction began in 2015, and iGA Istanbul was officially opened on 29 October 2018.

In line with the motto 'Accessible travel is possible', accessibility was given special consideration from the very beginning of the planning process, with the aim of making iGA Istanbul one of the most accessible and user-friendly airports in the world. As Ms. Hilal Kahraman, Experience Design and Segment Management Assistant Manager, explains, "It was important for iGA Istanbul Airport to go beyond the legal requirements. Our goal is to ensure that everyone using our airport receives an equal, respectful, and professional experience." To achieve this, iGA Cares has been launched as a broader service initiative that focuses on the care and support of passengers with various specific needs, including people with disabilities, the elderly, and those with limited mobility.

Importantly, NGOs and people with disabilities have been and will continue to be involved in the planning and development of a barrier free airport. "Collaboration is an ongoing process for us," says Kahraman, "and we continue to invite both NGOs and people with disabilities to help improve our services. To date, we have worked with over 25 NGOs and more than 50 people with various disabilities."

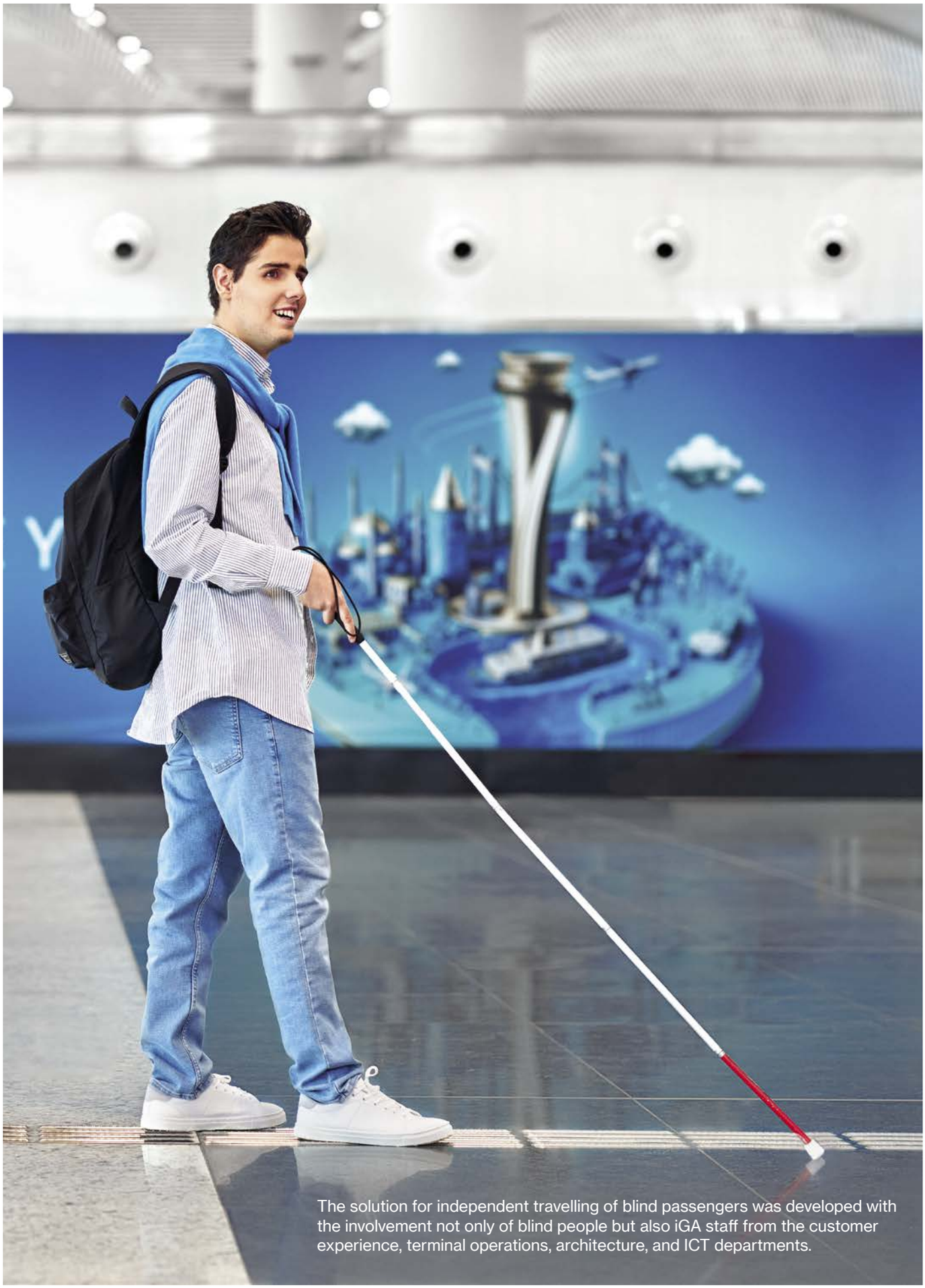
First tactile route to the gate

For Kahraman, working with blind people is a prime example. "During a shared experience of navigating the airport, we recognized their need to travel independently. We discovered that when they request assistance services, they often miss out on terminal facilities such as food and beverage, shopping, or other services." As a result, iGA Istanbul Airport teamed up with a company that specializes in indoor navigation applications for the blind. The solution for the airport was developed with the involvement not only of blind people but also iGA staff from the customer experience, terminal operations, architecture, and IT departments.

This was an important experience, especially for the architects involved, because they found that the airport had obstacles – such as signage, air conditioning units, and barriers – that made it difficult for blind passengers to follow a clear route. In response, a single line of tactile paving was designed to run from the entrance to the domestic gates, the first example of its kind in the world.

'Sunflowers' for invisible disabilities

However, Kahraman explains that it has not always been necessary to reinvent the wheel. Where solutions could be adopted, they were, such as the sunflower lanyard. These are green lanyards with a pattern of yellow sunflowers, which were introduced at Gatwick Airport in the UK in 2016 to give passengers with invisible disabilities – such as autism, dementia, anxiety, chronic pain, or learning difficulties – a discreet way to draw attention to their needs without having to communicate verbally. Since its introduction at Gatwick the programme has spread to many other countries, including Australia, Canada, Germany, and the United States, and it is recognized and supported by airports, retail chains, and public bodies.



The solution for independent travelling of blind passengers was developed with the involvement not only of blind people but also iGA staff from the customer experience, terminal operations, architecture, and ICT departments.

ACCESSIBILITY HIGHLIGHTS OF IGA ISTANBUL AIRPORT

To create an environment that welcomes passengers with different needs and abilities, iGA Istanbul Airport offers a number of features, notably:

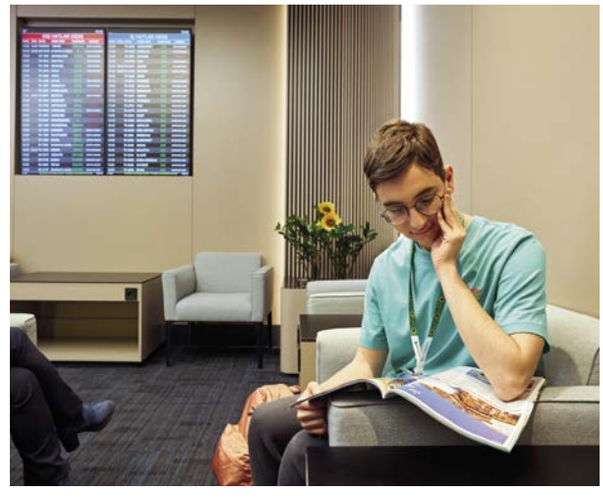
- **Accessible facilities:** iGA Istanbul is designed with wide aisles, spacious seating areas, and clear signage to ensure easy navigation.
- **Toilets:** Istanbul Airport offers accessible toilets with spacious stalls, grab bars, and accessible sinks to ensure comfort and convenience.
- **Tactile paving:** The airport has tactile paving to guide passengers with visual impairments safely throughout the terminal.
- **Wheelchair services:** These are available to assist travellers with reduced mobility.
- **Call Point:** A call point is available for passengers with disabilities who need immediate assistance or have specific requests.
- **Sign language video call centre:** The airport offers a video call centre for travellers who are deaf or hard of hearing, enabling them to communicate with trained staff using sign language.
- **Special Passenger Service Point:** Located in the terminal, the Special Passenger Service Point is dedicated to providing personalized assistance and to answer any questions travellers with disabilities may have.
- **Very Special Guest Card:** This feature gives passengers with disabilities access to priority services, including assistance at security checkpoints, passport control, and boarding gates.
- **Sunflower lanyard:** Guests with invisible disabilities – such as dementia, autism, and anxiety disorder – who may require additional sensitivity and support from staff members can obtain a complimentary sunflower lanyard at the Information Desk.
- **Baggage waiting area:** A special waiting area is available to ensure that passengers with disabilities have a comfortable place to wait for their luggage.
- **Cafe Yanimda:** This is a designated area where passengers with disabilities can rest and relax in a comfortable and quiet environment, and is equipped with facilities to accommodate guests with individual needs.
- **Pet-friendly:** Istanbul Ataturk Airport welcomes service animals and provides pet-friendly facilities.



A single line of tactile paving runs from the entrance to the domestic gates.



In the terminal, the Special Passenger Service Point provides personalized assistance.



The Very Special Guest Card programme includes free access to two exclusive quiet rooms.

Another established solution is the Sensory Room, which is usually designed to help people suffering from sensory overload to relax and calm down before or after a stressful journey. These spaces often have subdued lighting and incorporate multi-sensory elements such as soft furnishings, colour-changing lighting effects, and aromatherapy to help people relax. In addition, screened-off retreat areas, known as 'cocooning zones', offer the opportunity to completely shield oneself from outside stimuli.

In Istanbul, this concept has been expanded to the Very Special Guest Card programme, which includes free access to two exclusive Very Special Guest rooms, located on both the domestic and international floors, which are equipped with toys, resting areas, TVs screening animated movies, and flight information displays. Additionally, both rooms offer a compact quiet room with rubber-coated walls, available for use during times of crisis.

Ambassadors as personal companions

Another measure to help travellers overcome barriers at iGA Istanbul Airport is the provision of iGA Care Ambassadors. These ambassadors have been specially trained to help passengers who need assistance by guiding them through the entire airport process – from check-in to security to boarding – and to ensure that passengers with disabilities can use the airport's accessible facilities. The majority of iGA Care Ambassadors are multi-lingual, have received special training in accessibility for people with different disabilities, and are trained in sign language.

The airport's other employees have also received training. "We have some 8,000 employees who have completed five modules of interactive online accessibility training," notes Kahraman. "In addition, our frontline staff receive one hour of face-to-face training to reinforce these concepts." Accessibility trainings are also offered to the trainers of iGA's key stakeholders, including ground handling, airlines, and cleaning services, covering nearly 10,000 employees. These stakeholders have since incorporated accessibility training into their own programmes, ensuring ongoing training and awareness across their teams.

"OK, now we can fly abroad"

For Kahraman, the economic benefits cannot really be measured, but it is obvious that a seamless travel experience for people with disabilities encourages them to travel more. She tells the story of a woman with an autistic son who was invited to experience the airport and identify areas for improvement. "She shared that her last airport visit was 13 years ago when her son, then 4, had a crisis at the security checkpoint and they were unable to complete their journey. Since then, they had avoided air travel altogether."

Thirteen years later her son wore the sunflower lanyard and took part in the Very Special Guest Card programme. "Before they left, the mother said: 'OK, now we can fly abroad'. Their story illustrates the potential of iGA Cares to transform the travel experience for people with disabilities, encouraging loyalty and repeat travel, which ultimately benefits the airport as well."

FURTHER INFORMATION

For more information on iGA Istanbul Airport's accessibility facilities, please visit

The official website (in different languages):

istairport.com/en/flights/airport-guides/iga-cares-accessibility

A summary of all the features is also available as an accessible video on youtube (in English):

youtube.com/watch?v=hPIvkdSnWP8

“It’s the experience of daily life that really matters!”

What is really important when building inclusive spaces? Education, the involvement of the real experts, seeing building projects through from inception to in-use, and the real experience.

I have worked on accessibility and inclusive design of the built environment since 2005. Initially, my focus was the United Kingdom where, between 2011 and 2019, I was Senior Inclusive Design Manager for the Queen Elizabeth Olympic Park in east London, home to the most successful and accessible Paralympics Games in history in 2012. While there I produced the park’s Inclusive Design Standards, last published in 2019 and still considered an industry benchmark.

GDI Hub’s “Report on Inclusive Infrastructure”

Since co-founding GDI Hub in 2016, the focus of our inclusive design work has been on supporting disabled people living in poverty in developing countries around the world. A recently completed research project titled ‘Inclusive Infrastructure’ – funded by UK Aid and delivered through the GDI Hub-led programme called AT2030 – saw research undertaken in six cities around the world to understand how inclusive design was implemented and working for local disabled people.

We produced case study reports for each of the six cities, which included Ulaanbaatar in Mongolia, Varanasi in India, Surakarta in Indonesia, Nairobi in Kenya, Freetown in Sierra Leone, and Medellin in Colombia. This research has now produced a “Global Action Report” launched at UN Habitat’s World Urban Forum in Cairo in November 2024, and we hope the result of this unique research will go on to support the creation of more inclusive and accessible cities around the world.

What is needed to make positive change?

Education is a huge factor. Often, inclusive design is not delivered due to ignorance rather than malice or malintent. Those in positions of power with decision-making responsibility often have no personal or professional experience of disability or inclusion. Therefore, education and capacity-building are crucial. Representation is also key. Having local disabled people at the decision-making table when designing buildings, public spaces, transport systems, and cities is essential. We must understand that disabled people are the only true experts. They know the issues, the barriers, and the opportunities for progress, as they negotiate these daily.

A disconnect between aspirations and reality

Implementation is also key. Many countries, cities, and organizations have excellent policies, strategies, legislation, or standards on inclusive design and accessibility. However, when it comes to implementing the recommendations or even requirements contained within, too often there is a disconnect between the aspirations and the reality. Accountability and responsibility are needed alongside processes and mechanisms that ensure projects cannot progress unless implementation has been followed through ‘on the ground’.

But taking a step back, let’s not forget why inclusive design is so important to all aspects of our lives.

Yes, having access to the world around you is a fundamental human right.

Yes, inclusive design supports all of us.

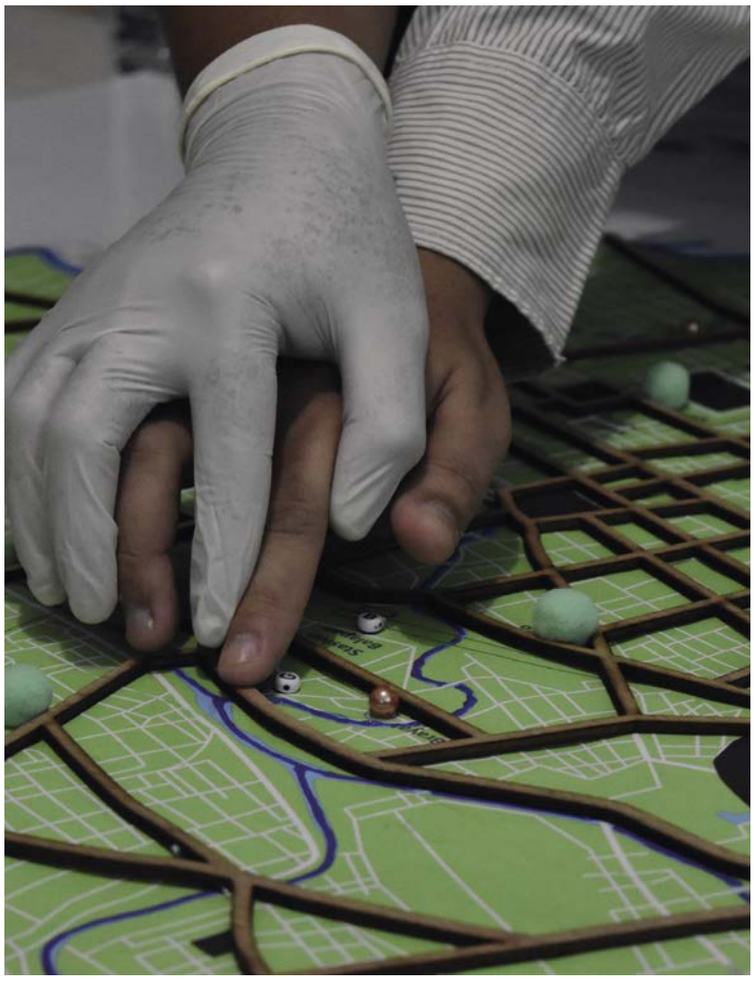
Yes, by including more of the population rather than excluding them, you will have a more successful business.

Yes, disabled people and their immediate circle have a huge spending power.

ABOUT THE AUTHOR



Iain McKinnon is CEO of the Global Disability Innovation Hub (GDI Hub)





A performing sign language interpreter providing expressive British Sign Language interpretation at a Robbie Williams gig in the Olympic Stadium at Queen Elizabeth Olympic Park, London.

A member of the Kota Kita team supporting a visually impaired local person to take part in the UK Aid-funded and GDI Hub-led AT2030 inclusive infrastructure research project in Surakarta, Indonesia.

Yes, this is a demographic that is growing, especially as we all age.

Yes, this is a sector ripe for innovations that can have far reaching impact and returns.

But for me, it's the experience of daily life that really matters. My definition of inclusive design is that it can help all human beings experience the world around them in a fair and equal way.

When applied to the built environment, that means creating safe, accessible, and welcoming environments for all members of the community. Even where physical access may not be an option, we must still consider what is the experience that can be provided here.

Seeing building projects through from inception to in-use

In my time as Senior Inclusive Design Manager at the Queen Elizabeth Olympic Park, I was in the very fortunate position of seeing building projects through from inception to in-use. This complete picture provides a unique perspective on the process, and also an understanding of what really matters to people and what they are most passionate about.

I can say that most of the time any issues or barriers raised by disabled customers or visitors were rarely physical or design related. They were experiential. It was rude staff, a lack of information, a lack of concessional pricing, poor maintenance, or the attitudes of others. This is what people cared most about and valued: their overall experience. Inclusive design therefore does not end with the physical or digital product. In many ways, that's just the beginning. The real test comes later, when being used, when being experienced by end-users, by the general public, by disabled people.

I long for a time when so-called inclusive design experts are no longer needed. I used to say, if I do my job well, I'll do myself out of a job. My ambition is to see all designers, regardless of their discipline, taught about inclusive design as a mandatory part of their first-year undergraduate course. I also want to see genuine representation of disabled people in positions of power, responsibility, and decision-making, bringing diverse perspectives to our designs, plans, and interventions. Only then will we begin to see real, sustainable change.

CASE STUDY: MARY FREE BED YMCA, GRAND RAPIDS, UNITED STATES

Universally designed sports centre attracted 475% more members

The Mary Free Bed YMCA is a community health and wellness facility that provides barrier-free access to healthy living for children, adults, and families. The facility was completed in 2015 and was one of the first buildings to be certified by the Global Universal Design Commission.



The main architectural feature of the Mary Free Bed YMCA is a wide yellow ramp that connects the different levels without steps and can be seen from almost anywhere.

All photos by Bill Lindhout.

When you build a sports centre it has to comply with the regulations in force at the time. And when it comes to accessibility, the Americans with Disability Act (ADA) has set the standard in the United States since 1990. But you can go one step further and build the centre to set a new, universal standard.

An opportunity to do so arose in the early 2010s in Grand Rapids, the second largest city in the state of Michigan after Detroit. The YMCA of Greater Grand Rapids, part of the global Young Men's Christian Association (YMCA) network, had been operating a fitness and community facility in the city centre. Although it had a large membership, it was showing its age and, having been built before the ADA, was not accessible. In response, the YMCA leadership decided to design a new fitness and community centre that would reflect the YMCA's commitment to community and inclusion.

Joining forces to set a new standard

The YMCA was able to secure the Mary Free Bed Guild as the main sponsor for the project. This non-profit organization is dedicated to supporting the Mary Free Bed Rehabilitation Hospital in Grand Rapids, a national leader in rehabilitation medicine and a local hub for the adaptive sports community. At the time, the hospital was looking to build a rehabilitation centre for its patients, and the two organizations decided that a single facility could serve both parties.

Such a facility should not only meet local jurisdictional accessibility requirements, including ADA standards, but also invite everyone, regardless of ability, to experience fully accessible and universal health



and wellness services. To achieve this, the decision was made to implement a Universal Design strategy; and Progressive Companies, a Grand Rapids-based architecture and design firm with extensive experience in the healthcare and rehabilitation industries, was selected to implement the strategy. Michael L. Perry, a Universal Design expert and principal of Progressive Companies, served as the principal architect on the project. As he explains, "Universal Design, in our opinion, was a direction that best addressed 'design for all'. The YMCA had just added 'inclusion' to their value statement, so Universal Design was a natural fit for their new facility and 36-acre campus." Thus, the Mary Free Bed YMCA, which opened in December 2015, became the first YMCA built entirely to Universal Design standards and one of the first buildings ever to be certified by the Global Universal Design Commission.

Where Universal Design 'shines'

In summary, the idea of Universal Design is to design products, environments, and services so that they are accessible and usable by all people, regardless of age, ability, or disability. When designing a facility, "sensory access is just as important as physical access," says Perry. "That's where Universal Design shines."

At Mary Free Bed YMCA, this is evident immediately upon entering the building. The entrance area is bright and tidy, with no display racks to get in the way and no unnecessary furniture. Instead, there is completely free access to the reception. The deliberate use of colours, which are very clear and rich in contrast, is evident right from the entrance. "Colour Universal Design is a relatively new industry term revolving around a user-oriented design system," notes Perry. "It implies a system that allows information



The Mary Free Bed YMCA hosts a full programme of wheelchair sports, including basketball, rugby, and softball.

to be accurately conveyed to as many individuals as possible and takes people with various types of colour vision into consideration."

No blue and red together

As a result, the colour scheme for the Mary Free Bed YMCA avoided using blue and red together, as this could cause visual sensitivity in the middle of the colour spectrum. Instead, contrasting colours such as blue, yellow, and yellow-green were used. "However, we have deliberately avoided using blue in critical areas where edges could be difficult to see," explains Perry. "Where blue is used, such as in the swimming pool, a darker, contrasting colour has been used to highlight the pool edge."

Bright colours help to make architectural changes visible, thus making orientation easier. In addition, the use of single colours was avoided to ensure greater colour clarity. Perry pointed out that the colours were carefully selected and tested to ensure that they work well in each space and that potential reflections do not interfere with the user's perception.

This has also been taken into account in the lighting. The Mary Free Bed YMCA uses as much natural light as possible; and the luminaires and their height have been chosen to reduce glare, which increases safety and reduces eye strain for people with sensory impairments.

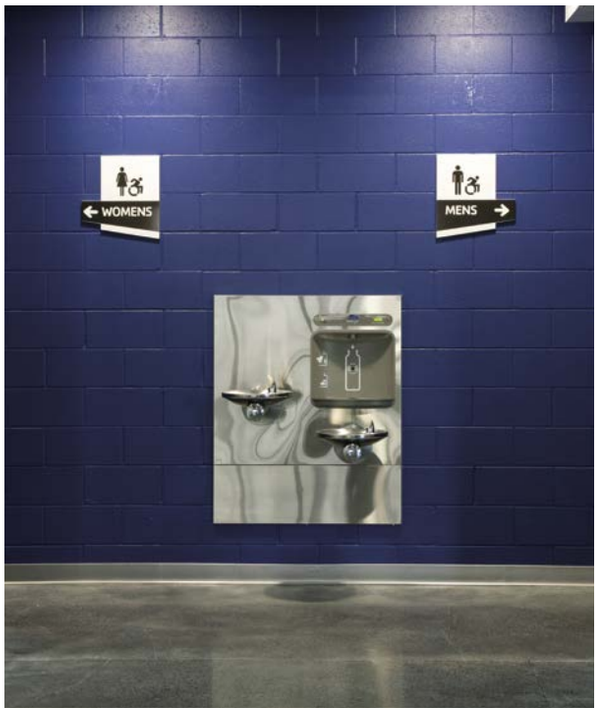
Central ramp eases connecting

The main architectural feature of the Mary Free Bed YMCA is a wide yellow ramp that connects the different levels without steps and can be seen from almost anywhere. Perry explains the idea behind this: "The overall plan for the facility sought to minimize circulation for clear wayfinding. The ramp therefore was centrally located to be seen from the main entrance and the fitness floor so that all people can orient themselves in the building based on a visual connection to the ramp. All spaces were designed to open to the common lobby, making the ramp visible from all room entries."

The ramp has a special floor to increase friction so that all users can use it safely. In addition, the colour of the flooring was chosen to contrast well with the flooring on the first and second floors so as to alert people to the slope of the ramp. In addition, the oversized width of the ramp ensures that people can easily walk side by side or pass each other. The ramp's main landing at the bend is also oversized, providing a view of the fitness area and making it easier to navigate and socialize. Due to its length and slight incline, the ramp can also be used for those learning to walk again or for physiotherapy programmes.

Everywhere a world of water

The design of the aquatic facilities was also a key issue. The Mary Free Bed YMCA has several interest groups that would use the pools. Because the needs were so diverse, both a lap pool and a warm water family pool with an additional 20-person hot tub were included in the design. Perry notes that "the collaboration between the YMCA of Greater Grand Rapids and the Mary Free Bed Rehabilitation Hospital meant



The facility uses intentional, high-contrast colours to make spaces easier to navigate.

that the lap pool in particular would need to embrace both people with and without disabilities."

The lap pool is used for a variety of programmes, including swimming lessons, aqua aerobics, lane swimming, training, and competitions. As a result, it has been designed with maximum flexibility in mind. For example, lane dividers were installed in both directions to quickly reduce the pool from 25m to 20m so as to create more lanes as needed, depending on the number of users. The lane line dividers are also designed to colour contrast with the water to alert novice swimmers approaching the pool wall in either direction. LED lighting was positioned over the pool deck for ease of maintenance while also meeting the requirements for competitions and different user groups' activities. The lap pool is also equipped with a lift and a tiled transfer station, which allows people with disabilities to get in and out independently.

Improved air, reduced noise

A major concern in indoor pools is air quality. To prevent the formation of chloramines, which can irritate the eyes and respiratory system, a special ventilation system has been developed for the Mary Free Bed YMCA. The laminar air flow supplies fresh air on one side of the pool, moves it across the water surface, and then exhausts the polluted air on the other side, thus removing chloramines and improving air quality.

Acoustics is another key issue regarding indoor pools. The hard, smooth surfaces of the water amplify sound, which can make communication difficult, especially for people with hearing impairments. To address

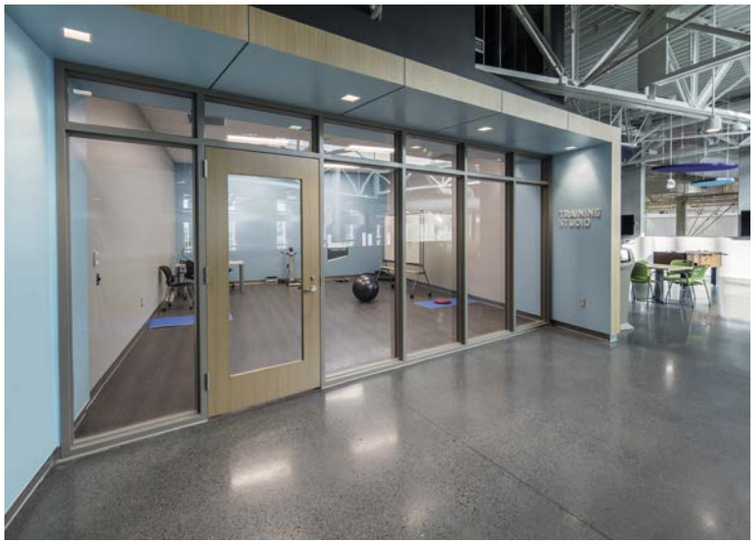
ACCESSIBILITY HIGHLIGHTS OF THE MARY FREE BED YMCA

The following features showcase Mary Free Bed YMCA's commitment to Universal Design, ensuring accessibility for people of all abilities.

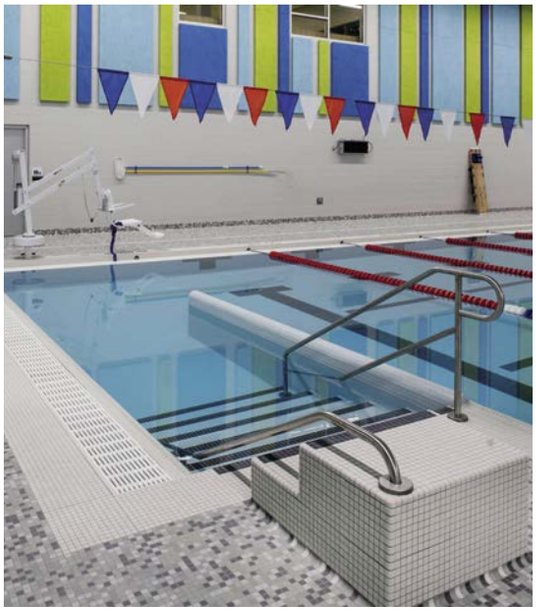
- **Entrance area:** The entrance area is spacious, bright, and free from obstacles, ensuring easy navigation and accessibility for all visitors.
- **Changing rooms:** The Mary Free Bed YMCA has 16 large family changing rooms, two of which have queen-size mat tables for people with mobility difficulties who require assistance.
- **Colour Design:** The facility uses intentional, high-contrast colours to make spaces easier to navigate for people with different types of colour vision or visual impairments.
- **Clear contrast:** Contrasting colours are used in important areas, such as stair and pool edges, to enhance visibility and prevent accidents.
- **Glare reduction:** Natural light is maximized and luminaires are positioned at a height to reduce glare that can cause eye strain.
- **Noise reduction:** Acoustics are enhanced with sound-absorbing materials on ceilings and walls, improving communication, especially for people who are hard of hearing.
- **Vertical circulation:** A wide, centrally located ramp connects various levels without steps. Alternatively, oversized lift cabins with Braille call buttons are available.
- **Highfriction flooring:** The entire building and in particular the ramp are equipped with non-slip floors. Carpets and tripping hazards at transitions have been avoided.
- **Swimming facilities:** The pools are designed for various user needs, featuring a lift and a self-service transfer station for people with disabilities.
- **Outdoor spaces:** The outdoor area includes fields and facilities specifically designed for adaptive sports, along with storage areas for sports wheelchairs.

“When designing a facility, sensory access is just as important as physical access. That’s where Universal Design shines.”

MICHAEL L. PERRY, PRINCIPAL OF PROGRESSIVE COMPANIES



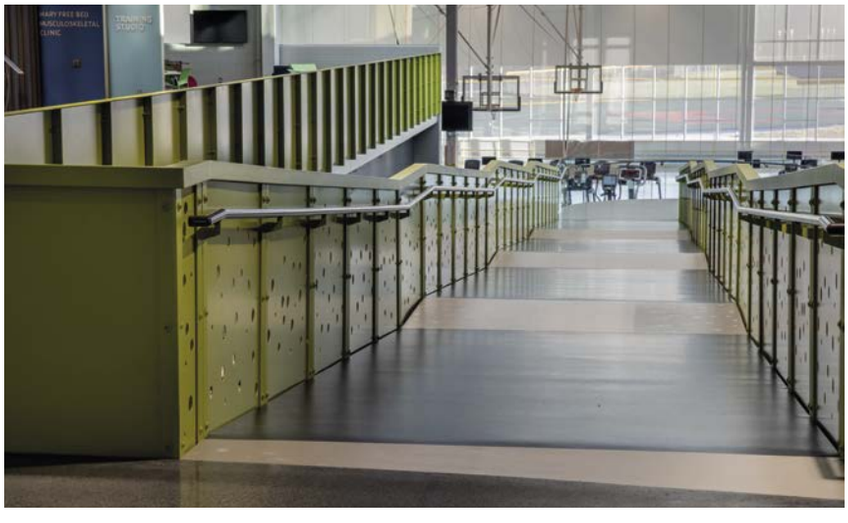
There are no steps or thresholds between dfifferent areas, but there are changes in flooring.



A tiled transfer station (in the back) allows people with disabilities to get in and out of the pool independently.



The showers and changing rooms are spacious and offer a variety of facilities to suit different needs.



The ramp has a special floor to increase friction and its colour contrasts well with the flooring on the first and second floors.



At its opening in 2015 the Mary Free Bed YMCA had 3,300 members; after just one year there were 10,500.

this, sound-absorbing materials have been added to the ceilings and walls.

The outdoor area of the Mary Free Bed YMCA has also been designed to Universal Design standards, with green spaces, a children's playground, and an area for outdoor activities. There are also fields specifically designed to meet the needs of wheelchair and adaptive sports teams. The Mary Free Bed YMCA hosts a full programme of wheelchair sports, including basketball, rugby, and softball, and special wheelchair storage areas have also been created.

Over-performance pays for the extra cost

The Mary Free Bed YMCA, which received a Zero Project Award in 2018, has exceeded all expectations. At its opening in 2015 there were 3,300 members, and after just one year membership had exploded to 10,500. By year four there were 19,000 members. The YMCA experienced this strong growth because all members of the community felt welcomed and could participate in wellness programmes. The Mary Free Bed YMCA is a truly inclusive, more accessible, and safer environment. Adds Perry, "While the numbers are great, what's really important is an entirely new segment of the community is now exercising, having access to better nutrition, and broadening their social network."

Notably, by appealing to new audiences the extra cost of using Universal Design, rather than just meeting the statutory requirements, was quickly recouped. "If minimum Universal Design strategies are implemented, the cost is zero for a new project," declares Perry. "In the case of the Mary Free Bed YMCA, the team chose to implement several Universal Design strategies based on user suggestions and on strategies that represented the highest level of inclusion, accessibility, and safety. The additional cost represented just 1.7 per cent over the jurisdictional requirements – a cost that was amortized in less than two years."

FURTHER INFORMATION

For more information on the Mary Free Bed YMCA and its Universal Design, please visit:

weareprogressive.com/featured-projects/mary-free-bed-ymca

grymca.org/branch/mary-free-bed-ymca

FURTHER INFORMATION

The following links can tell you more about the work of Progressive Companies at the Mary Free Bed YMCA:

The science of choosing colours

weareprogressive.com/insights/the-science-of-choosing-colors

Rethinking circulation (the ramp)

weareprogressive.com/insights/the-road-less-traveled-how-re-thinking-circulation-can-change-your-users-experience

Applying Universal Design to aquatic environments

weareprogressive.com/insights/applying-universal-design-to-aquatic-environments

Investing in an inclusive urban landscape

Creating inclusive cities is not just about making spaces more accessible for persons with disabilities. It is about ensuring everyone can fully participate in urban life. Investments can be contained and shared by public and private stakeholders.

Creating inclusive cities is not just about making spaces more accessible for persons with disabilities. It is about ensuring everyone can fully participate in urban life. Persons with disabilities are an integral part of our communities, yet many of our cities are still built in ways that exclude them, limiting access to opportunities, services, and public spaces. This exclusion does not just affect individuals with disabilities, it affects everyone by reducing the overall potential of our societies.

As Mahatma Gandhi once said, “The true measure of any society can be found in how it treats its most vulnerable members.” Investing in disability-inclusive urban development is not just a matter of fairness, it is an investment in our collective future.

Inclusive design benefits everyone. Consider tactile paving on sidewalks. These features support persons who are visually impaired to navigate public spaces, but they also assist parents with strollers, older adults, and even people carrying heavy bags. Similarly, ramps are not just for people in wheelchairs – they benefit anyone with temporary mobility issues or those delivering heavy loads.

This reflects the words of Franklin D. Roosevelt, who, despite his own disability, said, “We cannot always build the future for our youth, but we can build our youth for the future.”

Breaking the cycle of exclusion

When cities are not designed with accessibility in mind, the consequences can be devastating for individuals and communities. People with disabilities often find themselves unable to access education, health care, or employment, which can lead to poverty and social isolation. This exclusion does not only affect individuals; it can impact their families, employers, and communities. This kind of exclusion creates a cycle that holds back entire communities from economic and social growth.

As Dr. Martin Luther King, Jr., famously said, “Injustice anywhere is a threat to justice everywhere.” Failing to invest in accessible infrastructure perpetuates inequality and injustice. By contrast, when cities are designed with everyone in mind, they create opportunities for economic independence, social inclusion, and personal dignity.

Do it right, or do it twice

Too often, cities retrofit accessibility features after the fact, adding ramps or elevators to public spaces and transportation systems only when it becomes clear that people with disabilities have been excluded. These retrofits come at a high cost, both financially and socially, which is why it is more efficient and cost-effective to build accessibility into city planning from the start.

A prime example is the Delhi Metro, which was designed with accessibility in mind from the beginning. The system includes ramps, elevators, and visual signage, ensuring that it serves everyone equally. This forward-thinking approach avoided the need for costly retrofits and created a transportation network that works for all.

ABOUT THE AUTHOR



Utsav Choudhury is Programme Manager at the National Institute of Urban Affairs, New Delhi, India.





A prime example is the Delhi Metro, which was designed with accessibility in mind from the beginning. The system includes ramps, elevators, and visual signage, ensuring that it serves everyone equally.

Innovative pathways to inclusive investments

The question, then, is how cities can finance these much-needed inclusive projects. There are several innovative financial strategies that local governments can use to fund accessible urban development. Take, for example, what is referred to as Blended Finance. By combining public and private funds, cities can de-risk investments in inclusive projects. To cite just one example, private investors could partner with local governments to co-fund accessible housing or public transportation systems.

By leveraging municipal bonds, cities can raise capital for long-term infrastructure projects. Pune and Ahmedabad in India, for instance, have successfully issued municipal bonds to finance urban services. Other cities could follow suit to fund inclusive infrastructure projects.

Conventional and tested methods such as corporate social responsibility (CSR) grants can contribute to accessibility initiatives. Many businesses in India already invest in social causes through CSR, and aligning these funds with urban accessibility goals could make a real difference. There is also a case for considering hybrid financing models and public-private partnerships that can help scale up inclusive urban projects.

Using these ubiquitous and some novel strategies, local governments can unlock the resources needed to build more inclusive cities without bearing the full financial burden themselves. Cities that make these investments early reap long-term savings and create a more liveable urban environment for all.

An investment in the collective future

By investing in accessible infrastructure, services, and products, the foundation is laid for a more sustainable, resilient, and inclusive world for everyone. Accessible cities are better equipped to handle challenges such as population growth, climate change, and social inequality.

Thus, inclusion is not an afterthought; it is the foundation of a thriving society. The benefits ripple out to every part of life – education, employment, health care, and community participation. As American disability rights activist Judy Heumann put it, “Disability only becomes a tragedy when society fails to provide the things we need to lead our lives.”

Ultimately, inclusion isn’t about charity or catering to a select few; it’s about ensuring that our cities are places where everyone belongs. When we invest in accessibility, we create a world where parents with strollers, elderly citizens, delivery workers, and people with disabilities all move freely, live fully, and contribute to a shared sense of community. Let’s make the choice to invest in inclusion now – because when we build cities for everyone, we build a future that is brighter, stronger, and more inclusive for all.

Innovative Solutions from Indonesia, Iraq, the United States, and former Zero Project Awardees





INCLUSIVE COMMUNITY HUB, KOTA KITA

A public space designed by and built with the community

Indonesia

The Inclusive Community Hub is a public space developed with low-income communities in the Pelambuan neighbourhood of the city of Banjarmasin, Indonesia. The aim was to provide a more comfortable area for community activities amidst the increasingly limited spaces in the city.

The Inclusive Community Hub was built through a participatory process that focused on social inclusion and Universal Design, involving people with disabilities, assistive technology users, and older people. After the people of Pelambuan chose the site, a neglected overgrown building was transformed into a vibrant community centre with an accessible ramp and handrail.

The building was then constructed from locally sourced timber as a stilt house, which could also be used as a flood shelter. To further promote a sense of ownership, the construction was directly supervised by the community. The project is part of an initiative involving the Indonesian NGO Kota Kita, University College London, and the Global Disability Innovation Hub.

Watch this video to find out more:

HALABJA GARDENS, HALABJA DISABLED ORGANIZATION

Making a memorial accessible to all

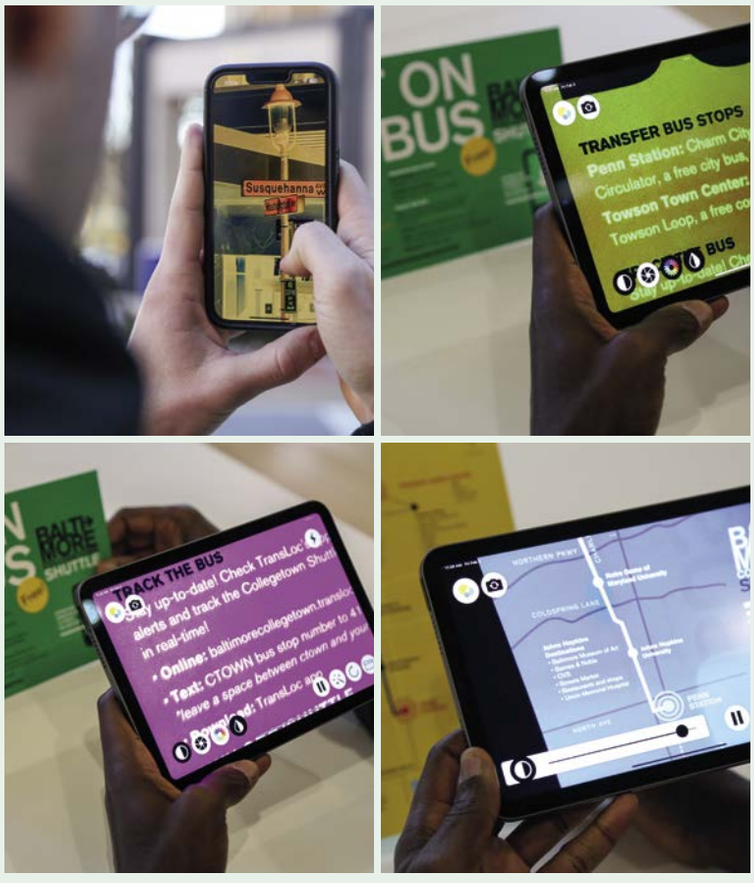
Iraq

The Halabja Gardens, also known as the Halabja Public Park, is one of the oldest sites in the city of Halabja, covering an area of 7,320 square metres. Built in 1946, it serves as a central hub for entertainment, education, and social events, as well as a memorial to the horrific 1988 chemical attack during the Iran-Iraq war. In 2019, Halabja Public Park underwent a major renovation to improve accessibility for people with disabilities. As part of the renovation, the garden now has ramps, accessible toilets, special lighting for the visually impaired, and seating reserved for people with disabilities. These improvements ensure that people with disabilities can participate in the various activities that take place there.

In addition to improving accessibility, the project also focused on environmental protection, including the installation of plastic collection bins and raising awareness about recycling and sustainability.

The project was led by the Halabja Disabled Organization and supported by the Australian Embassy in Baghdad through its Direct Assistance Program.

Watch this video to learn more:



RE-BOKEH

Bringing the blur back into focus

United States

Although 85 per cent of people with visual impairments have some level of vision, the trend in accessibility options is to replace vision with purely auditory or tactile alternatives. Founded in 2021 and based in the United States, ReBokeh utilizes widely available smartphone technology specifically designed to enable users to maximize their functional vision. The name is derived from the photographic term 'bokeh', a technique whereby all sources of light are blurred and out of focus. Thus, ReBokeh means bringing the blur back into focus. The company allows people with visual impairments to customize their vision by providing filtering techniques and features such as a digital magnifying glass and distance viewer in a smartphone app.

The technology is currently used in more than 115 countries and is now being introduced as an accessible solution for spaces such as museums, co-working areas, and libraries, enabling these organizations to promote unrestricted access to technology for everyone on their premises.

For more information, please visit: www.rebokeh.com

AUSTRIAN PARLIAMENT

A Parliament for all people

Austria


Credit: Parlamentsdirektion



The Austrian Parliament has made significant strides in accessibility, ensuring that both visitors and parliamentarians can navigate the building with ease. The landmark building on Vienna´s Ringstrasse in the style of Greek temples and opened in 1883 was thoroughly renovated and re-opened in January 2023.

Renovation focused heavily on removing barriers. All areas are now accessible without steps, and a tactile floor guidance system supports everyone with visual impairments to navigate the premises. This system begins at the main entrance and leads to key areas such as the Agora, the largest room in the visitor centre.

For those who are hard of hearing, the Parliament is equipped with inductive hearing systems at all information desks and in major meeting rooms, including the Nationalratssaal and Bundesratssaal. Additionally, mobile hearing devices can be requested for tours and events.

Visitors requiring assistance can contact the Parliament in advance to arrange for personal guides. Barrier-free restrooms are available on every floor, equipped with alarms and tactile signage. The Parliament also offers tours in sign language and easy language, ensuring inclusivity in its educational programmes. It incorporated feedback from disability advocacy groups in the whole planning and execution.

An inclusive space in the heart of a modern city-state

Enabling Village in Singapore is an inclusive community space that is not only barrier-free and accessible but also offers inclusive training; assistive technology; leisure opportunities; and employment, medical, dental, and rehabilitation services.

In the heart of a Singapore neighbourhood rich with history and diversity is home to Enabling Village, an integrated community space that was built on three core principles: serving as an inclusive first-stop to provide persons with disabilities and caregivers more opportunities for integration in learning, work, and play; offering inclusive infrastructure and initiatives that leverage Universal Design and assistive technologies; and fostering social innovation by creating a space for partners from the public, private, and non-profit sectors to collaborate.

A look at an inclusive Singapore

Immediately upon entering the site you notice that Enabling Village is different. Spacious pathways and high-contrast signage make it easy for visitors to get around. Braille signs and tactile paving provide additional information for those with visual impairments to navigate the space. A visit to Enabling Village is like a journey into the future of truly accessible and inclusive cities.

The site was originally a vocational institute built in the early 1970s before the introduction of building accessibility code in the 1980s. In 2013 the transformation and redevelopment of the 30,000-square metre property into Enabling Village began, which has been operational since 2015. The village was conceived as a ground-breaking initiative in adapative reuse of space, and in integrating persons with disabilities into society, explains Ms. Emily Ong, Senior Director for Employment and Lifelong Learning of SG Enable, which manages Enabling Village.

"Over the past nine years, Enabling Village has evolved into a tangible expression of what an inclusive Singapore can look like – a place where individuals with and without disabilities interact seamlessly, learn from one another, and create a more inclusive future together." Ong adds that one of the core aspects of Enabling Village's model is its role as an incubator and testbed for new inclusive business prototypes and accessibility features, having pioneered several first-of-its-kind initiatives in Singapore.

Focus on training and employment

One focus of Enabling Village is the training and employment for persons with disabilities. The Academy Block houses the Enabling Academy, SG Enable's disability learning hub, which provides accessible training for persons with disabilities and their network of support. Trainees can also access support from Tech Able, an assistive technology resource centre, managed by SG Enable and SPD, which offers assistive devices for loan to help them fully engage in the programmes.

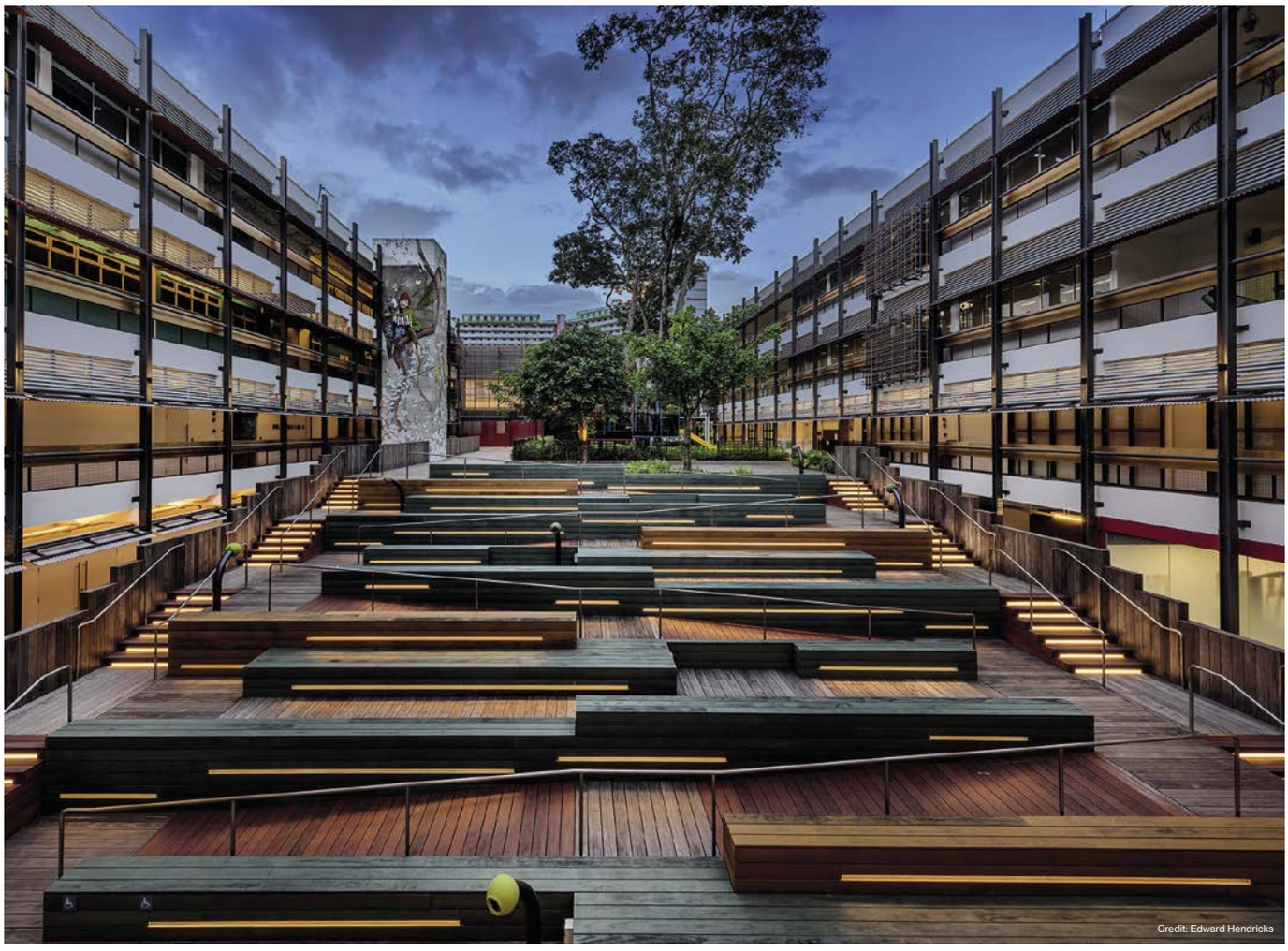
The village also hosts regular career fairs and training sessions for employers. By involving partners such as job placement and job support services, SG Enable has created a local 'disability employment ecosystem'. As Ong notes, "This has led to improved service delivery for both jobseekers with disabilities and inclusive employers, resulting in more than 2,400 placements between 2021 and 2023.

Some of these employees work within the village, including the social enterprises and businesses based in the village's 'Hive Block', home to private and public sector employers and offering tailored training and employment opportunities for persons with autism.

Assistive technology and networking

The use of assistive technology is another focus of Enabling Village. The Tech Able centre, recognized as an Innovative Practice by the Zero Project in 2019, showcases the latest assistive technologies for learning, working, and independent living. By 2024 the centre had welcomed more than 40,000 visitors and trained more than 3,000 persons with disabilities in the use of assistive technology. Public authorities, foundations, and private companies, including Singapore's Infocomm and Media Development Authority, ST Engineering, and Singtel, helped establish the centre.

In 2018 the Caregivers Pod opened in Enabling Village. This multi-functional space brings together caregivers and community partners for training and



The central element of the Enabling Village is a wide, gently sloping ramp that facilitates access to the site and is also used for events.



Previously, there was a sloping area and stairs in place of the ramp.

activities. By 2024, despite its closure during the COVID-19 pandemic, the Caregivers Pod had supported nearly 3,000 caregivers with over 7,000 users. In addition to caregivers organizing activities for their peers, the space is also used by the Coalition of Partners for Caregiver Support established by SG Enable in 2019, a network of 27 organizations dedicated to improving caregiving resources and supporting caregivers. The Caregivers Pod also houses the Virtual Reality Cave, a projection-based room with interactive walls designed to engage children with special needs in learning and play.

Enable Lives Festival and many visitors

Adjacent to the Caregivers Pod is the UOB Ability Hub, which is available for indoor and outdoor events. More than 130 inclusive events are held here each year, welcoming people with disabilities and the wider community. The highlight in recent years has been the Enabling Lives Festival, which celebrates inclusion and accessibility. In 2023 the festival, commemorating the 10th anniversary of SG Enable, featured more than 30 programmes and workshops on inclusion over four days and attracted nearly 3,000 visitors, with a dedicated day for open house at Enabling Village.

ACCESSIBILITY HIGHLIGHTS OF ENABLING VILLAGE

Here are some of the key accessibility features Singapore's Enabling Village offers:

- **Ramp access:** Throughout the Enabling Village there are wide, gently sloping ramps to help wheelchair users and people with reduced mobility access the space.
- **Automatic doors:** Many doors in public areas open automatically to facilitate access for people who have difficulty with manual doors.
- **Tactile button lifts:** Elevators are wheelchair accessible and have tactile, easy-to-access controls for people with visual impairments.
- **Tactile flooring:** Such flooring informs persons with visual impairments on gradient changes throughout the site.
- **Large, high-contrast colour signage:** Signage is large and in high-contrasting colours to help persons with visual or cognitive disabilities to navigate the village.
- **Braille signage:** Some of the signs and wayfinding in the Enabling Village are also in Braille so that persons with visual impairments can read important information.
- **Wheelchair-accessible toilets:** These toilets have wider doors, grab bars, and enough space for people who use a wheelchairs or walkers.
- **Low sinks and mirrors:** Sinks and mirrors are installed at a lower height to be accessible to all users.
- **Equipment provision:** Equipment such as wheelchairs can be provided on site to help people with reduced mobility use the facilities.
- **Accessible dining and retail:** The restaurants and shops are also designed to be accessible, with wide aisles, wheelchair-accessible seating, and easy-to-reach ordering counters.
- **Accessible parking spaces:** Designated accessible parking lots for wheelchair users are conveniently located within the village.
- **Fire safety:** Features such as visual alarms and an assembly point are incorporated to ensure the safety in the event of an emergency.



Kindle Garden by AWWA, supported by the Lien Foundation, is Singapore's first inclusive preschool.



Enabling Village also hosts learning tours, attracting some 400 local and international visitors each month.



The Tech Able centre showcases the latest assistive technologies for learning, working, and independent living.

Enabling Village also hosts learning tours led by facilitators with disabilities, attracting some 400 local and international visitors each month. “In partnership with Tribe Tours, Enabling Village has piloted a first-of-its-kind guided tour led by docents with disabilities,” says Ong proudly, “and there are plans to replicate this model across the tourism and hospitality sector.” For example, following the success and lessons learned from the Enabling Village tour, Tribe Tours launched wheelchair-accessible tours led by docents with disabilities in 2024 to Sentosa, a popular resort island off the southern coast of Singapore known for its wide range of leisure and entertainment options.



In 2025 a four-storey building will be added to the Enabling Village to provide additional space.

Inclusive preschool & gym

Opposite the UOB Ability Hub is the Playground Block, home to Kindle Garden by AWWA, supported by the Lien Foundation. Up to 30 per cent of the children attending Kindle Garden are children with special needs who learn alongside their peers.

The village also offers health and wellness services. The gym, managed by ActiveSG, houses equipment that is specially designed to be accessible for persons with disabilities and the elderly who have reduced mobility. Outdoor areas are also wheelchair accessible and have smooth, stable surfaces that allow for safe movement.

Nearby is the Stroke Support Station that focuses on the rehabilitation of stroke survivors, with a strong emphasis on technology and wellness programmes. Co-located within the same block is the Mount Alvernia Outreach Medical and Dental Clinic, which provides subsidized primary health-care services to persons with disabilities and other vulnerable groups. “All of these initiatives and prototypes have shown positive results,” notes Ong, “and some are being replicated beyond Enabling Village, while others have catalysed the adoption of best practices.”

The next phase of Enabling Village

SG Enable aims to expand the range of services offered to people with disabilities and their caregivers in the Enabling Village. To this end, and with the support of the government, corporates, and philanthropists, it is undertaking an expansion that is scheduled to open in 2025. The extension will be a four-storey building that will connect two neighbourhoods – the former industrial area of Jalan Bukit Merah and the residential area of Redhill – in a vertical extension that incorporates Enabling Village.

The extension will provide additional spaces for inclusive lifestyles and innovative concepts. A key focus will be on supporting familiies in their future care planning, and enabling independent living in the community. Hence, the expansion will feature a future care planning resource centre, and model apartments equipped with smart home and assitive technologies for training and bootcamps, together with community integration programmes.

As Ong explains, “The extension will build on the success of Enabling Village as the first inclusive community space anchored on the incubation of training and employment models and social innovations that enable people with disabilities to learn, work, and live independently in a more inclusive Singapore. The expansion is also timely as we celebrate Enabling Village’s 10th Anniversary next year. We look forward to Enabling Village’s next ten years of building dreams and enabling lives!”

FURTHER INFORMATION

For more information about Enabling Village, please visit:

enablingvillage.sg

Find out more about Enabling Village’s expansion plans at:

vimeo.com/769941953

Enjoy the best moments of the Enabling Lives Festival 2023 at:

vimeo.com/897067834

CASE STUDY: ILUNION HOTELS, SPAIN

An inclusive hotel chain serving people with and without disabilities

At ILUNION Hotels, individuals with disabilities who would otherwise face disadvantages in the labour market are not only given a chance to work, they are also offered a pleasant and trouble-free stay as guests, regardless of their mobility or sensory abilities.



ILUNION is one of the largest social business groups in Spain, comprising more than 50 companies across a wide range of sectors, including industrial laundries, facility management companies, IT service providers, call centres, and its own hotel company with 31 hotels in 2024.

Those familiar with the disability landscape are aware of Fundación ONCE in Spain. Founded in 1988, it emerged from the Organización Nacional de Ciegos Españoles (ONCE), which has existed since 1938. ONCE was one of the first organizations in Spain to systematically advocate for the inclusion of people with disabilities, and has thus gained prominence and recognition beyond the country's borders.

What does this have to do with accessible and inclusive hotels? ILUNION Hotels, part of the ILUNION Group, was founded in 2014 – the same year that the business activities of Fundación ONCE and ONCE itself were merged to create a strong platform for promoting the inclusion of people with disabilities.

42 per cent of workforce with disabilities

ILUNION is one of the largest social business groups in Spain, comprising more than 50 companies across a wide range of sectors, including industrial laundries, facility management companies, IT service providers, call centres, and its own hotel company.

In total, the ILUNION Group employs around 40,000 people, more than 40 per cent of whom are individuals with disabilities. This makes ILUNION one of the largest inclusive employers in Spain, and underscores the group's social commitment to creating jobs for people with disabilities and promoting their integration into the labour market. ILUNION Hotels is also dedicated to developing hotels and leisure facilities that are accessible.

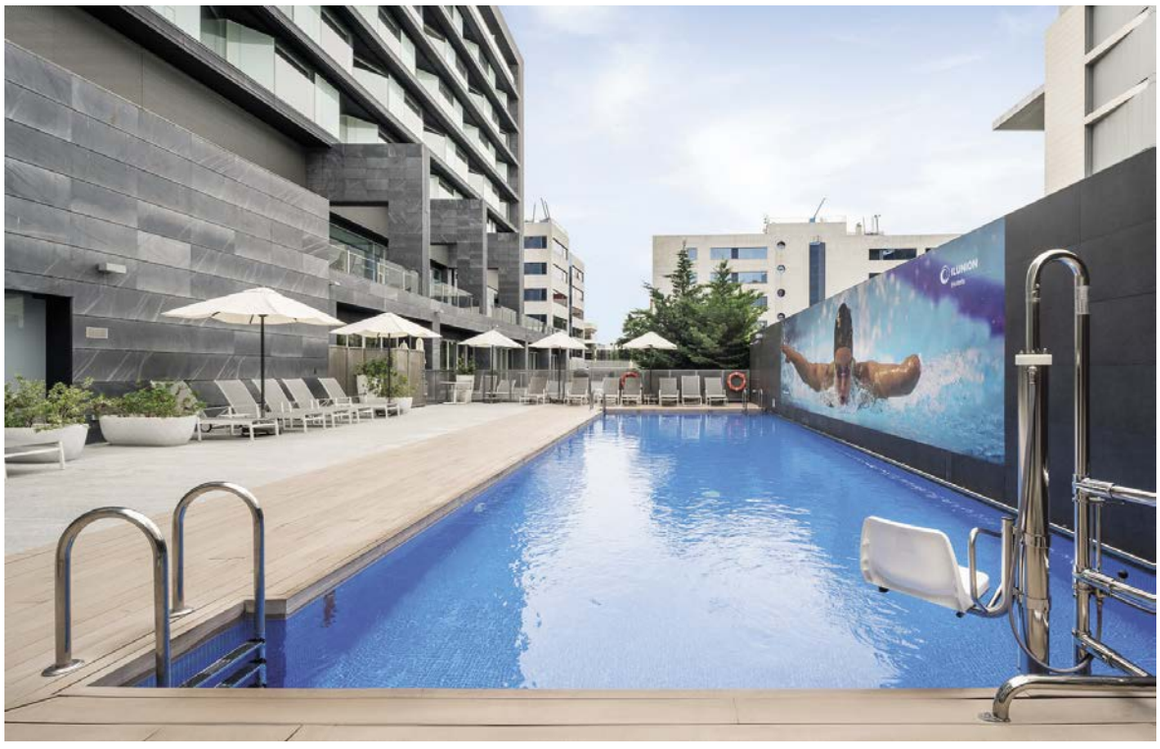
Universal Design floor plan

ILUNION hotels are located throughout Spain, particularly in popular cities and tourist destinations such as Madrid, Barcelona, Seville, Valencia, and along the coast. The first hotel was opened in 1988 under the Confortel Hoteles brand, which was renamed ILUNION Hotels in 2014. "We currently have 31 hotels, the last of which was inaugurated in June 2024," notes Ms. Elena Martín Cuesta, Director of Sustainability and Excellence. "All the hotels adhere to the UNE 170001-2 universal accessibility standard, except for

ACCESSIBILITY HIGHLIGHTS OF ILUNION HOTELS

The following features contribute to making ILUNION hotels accessible and inclusive:

- **UNE 170001-2:** All ILUNION hotels adhere to this universal accessibility standard.
- **Easy access:** All hotels feature level entrances, spacious corridors, wide doors, and lifts and ramps to ensure accessibility to all areas.
- **Tactile signage:** Elevators have buttons labelled in Braille, and corridors feature tactile signs for the visually impaired.
- **Mobile hearing loops:** Available at reception for guests with hearing disabilities.
- **Visual signals:** Rooms have visual signals for doorbells and alarms.
- **Spacious rooms:** Designed with wide corridors and adjustable furniture for guests with reduced mobility.
- **Low light switches and sockets:** Positioned for easy access.
- **Adjustable furniture:** Includes beds that accommodate the use of hoists.
- **Barrier-free bathrooms:** These include such features as dry showers and appropriate support bars.
- **Accessible common areas:** Swimming pools with special lifts, wheelchair access to fitness areas, and adapted tables in restaurants.
- **Regular staff training:** Ensures that staff are knowledgeable and sensitive in providing assistance.
- **No price difference:** Adapted rooms are priced the same as non-adapted rooms.



At ILUNION also the common areas are designed to be accessible to all, including wheelchair accessible gyms and swimming pools with special lifts.

the most recent acquisitions, which require renovations to obtain the certification."

UNE 170001-2 defines specific requirements and criteria to ensure that a space or service can be certified as 'universally accessible'. It encompasses a wide range of aspects, including physical accessibility, sensory accessibility, and comprehensible communication. Essentially, it ensures that all people, regardless of physical, sensory, or cognitive limitations, can use a place or service independently and safely. Businesses, public institutions, and service providers can be certified to this standard to demonstrate that their spaces or services meet the criteria for universal accessibility.

A visitor can feel the commitment to accessibility immediately upon arriving at an ILUNION hotel. Level entrances, spacious corridors, and wide doors allow easy access for wheelchair users. Even areas that are typically only accessible by stairs in many hotels, such as restaurants or meeting rooms, are easily accessible here thanks to elevators and ramps.

Check-in for accessibility

Elevator buttons are labelled in Braille, and tactile signs in the corridors assist visually impaired guests in finding their way. There are also solutions for guests with hearing disabilities: mobile hearing loops at reception and visual signals in the rooms alert them to doorbells or alarms.

A glance at one of the accessible rooms reveals just how far the idea of inclusion extends. The rooms are deliberately spacious, featuring wide corridors, low light switches and sockets, and adjustable furniture to facilitate movement for guests with reduced mobility. Even the height of the beds has been adjusted to accommodate the use of hoists.

The common areas of ILUNION hotels are also designed to be accessible to everyone. Swimming pools with special lifts, wheelchair access to fitness areas, and adapted tables in restaurants, along with barrier-free buffet or table service, ensure that every guest can enjoy the full range of services.

This commitment is further supported by the staff. Regular training ensures that employees not only know how to operate the equipment but also how to provide assistance in a sensitive and respectful manner.

Above-average occupancy

As Martín Cuesta explains, ILUNION hotels welcome not only people with disabilities. "We are a hotel chain open to the general public, both nationally and internationally. Last year, ILUNION hotels recorded more than 2.6 million guests and over 1.3



The hotels are located throughout Spain, particularly in popular cities but also in tourist destinations along the coast.



ILUNION hotels not only want to be technically accessible, they also want to reach the emotions of their guests.

million occupied rooms. An annual occupancy rate of 82 percent is above the industry average. For data protection reasons, the number of guests with disabilities is not recorded. However, in terms of our 2023 workforce, 636 employees out of an average of 1,679 are individuals with disabilities, and 66 belong to a 'vulnerable group' that, due to certain characteristics or circumstances, is at increased risk of social or economic disadvantage."

Accessibility is a strategic priority for ILUNION Hotels. Each year the company invests in improvements to make environments, processes, goods, and services understandable, usable, and practical for everyone. A particular concern is to create spaces that are accessible to all. "Although accessibility is often associated with purely technical criteria, we must not forget that we perceive the built environment through our senses," points out Martín Cuesta. "Both the characteristics of the space and the design of the surroundings have a direct impact on the emotions of our guests."

For all of this, however, accessibility does not have an impact on pricing. Says Martín Cuesta: "There is no difference between adapted and non-adapted rooms. The price is set by the market; there is no distinction."

FURTHER INFORMATION

Those interested can find out more about the ILUNION Hotels (available in different languages):

ilunionhotels.co.uk
dondedormiresdespertar.es

Here you can take a look at a barrier-free room in an Ilunion hotel:

youtube.com/shorts/0fVza9kvWRU

Here you can take a look at further assistive features in the room:

youtube.com/shorts/t1SZocMtgJU

And this is what a barrier-free bathroom looks like, including a dry shower!

youtube.com/shorts/P0Dqckuq-k4

Making space for everyone with accessibility certifications

Creating spaces that allow for meaningful participation is not just a necessity but a matter of equity. Improving accessibility where we live, work, learn, and play ensures that everyone can enjoy the same quality of life. Certifications such as the Rick Hansen Foundation Accessibility Certification (RHFAC) can play an important role in that.

The goal of meaningful accessibility is to create spaces where everyone, regardless of ability, can participate in everyday life. This means addressing barriers, whether they are a steep flight of stairs, a narrow doorway, or a lack of clear signage, just to name a few. One way to systematically address accessibility issues are certifications such as the Rick Hansen Foundation Accessibility Certification™ (RHFAC), that I am representing.

RHFAC is a rating and recognition system that evaluates how people access and use buildings. The programme goes beyond the basics of building codes and standards, measuring the accessibility of spaces based on the lived experiences of people with various disabilities. With over 1,900 sites across North America rated, each building seeking certification shares a unique story of access, reflecting its journey to exceed standards while demonstrating a commitment to the diverse needs of its community.

More than just structural changes, RHFAC sites open doors for people to feel like they belong. RHFAC is dedicated to transforming design culture by advocating for informed design practices that prioritize accessibility from the outset so as to ensure it is seamlessly integrated, and is not just an afterthought.

Two outstanding examples of accessibility come from vastly different settings: LaGuardia Airport's Terminal B in New York City and Peggy's Cove in Nova Scotia, Canada.

LaGuardia Terminal B

LaGuardia Airport's Terminal B was notorious for its cramped, dark spaces and leaking ceilings. In 2014 then-U.S. Vice President Joe Biden famously referred to it as the "Third World." The call for change was clear, and in 2015 construction began on a massive overhaul, part of an $8 billion renovation plan.

Completing the terminal in 2022 provided more than a world-class experience for travellers; it also was the first location in the United States to achieve RHFAC Gold – the highest level of certification in the programme.

At Terminal B accessibility is woven into the design. Hearing loops at every guest experience desk make communication more accessible for people with hearing loss. The departure boards, colour-coded and available in multiple formats, support those with intellectual disabilities or vision loss to navigate. For passengers with limited mobility there are intuitive wayfinding and curb-side assistance.

One of Terminal B's most innovative features is a serene, New York City-themed park seating area designed to provide sensory relief for travellers who may feel overwhelmed. The space offers a calm, green retreat from the bustling terminal, integrating plants and foliage to provide sensory stimulation.

ABOUT THE AUTHOR



Amanda Basi is a Senior Programme Director at the Rick Hansen Foundation, providing strategic and operational direction to launch and develop the RHFAC programme since 2017.



Since 2022, Peggy's Cove in Nova Scotia, Canada, is a fully accessible tourist destination.

Peggy's Cove

Across the continent, perched on the rocky shores of Nova Scotia, is Peggy's Cove, home to one of the most iconic lighthouses in the world. For decades, the stunning views of the Atlantic Ocean drew in hundreds of thousands of visitors annually. However, due to the rugged, uneven terrain, visiting this site was challenging for those with mobility limitations.

That changed in 2022, when Peggy's Cove achieved RHFAC Gold, making it one of the few fully accessible tourist destinations in Canada. Develop Nova Scotia, the organization responsible for the upgrades, was committed to making the experience equally enjoyable for all visitors.

The project's centrepiece is an accessible viewing platform that gives visitors with disabilities the same breathtaking views of the lighthouse and the ocean as those who can scramble across the rocks. The platform is built out over the waves and is designed to offer an immersive experience that allows visitors to feel the vastness of the sea.

Gerry Post, a former Executive Director of Nova Scotia's Accessibility Directorate and a project advocate, recalled how Peggy's Cove became off-limits to him after he started using a wheelchair. He said he could never leave the parking lot, but has now visited multiple times since the upgrades. "It is an excellent experience."

The improvements at Peggy's Cove extend beyond just the platform. Accessible parking, wayfinding throughout the village, and new accessible washrooms, complete with adult change tables, ensure that every aspect of the visit is as inclusive as possible.



At LaGuardia Airport in New York City, Terminal B's most innovative feature is a serene, New York City-themed park seating area designed to provide sensory relief for travellers who may feel overwhelmed.

Creating a future where everyone belongs

When places like LaGuardia and Peggy's Cove prioritize inclusive design, they are not just opening doors but expanding horizons for people who have long been sidelined by poor planning and outdated standards. For those with disabilities, these spaces offer more than convenience – they offer freedom, dignity, and the opportunity to participate fully in life's moments.

In a world where anyone can join the ranks of the community of persons with disabilities, accessibility is not just a nice-to-have, it is essential. When spaces are built with everyone in mind, they become accessible and genuinely welcoming. And that is the goal: to build a world where everyone belongs.

Innovative Solutions from Ghana, Latin America, and the United States







DEAFSPACE, GALLAUDET UNIVERSITY

Interior design for the hard of hearing

United States

DeafSpace is an approach to architecture and interior design that takes into account the needs and preferences of people who are deaf or hard of hearing.. The concept was developed at Gallaudet University in Washington, D.C. Gallaudet, founded in 1864, is the only university in the world where all programmes and services are designed with the deaf and hard of hearing in mind, and has approximately 22,000 alumni worldwide.

The DeafSpace Guidelines include over 150 distinct architectural design elements that address the five major touchpoints between the experience of people with hearing disabilities and the built environment: sensory reach, space and proximity, mobility and proximity, light and colour, and acoustics.

Examples of DeafSpace architecture can be found on the campus of Gallaudet University, which systematically implements these principles.

Watch this video to find out more:

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

A university committed to inclusive education

Ghana

Kwame Nkrumah University of Science and Technology (KNUST) in Ghana serves over 89,000 domestic and international students, making it one of the largest public universities in West Africa. Through its Directorate of Students Affairs and partnerships with the Students with Disabilities Association, KNUST is progressively working towards improving accessibility across campus.

The university launched a programme to provide students with disabilities with specialized support and mentorship, offers accessible accommodations, and has established a Disability Services Office. Additionally, KNUST has hosted workshops to promote disability awareness among faculty and students.

KNUST also conducts research on inclusion. Together with SPAYSIS Architecture, Planning, and Engineering, the Frankfurt University of Applied Sciences, and in cooperation with the German Gesellschaft für Internationale Zusammenarbeit, KNUST works on issues of inclusive architectural design concepts and strategies for accessible employment and training facilities in Ghana. The results of this research are summarized in the book *Inclusive Architectural Design Concepts and Strategies for Technical Vocational Education Training.*

Find out more here:

INGRID-H, PAN AMERICAN HEALTH ORGANIZATION

Preparing hospitals for emergencies and disasters

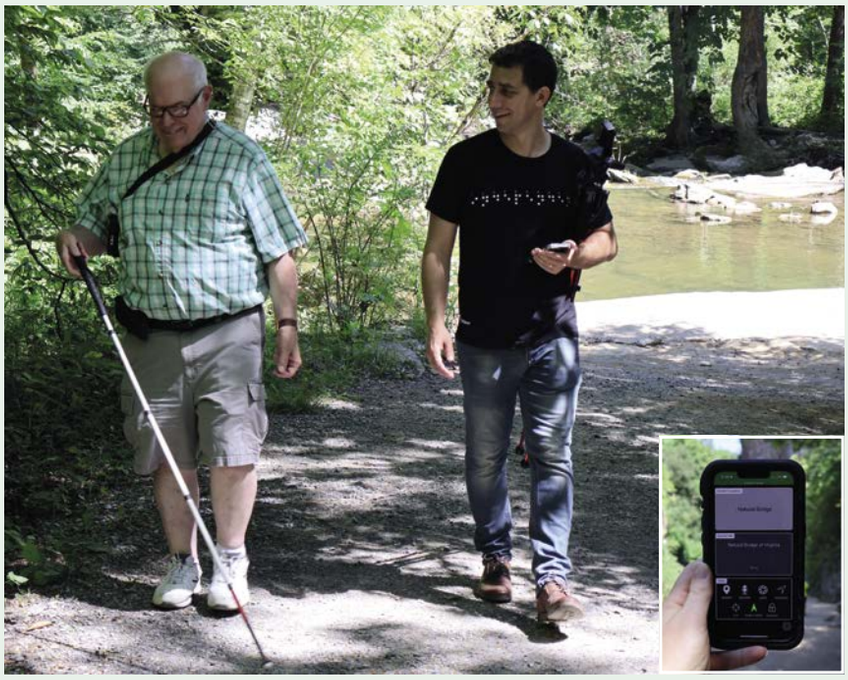
Latin America

Founded in 1902, the Pan American Health Organization (PAHO) is one of the oldest international health organizations in the world. Based in Washington, D.C., it has 35 member countries and territories in the Americas.

PAHO's Inclusion for Disaster Risk Management in Hospitals (INGRID-H) initiative is an 'assessment-action' methodology designed to improve the inclusion of persons with disabilities in disaster risk management within the health sector. Architectural adaptations influenced by INGRID-H include accessible entrances and exits with ramps and wide doors, tactile floor markings, and visual and audible alarm systems. Hospitals are designed with reinforced structures to withstand natural disasters, while flexible, multi-purpose spaces can adapt to emergency needs. Improved evacuation routes and secure power and water supplies also support functionality during crises.

INGRID-H can be adapted to different health-care settings – urban or rural, high-complexity hospitals or lower-complexity health-care facilities –and has been implemented in several countries in the Americas and the Caribbean.

Get the full publication on INGRID-H here (in English and Spanish):



NATURAL BRIDGE STATE PARK, RIGHTHEAR

A national park made 'audible'

United States

Natural Bridge State Park in the U.S. state of Virginia covers approximately 1,540 acres and is renowned for its stunning geological features, including the iconic Natural Bridge, one of the largest limestone arches in North America. It is also the first national park to install the RightHear Accessibility System, making it fully accessible to people who are blind or visually impaired.

RightHear uses a mobile app that provides real-time audio descriptions of the environment, allowing users to navigate more independently and confidently. The app works by communicating with strategically placed beacons that provide specific information about nearby facilities, such as "Admissions is 100 feet to the right" or "Restrooms are 50 feet to the left."

This project is one of many where the RightHear accessibility solution has been installed in locations across the United States over the past year, including libraries in Colorado and New Jersey; the University of Alaska; restaurants and bars in California, Idaho, New York, North Carolina, Seattle, Vermont, and Washington, D.C.; medical clinics in California and Texas; and corporate offices in Massachusetts and Minnesota.

RightHear's model is simple and easy to install, taking as little as an hour or two, with an annual subscription fee. The app is free for users.

Watch this video to learn more:

CASE STUDY: PUNGGOL REGIONAL LIBRARY, SINGAPORE

Opening a new chapter on accessibility in public libraries

The Punggol Regional Library, opened in 2023, is Singapore's largest public library and the first to provide comprehensive, disability-inclusive services, serving as a model for future accessible libraries.



The Accessible Collection at Punggol Regional Library offers a curated collection of 3,000 English-language books in Braille, books with text for people with visual impairments, books that read aloud, and books with touch and feel elements for tactile learning.

Punggol Regional Library (PRL) – part of the 28-library network of the National Library Board of Singapore (NLB) – is the first public library in Punggol, a rapidly developing residential area in the northeast of Singapore. Opened in January 2023, PRL became the country's most visited public library in its first year, attracting 1.3 million visitors and facilitating the borrowing of 2.15 million items. With over 12,000 square metres of floor space, PRL is also the largest public library in the country.

Its significance, however, extends well beyond its physical size. Importantly, PRL is distinguished as Singapore's first library to offer a full range of services specifically designed with and for people with disabilities. As its public statement notes, "With the Punggol Regional Library, we decided to take accessibility even further. As a new regional library, it offered us more space and facilities to pilot 'LAB25 initiatives' and new services."

A pilot for future libraries

PRL's new services and pilots are also designed to gather data and feedback to determine how these accessibility features can be extended to new, redesigned, and existing libraries in the future. As NLB explains, "Over the years, we have worked to improve the accessibility of all our libraries and programmes for people with disabilities. All our public libraries were designed to comply with the Building and Construction Authority's Code on Accessibility when they were built. We also regularly run special programmes for and about people with disabilities in our libraries."

While progress has been made, NLB is committed to continuing its work to better support the disability community. An important foundation for this is the Libraries & Archives Blueprint 2025 (LAB25) plan, which was unveiled by NLB in 2021 and serves as a roadmap for the development of libraries and archives services in Singapore up to 2025. A key objective of the plan is to act as a 'balancing factor' by addressing societal gaps and empowering people with disabilities in the digital age. PRL is at the forefront of this initiative. Notes NLB, "The lessons learned from PRL's innovations are helping to make Singapore an inclusive society and demonstrate the critical role of libraries in shaping an accessible and equitable environment."

An accessible book collection

The inclusive nature of PRL is evident from the moment you enter, where visitors are greeted by the Accessible Collection, a curated collection of books that meet the reading and learning needs of the community of persons with disabilities. The Accessible Collection contains 3,000 English-language books for children and adults with disabilities, their caregivers, and their communities. These include books in Braille, books with text for people who are visually impaired, books that read aloud to help people with speech difficulties, and books with touch and feel elements for tactile learning – all chosen in consultation with the disability community. For example, social stories help people with disabilities understand what to expect and how to react in certain situations or environments. There are also books for caregivers who want to learn about specific disabilities. This is complemented by NLB's digital collection of e-books, audiobooks, and databases, which are equipped with accessible reading technology.

A place for learning through play

PRL is also a library where you do not have to be quiet, which is not always easy for children with autism, for example. In the toy library on the first floor children can play freely with colourful educational toys designed to develop fine and gross motor skills. There is even a xylophone and a toy drum.

To encourage children aged 7–12 to play, the library has set up a Spark!Lab™ craft room in collaboration with the Smithsonian Institution in the United States, where hands-on activities are offered to solve various tasks. In addition, adults and seniors can learn

ACCESSIBILITY HIGHLIGHTS OF THE PUNGGOL REGIONAL LIBRARY

The Punggol Regional Library of Singapore offers many support systems for people with disabilities, including the following:

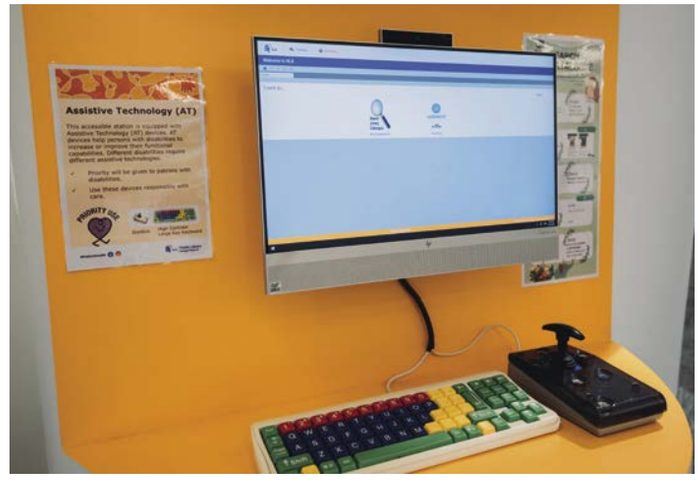
- **The Accessible Collection:** A curated collection of books that meets the reading and learning needs of persons with disabilities, conveniently located at the library entrance.
- **Digital accessibility:** E-books, audio-books, and databases equipped with accessible reading technology for people with disabilities.
- **Toy library:** A space with educational toys designed to develop fine and gross motor skills, allowing children to play freely.
- **Spark!Lab™ Craft Room:** Hands-on activities for children, developed in collaboration with the Smithsonian Institution.
- **MakeIT:** A wheelchair-accessible area for adults and seniors to learn about manufacturing technologies.
- **Calm Pods:** Quiet, sensory-friendly spaces designed to offer a calming experience for adults and children with disabilities.
- **Family Lounge:** A dedicated area for families with young children or people with disabilities to enjoy meals.
- **Multi-coloured keyboards:** Large, high-contrast keys to enhance visibility for people with visual impairments.
- **Alternative mice:** Trackballs and joysticks to assist people with physical disabilities in navigating digital screens effectively.
- **Magnifier:** Easy-to-use devices that enlarge text and convert it to speech for those with visual difficulties.
- **Borrow-n-Go system:** Radio frequency identification technology for easy book borrowing by wheelchair users.
- **Volunteer support:** A pool of about 350 volunteers committed to supporting people with disabilities.



Opened in January 2023, Punggol Regional Library became the country's most visited public library in its first year.



MakeIT is a wheelchair-accessible area for adults and seniors to learn about manufacturing technologies.



Selected catalogue stations are equipped with special tools such as multi-coloured keyboards and alternative mice.

about manufacturing technologies in a MakeIT area. The area is wheelchair accessible, with wider spaces and power cables hanging overhead rather than on the floor.

Calm Pods and family lounge

For those seeking a quieter environment PRL offers two Calm Pods, where adults and children with disabilities can go for a private and calming sensory experience. Each pod consists of two rooms: a waiting area equipped with sensory tools and an upholstered seat, and a more private room with upholstered walls and floor. The Calm Pods also feature an occupancy indicator that uses a heat sensor to detect whether someone is inside and transmits this information to screens located near entrances, escalators, and lifts.

Complementing the Calm Pods is the Family Lounge, a dedicated area for families with young children or people with disabilities to enjoy quick and easy meals or snacks. This area provides people with disabilities and their carers the flexibility and opportunity to feed their children without leaving the library area.

Assistive technologies in use

Selected catalogue stations at PRL are equipped with tools to assist people with disabilities to perform functions that might otherwise be difficult. Multi-coloured keyboards with large, high-contrast keys make typing easier for people with visual impairments. Alternative mice, such as trackballs and joysticks, can be used by people with physical disabilities to navigate digital screens more effectively. Trackballs make it easier to control the on-screen cursor, while joysticks allow precise selection of items on the screen.

Next to the multimedia stations on Level 4 is a magnifier with easy-to-use controls to enlarge text and convert it to speech for people with visual difficulties. Additionally, PRL uses radio frequency identification technology with its Borrow-n-Go system, allowing wheelchair users to easily borrow books by simply proceeding through a check-out aisle with them.

Community support and development

A crucial element of PRL's accessibility is the commitment and expertise of the people behind the scenes. Punggol Regional Library has a pool of about 350 volunteers who help out on different days and for various programmes, all committed to supporting people with disabilities. NLB proudly states that "Our volunteers are committed to making the library a welcoming place for everyone. Through volunteering, they feel a greater sense of community and derive great personal fulfilment from their contributions."

Additionally, PRL maintains regular contact with the disability community, allowing for an ongoing exchange of feedback and ideas. One such idea is the introduction of tactile markers, which PRL is currently working on, specifically designed to help visually impaired people navigate the library.

"As PRL continues to evolve, it remains a testament to what can be achieved when accessibility and inclusivity are prioritized," declares NLB. "The library not only serves as a model for creating inclusive spaces in Singapore but also provides valuable lessons that can inspire similar initiatives around the world."

FURTHER INFORMATION

For more information on the Punggol Regional Library, please visit:

The official website (in English):

nlb.gov.sg/main/visit-us/our-libraries-and-locations/libraries/punggol-regional-library

The National Library Board:

nlb.gov.sg/main/home

The Libraries & Archives Blueprint 2025:

nlb.gov.sg/main/about-us/About-NLB/lab25-libraries-and-archives-blueprint-2025

A presentation of the Punggol Regional Library and all its features is also available as a video (in English):

youtube.com/watch?v=5JY-k4qNY8Q

Bringing Rembrandt & Co to life for all your senses, including taste and smell

The Rijksmuseum in Amsterdam is considered a global model for museums in balancing historic architecture with modern, inclusive design. The museum also stands out for its holistic approach to accessibility and inclusion.

More than 2.5 million people visit the Rijksmuseum in Amsterdam annually, making it one of the most important art museums in the world. The imposing neo-Gothic building houses an unrivalled collection of over 8,000 objects from the Middle Ages to the present day. Highlights include masterpieces by Rembrandt, Vermeer, and Van Gogh, with Rembrandt's world-famous 'The Night Watch' among them. A visit to the Rijksmuseum is also worthwhile for those interested in seeing what a barrier-free museum and inclusive art offerings look like. Many of the standards to which modern museums worldwide aspire to in making art accessible to everyone have been implemented here.

In 2022 the museum published a book entitled "Accessibility without Limits," summarizing its journey to becoming a fully accessible museum, a process still in progress. As Taco Dibbits, the museum's Director General, explains in his foreword, "We share how we tackled the process, what we ran into, what went well and what didn't, and what we still need to do. Knowing that the process we began in 2017 is far from over." Since then, the Rijksmuseum has established the position of Accessibility and Inclusion Manager, held by Ms. Cathelijne Denekamp.

"When we reopened [after renovation in 2013], we were busy with receiving people and we thought we were welcoming everyone, that everyone could visit the Rijksmuseum," explains Denekamp. "But then we realized that this was not the truth. We had to work on accessibility on different levels." As a result, the decision was made to create a position dedicated to addressing all aspects of accessibility, including social, physical, digital, programming, and representation.

Transforming a historic building

Before that, the museum, originally completed in 1885, was extensively renovated and redesigned from 2003 to 2013. One of the main aims of the renovation was to improve access for all visitors. The main entrance was refigured to be easily accessible for wheelchair users, people with pushchairs, and other visitors with limited mobility. There are no stairs in the entrance area, and wide automatic doors make entry easy. Lifts provide access to all floors and exhibition levels. There is a special changing room with a mobile lift, a bed, and a sink, as well as accessible toilets on every floor of the museum.

Seating has been provided in the exhibition rooms for visitors who need a break, and wheelchairs can be hired free of charge from the museum. A quiet room has also been set up where visitors with sensory sensitivities can relax.

A map showing the location of lifts, seating throughout the museum, and accessible toilets is available at the Information Desk or can be downloaded online as a PDF. It also shows quiet areas.

Access for All

People with sensory disabilities can register in advance and use a fast lane to avoid queuing. The Rijksmuseum is part of the global Hidden Disabilities Sunflower Network, which gives people with an invisible disability the opportunity to make others aware that they may need a helping hand, understanding, or more time. The green and yellow lanyards, first introduced at Gatwick Airport in 2016, are available free of charge to visitors at the Information Desk.

Guide dogs on a lead are allowed in the museum, and there are several audio tours that can be downloaded to a smartphone free of charge. The audio guides available through the museum's app are also suitable for people with hearing aids, as are multimedia tours with sign language or subtitles. During guided tours, visitors with a hearing impairment can use a whisper set to hear the guide louder.



The Rijksmuseum in Amsterdam houses an unrivalled collection of over 8,000 objects, including masterpieces by Rembrandt, Vermeer, and Van Gogh, with Rembrandt's world-famous 'The Night Watch' among them.





The Rijksmuseum offers a wide range of options and opportunities to visit the museum, including guided tours in Dutch Sign Language.

A Wide Range of Options

The Rijksmuseum offers a wide range of options and opportunities for people with various disabilities to visit the museum outside regular opening hours or as part of special guided tours.

For example, there are tours for people with visual impairments, led by guides specially trained in the selection and effective use of tools to help visitors visualize objects by activating their non-visual senses. Tactile paintings, in which a painting is recreated using raised lines, are one option, but guides also bring baskets of objects depicted in the paintings for visitors to touch, smell, or, in the case of food, taste. A special form of art experience is the 'embodiment', in which a blind person adopts the same pose as the figure in the painting. Special workshops allow visitors to touch selected real objects with gloves.

In terms of temporary exhibitions, guided tours in Dutch Sign Language (NGT) are available for adults with a hearing disability at fixed times; and NGT tours of the permanent collection and for families are available on request. Tours in International Sign Language can also be arranged for visitors from abroad.

Particularly popular are the special sensory-friendly evening openings, which are offered six times a year. According to Denekamp, the sensory evenings attract about 200 people per evening; about 150 people a year take the tours for the blind and visually impaired; 40 people use sign language; and another 80 take advantage of the tours for people with dementia.

Initial Tour for Accessibility

All these options have been developed step by step, initially focusing on one target group to gain experience that can then be transferred to other groups. For the Rijksmuseum, they started with a tour for the blind and partially sighted. Denekamp explains: "Why? The Rijksmuseum is all about looking. The objects are there to be seen. This means that the collection is not readily accessible to blind and visually impaired people."

As a first step, the museum contacted representatives of this target group and found that "there is no typical blind or visually impaired visitor, as their needs vary just as much as those of sighted visitors," says Denekamp. Nevertheless, the museum decided to start with a single programme, a guided tour, as a pilot project. This approach allowed the programme to be adapted quickly based on the experience gained and made it easier to advertise to the target group, raising awareness that something was being done for them. Says Denekamp, "When we decided to take the next



Disability simulation training for staff was discontinued in 2023, as such simulations often emphasize limitations.

step and start focusing on other target groups, we discovered that we could repurpose many aspects of the tour for blind and visually impaired people. This made it far easier to develop programmes for new target groups."

Meanwhile, tactile paintings are utilized during tours for individuals with dementia, and embodiment assignments help sighted children engage more deeply with art. Additionally, scents can be effectively used for various target groups.

How to achieve accessibility

For Denekamp, three things are essential to the mission of becoming an accessible museum: collaboration with the target audience, staff awareness, and the availability of financial resources.

The Rijksmuseum maintains regular contact with various target groups and involves them in adapting existing programmes or creating new ones. Building and maintaining this network takes time. "Another tip: don't think of people as free consultants; always try to pay them for their services," advises Denekamp." If you work for a small organization with a limited budget, see what you can offer. Invite people to exhibition openings, for example, and be honest about what you can offer in return."

ACCESSIBILITY HIGHLIGHTS OF THE RIJKSMUSEUM

This is a selection of features that make the Rijksmuseum accessible and inclusive:

- **Accessible design:** The entire building is designed to be easily accessible for wheelchair users, people with pushchairs, and other visitors with limited mobility.
- **Seating availability:** Seating is provided throughout the exhibition rooms for visitors who need to rest.
- **Courtesy wheelchairs:** Wheelchairs can be borrowed free of charge from the museum.
- **Quiet room:** A dedicated quiet room is available for visitors with sensory sensitivities to allow them to relax.
- **Accessibility map:** A detailed map showing the locations of lifts, seating, accessible toilets, and quiet areas is available at the Information Desk and online.
- **Priority access:** Visitors with sensory disabilities can pre-register to use a fast lane, avoiding queues.
- **Hidden Disabilities Sunflower:** The museum participates in this unique network, offering green and yellow lanyards to discreetly signal that a visitor may need extra assistance.
- **Accessible multimedia guides:** Free downloadable audio tours are available, along with multimedia tours featuring sign language or subtitles.
- **Whisper sets:** During guided tours, visitors with hearing impairments can use whisper sets to enhance their experience.
- **Special tours:** The museum offers tours for people with various disabilities outside regular opening hours, ensuring a more personalized experience.
- **Internal ambassadors:** Designated staff members across departments promote accessibility, supported by ongoing communication and positive internal reporting.
- **Accessibility Manager:** This cross-departmental position has been established to ensure organization-wide progress on accessibility.



Credit: Annejet Brandsma voor Studio Polat

The Rijksmuseum allows service animals for visitors with disabilities if they are clearly identifiable or have proper documentation.

For people with visual impairments, the museum offers alternative ways to experience art, such as tactile reliefs.



Credit: Annejet Brandsma voor Studio Polat



Credit: Cathelijne Denekamp

During special tactile workshops, visitors can also touch selected originals from the museum's collection.

It is equally important that all staff are aware of their role in making a museum accessible or inaccessible. This includes curators, educators, those who write the accompanying texts, and security staff. The Rijksmuseum purchased disability simulation suits to train staff, but discontinued the programme in 2023 because such simulations tend to emphasize what people cannot do. According to Denekamp, it is much more important to employ people with disabilities to ensure that the institution is more inclusive.

To maintain sensitivity and awareness, the Rijksmuseum also relies on ambassadors in various departments, ongoing communication, and positive reporting about the museum. “This is something that the museum management is proud of, and this in turn helps me to do new things.”

Finally, a budget is needed for physical changes and programme development. The Rijksmuseum secured the necessary funding for these accessibility features from external sources, including sponsors, donors, and institutional funds.

The role of the Accessibility Manager

The Accessibility Manager was also funded externally for the first four years. After that, the position became permanent. This was also a first, and has contributed greatly to making the Rijksmuseum one of the leading museums in terms of accessibility and inclusion. As Denekamp notes, “Having someone who can focus entirely on this topic creates continuity, which leads to a greater number of goals being achieved and processes being accelerated.”

Having a disability is not a prerequisite for the role, according to Denekamp. “The accessibility manager has to deal with disabilities of all kinds and will never have all of them at the same time. It’s important that the person in this role is open and receptive and reaches out to different audiences and stakeholders for feedback and ideas. Or to put it another way: The accessibility manager needs to be a spider in a web.”

FURTHER INFORMATION

The Rijksmuseum’s accessibility and inclusion programme can be found online:

The Rijksmuseum’s accessibility and inclusion programme

rijksmuseum.nl/en/visit/accessibility

‘ACCESSIBILITY WITHOUT LIMITS’

The book documents the Rijksmuseum’s journey towards becoming an accessible museum. It can be ordered online for €15, but is also available as a free download.

The book on the Rijksmuseum’s journey towards becoming an accessible museum:

rijksmuseumshop.nl/en/rijksmuseum-accessibility-without-limits

Accessibility in the Rijksmuseum for museum professionals:

rijksmuseum.nl/en/about-us/what-we-do/inclusivity/accessibility-without-limits

USEFUL PUBLICATIONS

The museum has also produced two very useful publications that can be downloaded free of charge from its website:

- **Accessibility Guidelines for Exhibitions:** This publication provides guidelines to help exhibition designers create accessible spaces and ensures that designers have a basic understanding of optimal accessibility requirements.
- **Tips for Welcoming Visitors with a Disability:** This document provides useful tips and ideas on welcoming visitors with disabilities for staff who deal with the public on a daily basis, such as reception and security staff.

EXPERT COMMENT: CHRISTOPHER M. LEE ON CERTIFICATION OF ACCESSIBILITY AND UNIVERSAL DESIGN PROFESSIONALS

Building inclusive spaces through education and certification of professionals

Building inclusive spaces requires professionals who have acquired the knowledge and skills to implement built environment accessibility standards, codes, and legislation and who can apply Universal Design principles to public and private spaces.

While many countries have strict building codes and standards, which is commendable, it is important to note that ISO standards, developed by representatives from various countries, including those leading the way in the standardization and accessibility of the built environment, hold significant influence in this field. Built environment professionals from all job roles must apply Universal Design (UD) principles when designing spaces.

Professionals working in the built environment space should comprehensively understand the theory behind accessibility best practices. This knowledge is crucial for implementing effective and inclusive design solutions.

UD is a primary skill set required to create inclusive built environments. It must be incorporated at all stages of building and construction projects to deliver fully inclusive, accessible environments. The role of the accessible built environment professional is to ensure that UD is addressed at all stages of a project.

Universal Design includes a broad range of elements, including but not limited to:

- The building brief needs to determine how the project will address UD.
- The design team's procurement process needs to consider UD.
- Access appraisals must be carried out at all design and detail stages.
- Inspections must occur throughout construction to ensure UD specifications are met.
- Project sign-off will need to assess whether UD has been achieved.

In addition to the importance of Universal Design in inclusive built environments, professionals working in the field should have a firm grasp on the following domains:

- Auditing in the built environment
- Accessibility standards, codes, and international legislation
- Reporting and recommendations

Education and professional certificates

Pursuing educational and professional certifications or certificates offers numerous benefits for both individuals and organizations, including:

- Enhanced professional credibility
- Career advancement
- Organizational impact

In 2024 the International Association of Accessibility Professionals (IAAP) launched the Accessible Built Environments (ABE) Professional Certificate. Based on completing an educational course hosted on the IAAP learning management platform, the certificate is designed for professionals and students interested in obtaining the knowledge and skills necessary to implement accessibility standards, codes, and legislation in the built environment, applying UD principles to various spaces.

ABE builds on IAAP's foundational certification – Certified Professional in Accessibility Core Competencies (CPACC) – and identifies successful applicants as associate, advanced, or expert-level accessibility professionals. The CPACC demonstrates a broad, cross-disciplinary understanding of accessibility, disabilities, Universal Design, and related standards and laws.

ABOUT THE AUTHOR



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One key challenge to making more significant progress in creating and maintaining inclusive spaces is the absence of the UD approach and its applications in university curricula. Students need to understand accessibility and UD not only to shape the design and development of their projects but also to impact the world around them.

Inclusive workplaces case study

Inclusion is built on a complex set of variables, and inclusive spaces are defined, created, and supported by various roles. This led G3ict to partner with a leading furniture manufacturer for offices, hospitals, and classrooms to research and develop a blueprint for inclusive workplaces of the future, exploring how global workplaces can evolve to be inclusive, safe, and compelling for all stakeholders.

The study provided vital principles and practices for designing inclusive environments based on accessible procurement. Accessible procurement ensures that everyone, including people with disabilities, can use the products and services an organization purchases. Study findings included critical steps to integrate accessibility into the procurement process:

1. Set clear accessibility requirements: Define and communicate your accessibility needs in all procurement documents. This includes specifying compliance with standards like the Web Content Accessibility Guidelines.
2. Conduct thorough market research: Investigate vendors' accessibility capabilities. Request Voluntary Product Accessibility Templates to understand how their products meet accessibility standards.
3. Engage with vendors early: Discuss your accessibility requirements with vendors at the beginning of the procurement process. This helps ensure they understand and can meet your needs.
4. Include accessibility in evaluation criteria: Make accessibility a critical factor in evaluating proposals. This ensures that products and services are not only cost-effective but also accessible.
5. Test for accessibility: Before finalizing any purchase, test the products for accessibility. This can involve user testing with people with disabilities to ensure the products meet your requirements.
6. Provide training and resources: Ensure your procurement team is trained in accessibility standards and best practices.
7. Monitor and enforce compliance: After procurement, continuously monitor the accessibility of the products and services. Ensure that vendors adhere to the agreed-upon accessibility standards.

ZERO PROJECT AWARD-WINNING SOLUTIONS TO EXPLORE

- **Accessible Canada Act:** This legislation aims to make Canada barrier-free by 2040, focusing on built environments, among other areas.
- **Beit Issie Shapiro, Israel:** Rolling out inclusive playgrounds, ensuring play areas are accessible to all children.
- **CDD, Bangladesh:** A comprehensive accessibility programme for large refugee camps, especially inclusive support for displaced Rohingya people.
- **Corporation Ciudad Accesible, Chile:** Provided accessibility guides and manuals for home renovations, supporting individuals to live independently.
- **Dubai Universal Accessibility Strategy, United Emirates:** Implemented a strategic plan to ensure full accessibility to the built environment and public transportation.
- **Lazarillo App, Chile:** Audible messages to guide users with visual impairments, enhancing their ability to navigate urban environments independently.
- **MagikMe, Hungary:** Tools for inclusive playgrounds, enabling children with disabilities to play alongside their peers.
- **PoiLabs, Turkey:** An indoor navigation system using beacon devices and real-time voice-guided navigation to make complex spaces such as shopping malls and airports accessible.
- **Smart Cities for All:** An initiative by World Enabled (United States) to transform cities into more accessible and inclusive environments through partnerships and advocacy.
- **Telemark County, Norway:** The local government upgraded walking trails to improve accessibility from urban areas to surrounding regions, enhancing outdoor accessibility for all.
- **Wayfindr, United Kingdom:** Established an Open Standard for indoor audio navigation, facilitating the creation of consistent wayfinding products for public transportation infrastructures.

Source: www.zeroproject.org

Innovative Solutions from North Macedonia, Romania, and the United Kingdom



WELLCOME COLLECTION

A focus on visitor-centred accessibility strategies

United Kingdom

The Wellcome Collection in London – a museum and library that explores the intersection of science, medicine, life, and the arts – is renowned for its innovative and thought-provoking exhibitions. Designed to be accessible and inclusive for a wide range of visitors, the facility has gone beyond traditional accessibility measures by incorporating various features to meet different needs.

The Wellcome Collection actively collaborates with a range of disability organizations, ensuring that its programmes and exhibitions are not only accessible but also meaningful and engaging for people with disabilities. For example, the museum strives to incorporate a variety of accessibility features into its exhibitions, such as tactile exhibits, audio descriptions, Braille guides, and wheelchair-friendly layouts. Exhibits prioritize design elements shaped by disability advocates to ensure the visiting experience is inclusive at multiple levels.

Find out more about accessibility at the Wellcome Collection:

MUZEUL APEI, ASSOCIATION CED

Industrial heritage turned into an inclusive museum

Romania



Muzeul Apei, also known as the Water Museum, located in the major Romanian city of Timișoara, is a unique industrial heritage site dedicated to the history and development of Timișoara's water supply system.

Located in the historic Urseni Waterworks, built between 1911 and 1912, the museum was inaugurated as part of Timișoara's 2023 European Capital of Culture initiatives, and includes a new pavilion for cultural events, exhibitions, and workshops. Architecturally significant, the site is designed in the Secessionist style and has become an educational attraction that combines historical preservation with interactive elements.

The museum has adapted key areas such as the visitor pavilion and the pump house for people with reduced mobility. In addition, its outdoor spaces include rest areas and accessible paths, although visitors are advised to wear appropriate footwear due to the historic nature of the site. Visitors with special needs can also contact the museum to arrange personalized assistance.

Learn more about the Muzeul Apei:



MAHMUDIA, WOLFHOUSE PRODUCTIONS

An inclusive waterfront on the Danube

Romania

Mahmudia, a small community of 2,000+ people located in the Danube Delta, is currently experiencing growth in tourism. To make the town more attractive, the town council launched a project to transform the banks of the Danube into a welcoming public space for locals and visitors alike. The work process included consultations with relevant stakeholders (citizens, fishers, and business people), questionnaires, focus groups, and post-implementation visits to gather feedback from people of different ages, genders, abilities, and disabilities.

The project also involved a Romanian NGO, AMAIS, which connected the team to a diverse community and offered its expertise in inclusive design. This ensured accessibility for wheelchair users and people with mobility, visual or other sensory impairments. The results include accessible ramps and paths, an inclusive wayfinding system, and nature-based recreational spaces designed to be open and inviting to all.

In addition, the project emphasizes environmental sustainability by constructing paths and facilities using environmentally friendly materials that align with the nature conservation objectives for the Danube Delta.

Find out more about the project:

PROCREDIT BANK MK

Accessible bank branches open 24 hours a day

North Macedonia

ProCredit Bank MK, the North Macedonian branch of ProCredit Bank, part of the international ProCredit Group, is the first bank in North Macedonia to be accessible to people with disabilities, including its facilities and services.

The fully accessible branches feature automatic doors, tactile markings at the entrance, a dedicated welcome officer, wide doorways, low desks for easy access, personalized banking services, emergency exits designed for all users, and accessible entrances from all sides of the building. Its 24/7 Zones are also fully accessible and offer a telephone with free access to a contact centre where customers can receive 24/7 technical support for using any of the automated services in the 24/7 Zones.

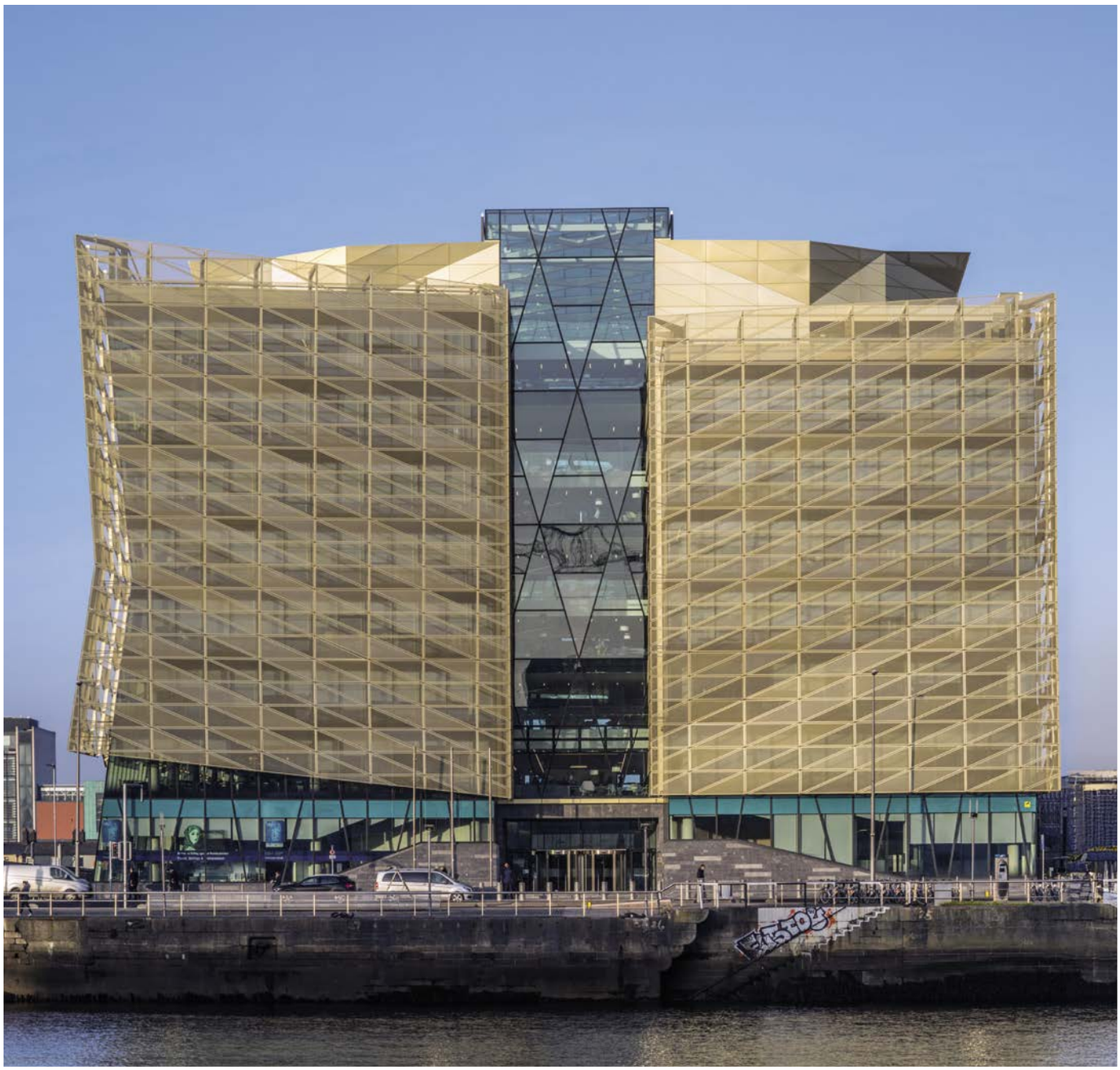
To further develop and fully adapt its services for people with all types of disabilities, ProCredit Bank MK collaborates with Brand Solution & Abilities Net, a provider of consultancy services, assistive technology, and training for organizations to help them create accessible environments.

Find out more about ProCredit Bank MK at: pcb.mk

CASE STUDY: CENTRAL BANK OF IRELAND, DUBLIN

Using Universal Design principles to redesign a national bank

The Central Bank of Ireland headquarters, which won a Zero Project Award in 2018, is a perfect showcase for consistent Universal Design implementation. The principle was applied not only to the building but also to the bank and its services.



The Central Bank of Ireland's 28,000 square metre headquarters is located on North Wall Quay in Dublin's Dockland district. Opened in 2017, the building is a landmark not only for its architecture but also for its energy efficiency and inclusivity.

The Central Bank of Ireland (CBI), founded in 1943, is the national bank of Ireland and has been a member of the Eurosystem since the introduction of the euro in 1999. Since 2017 the CBI has been headquartered in a striking office building on the banks of the River Liffey in Dublin.

Previously, the CBI was spread across five locations in the city, which made collaboration difficult and led to inefficiencies. To strategically reposition itself following the 2008 financial crisis, which hit Ireland particularly hard, it was decided to build a new central building. Planning began in 2012 and, after considering several sites, in 2014 the choice fell on an office building originally intended for the Anglo Irish Bank, which had to be bailed out in the wake of the financial crisis and subsequently merged with the Irish Nationwide Building Society.

The CBI acquired the building and had it extensively refurbished to meet its specific needs. In addition to a clear focus on sustainability and energy efficiency, the aim was to create an inclusive, accessible, and user-friendly working environment for all employees and visitors. It was therefore decided to plan the new headquarters according to the principles of Universal Design.

A landmark visible from afar

CBI's 28,000 square metre headquarters is located on North Wall Quay in the city's Dockland District, an area that has been transformed from an old dockyard into a bustling centre for international companies and financial services providers. The building is a landmark, visible from afar, with a striking glass facade and clean, geometric lines. The exterior design combines transparent glass surfaces with bronze metal accents, giving the building an elegant and powerful presence.

The net-like structure that spans the façade is not only aesthetic but also acts as a sunscreen, improving energy efficiency. Nevertheless, the glass façade allows plenty of daylight into the interior, creating a transparent and light-flooded atmosphere that can be felt as soon as you enter the building.

The entrance is, of course, wide and without steps, with automatic doors. The reception area is uncluttered and welcoming, and the use of light materials enhances the pleasant and professional atmosphere, showing that inclusive architecture can also be beautiful. Particularly impressive are the internal staircases, which have been designed in accordance with international Building for Everyone standards. The reception area is equipped with height-adjustable desks and hearing aids, and the waiting areas offer ergonomic seating to suit the needs of various visitors.

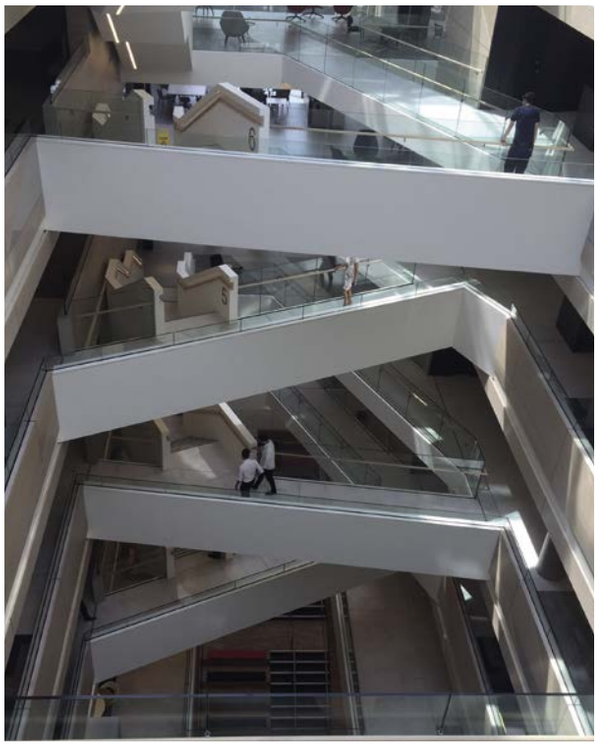
Comprehensive orientation guides

One of the challenges associated with large buildings is orientation, and the CBI has addressed this problem by providing clear, visible, and easily understood signage. This includes signs that utilize large, high-contrast fonts as well as tactile and Braille signs to assist people with visual impairments. Further, interactive information screens and digital signs facilitate wayfinding and are designed to be accessible to individuals with diverse abilities.

Inside the building, all corridors, doors, and hallways are designed to facilitate movement and orientation, such as through the use of different floor coverings. Corridors are wide enough for wheelchair users to turn and manoeuvre, and there are no thresholds or stairs to restrict access. The building also has several wheelchair lifts, which are equipped with easy-to-understand controls and audible and visual indicators.

Customizable workspaces

The workspaces are designed to meet the individual needs of employees, including height-adjustable desks and flexible seating options to create a comfortable and ergonomic environment. Induction loops have been installed in meeting rooms to improve acoustics for those with hearing impairments, and visual communication is supported by digital screens



The internal staircases have been designed in accordance with international Building for Everyone standards.



The accessible toilets have wide doors, grab bars, and enough space for wheelchair users, and are conveniently located throughout the building.

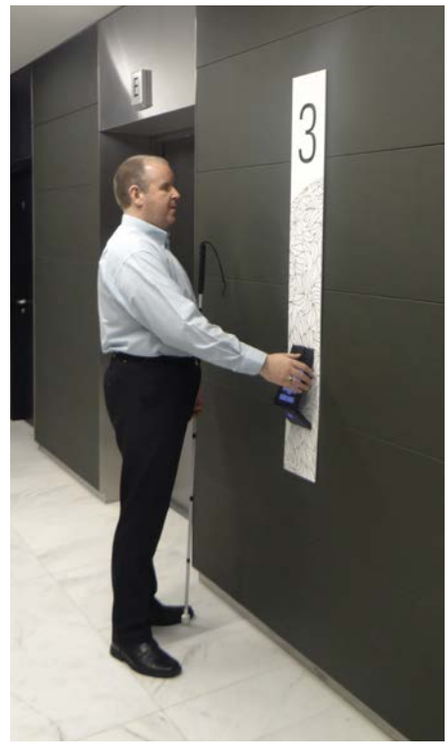
ACCESSIBILITY HIGHLIGHTS OF THE CENTRAL BANK OF IRELAND

The Central Bank of Ireland is designed with numerous accessibility features to ensure inclusivity for all individuals. Key features include:

- **Barrier-free access:** Accessible parking and set-down areas are strategically located to provide easy access to the building.
- **Reception desks:** Equipped with split-level counters for people in wheelchairs and hearing enhancement systems to assist individuals who are deaf or hard of hearing.
- **Waiting areas:** Designed to accommodate diverse needs, ensuring comfort and accessibility for all visitors.
- **Door design:** Doors feature visual contrast, vision panels, easy operation, and generous width to aid navigation and accessibility.
- **Large lifts:** These include clear signage, intuitive controls, light floor finishes, contrasting handrails, and half-height mirrors to enhance usability for everyone.
- **Disability-friendly toilets:** There are well-placed and well-equipped, accessible toilets for people with reduced mobility.
- **Colour design:** The building uses clear, high-contrast colours to make it easier for people with different visual impairments to navigate.
- **Wayfinding signage:** Clear, easy-to-read signage is provided throughout the building.
- **Hearing aids:** Induction loops are installed in meeting rooms.
- **Non-slip floors:** This reduces the risk of falls and increases safety for all users.
- **Tactile guidance:** Tactile floor guidance systems help people with visual impairments to find their way around safely.
- **Assistive technologies:** Screen readers and information systems are available in public areas to improve accessibility.



The workspaces are tailored to meet diverse employee needs, providing a comfortable, ergonomic, and accessible environment for all.



The large lifts are clearly signposted and equipped with intuitive controls.

and signalling devices that provide clear information and instructions.

The accessible toilets are designed to meet the needs of people with physical disabilities, providing wide doors, grab bars, and sufficient space for wheelchair users to use them comfortably. They are also strategically located throughout the building to ensure easy access for everyone.

Universal Design as an overall strategy

It was determined at the outset that the application of Universal Design should not be limited to the design of the new headquarters, but should transform the CBI itself. For this reason, strategic guidelines have been adopted that aim to integrate accessibility into all aspects of the bank's operations. In addition, CBI established an access network called BankAbility – sponsored by senior management and involving staff directly or indirectly affected by disability – that assists in formulating accessibility policies and a three-year action plan.

The position of Access Officer has also been created with the objective of ensuring that individuals with disabilities and diverse visitor groups are able to access the bank's services and premises without encountering any obstacles. This includes training staff to raise their awareness of the needs of people with disabilities and promoting an inclusive corporate culture. The Access Officer also advises the bank's various departments on workplace design, event organization, and the accessibility of all CIB services.

FURTHER INFORMATION

This is the official website of the Central Bank of Ireland:

centralbank.ie

See how accessibility was integrated into the design of the new CIB building:

youtube.com/watch?v=KlokQe_NG2E

Have a look at how accessibility is part of CIB's way of working:

doga.no/en/tools/inclusive-design/cases/central-bank-of-ireland

The Centre for Excellence in Universal Design has published the 'Building for Everyone: A Universal Design Approach' series, which is available for free download

universaldesign.ie/built-environment/building-for-everyone

A home for disability organizations as a model for accessible office buildings

The Handicaporganisationernes Hus in Copenhagen, Denmark, was established in 2012 to create a collaborative space for various disability organizations. In an extraordinary process, a barrier-free environment was designed that remains an international beacon today.

In 2012 most member organizations of Disabled People's Organizations Denmark (DPOD) moved into a new office building in Høje Taastrup, a suburb west of Copenhagen, with the aim of facilitating greater cooperation, communication, and exchange. At the same time, it was clear that the newly built Handicaporganisationernes Hus (House of Disability Organizations) should also demonstrate how public buildings can be designed to meet the needs of people with various disabilities. As Katrine Mandrup Tang, CEO of DPOD for the past five years, notes, "The mantra throughout has been that accessibility is necessary for some, but good for all." To this day, the House of Disability Organizations is an international model of an office building with integrated accessibility – from the building itself to the interior design, furniture, and communication system.

Quality more important than price

To achieve this goal, the tendering process for the new building broke with established practice and launched a competition for a turnkey contract in which price accounted for only 25 per cent of the evaluation, while qualitative criteria accounted for 75 per cent. "The bidders had to submit their price quotations in sealed envelopes, which were only opened after the qualitative aspects of the bids had been assessed," explains Mandrup Tang. "In this way, the DPOD wanted to show that Universal Design, if taken into account from the outset, need not result in additional costs."

Another innovation was the collaborative model. Instead of the usual approach whereby the client selects its own team of consultants, the DPOD pre-qualified architects, engineers, and contractors separately and then formed interdisciplinary teams from them. The idea was that the new collaborations would produce fresh, creative ideas. Participants were also given a crash course to make them aware of the challenges faced by people with disabilities in their daily lives. They had to explore the physical environment of a building in wheelchairs, with hearing protection, canes, and blindfolds. "This was an eye-opener in terms of understanding the unique importance of accessibility as an architectural premise," recalls Mandrup Tang. At the same time, the course also ensured that everyone was on the same page, so that the various options could be discussed from a common perspective.

A starfish with four arms

The result is a building in the shape of a starfish with four arms, based on both aesthetic and functional considerations. The architects originally designed a round structure, but a round floor plan makes orientation difficult. So the circle was compressed in four places to create the characteristic arms, which lead out from a central atrium.

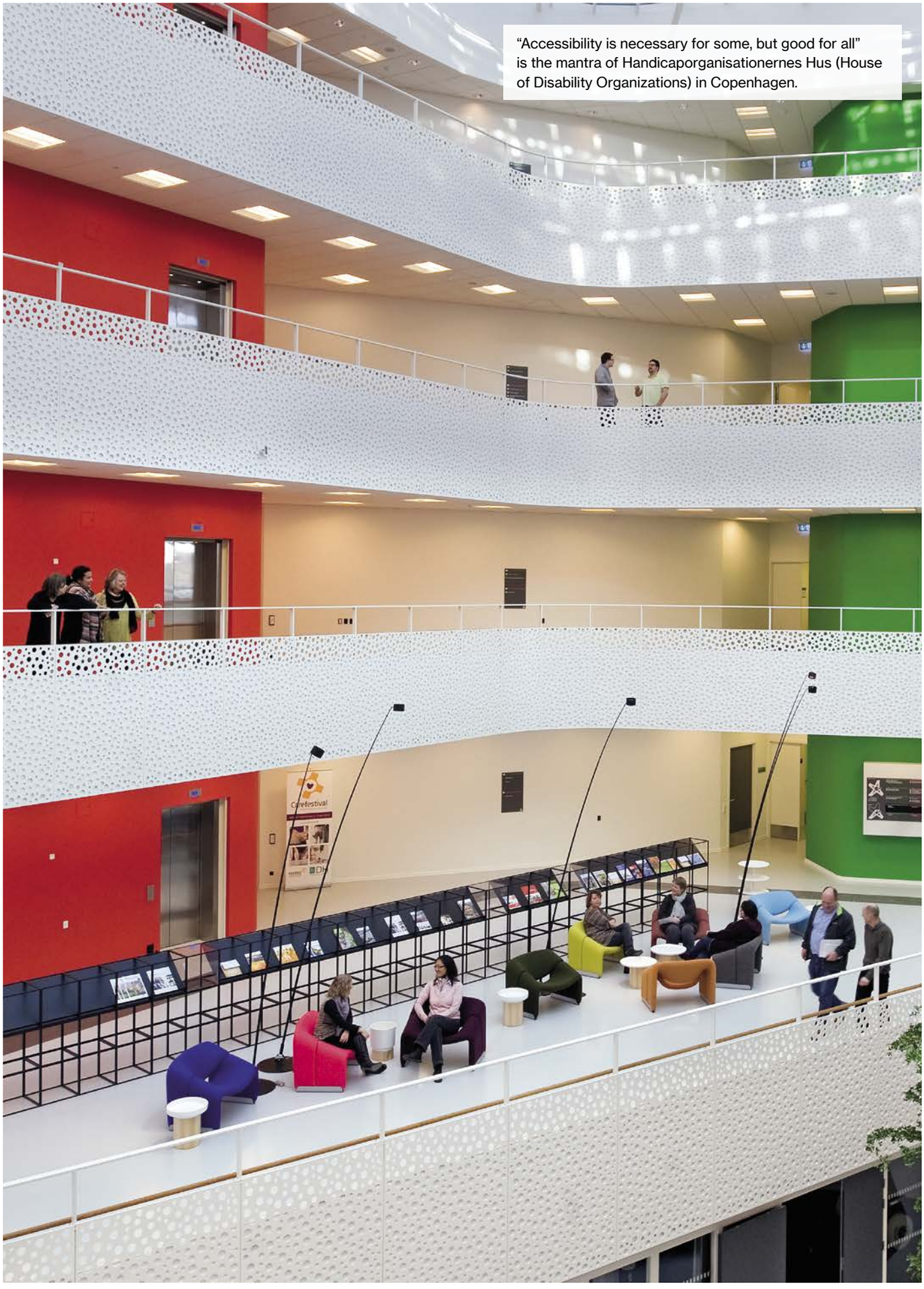
The ground floor, which is open to the public, houses the reception, lounge, meeting centre, and canteen. The basement houses a gym and a media production room. The three upper floors are not open to the public and contain both small and large offices.

All offices are arranged to face the facades and thus take advantage of daylight. Service facilities are centrally located in each office wing. On each floor there are break rooms with daybeds where employees can rest during the working day. In addition, the building offers seven types of toilet facilities, meeting everyone's needs.

The atrium as the heart

The atrium connects all floors and serves as a central circulation system for the building. It is a meeting place where people can exchange ideas and easily find their way around. Thanks to the large glass front, the atrium is almost always illuminated with sufficient daylight, minimizing the need for artificial lighting. This natural lighting is not only more comfortable for everyone but also makes lip-reading easier for people with hearing disabilities.

Another important element in the design of the atrium was the acoustics. While sound is an important



"Accessibility is necessary for some, but good for all" is the mantra of Handicaporganisationernes Hus (House of Disability Organizations) in Copenhagen.

ACCESSIBILITY HIGHLIGHTS OF HANDICAPORGANISATIONERNES HUS

The following features showcase Handicap-organisationernes Hus's commitment to ensuring accessibility for people of all abilities:

- **Starfish-shape design:** The building's starfish shape with four arms was chosen to enhance orientation.
- **Central atrium:** Acts as a central hub, making it easier for users to navigate throughout the building.
- **Break rooms with daybeds:** Available on each floor, allowing employees to rest during the workday.
- **Variety of toilet types:** The building provides seven types of toilets, ensuring that diverse user needs are met.
- **Acoustic design:** Balcony railings feature circular perforated fronts with sound-absorbing material, balancing sound.
- **Colour design:** Each office wing is marked with a distinctive colour in high contrast to the surroundings, aiding navigation for employees and visitors.
- **Reception desk:** The desk is designed at two heights, ensuring that visitors either standing or in a wheelchair can receive assistance at eye level.
- **Cloakroom lockers:** Coat hooks are set at two levels to accommodate people of varying heights, ensuring flexibility.
- **Multi-access lifts:** The lifts can be operated with either a pushbutton or a foot switch, eliminating the need for manual button operation.
- **Tactile orientation pins:** Small metal pins embedded in wooden handrails act as tactile markers, indicating the floor.
- **Custom door handles:** Designed to be user-friendly, the plastic handles are not cold to the touch, easy to grip, and lightweight.
- **Equal access evacuation system:** The building features three fireproof zones with the world's first equal access evacuation system.
- **Visual fire alarm system:** In addition to audible alarms, flashing red lights in the ceiling provide a visual alert, aiding in building evacuation.



The building's starfish shape with four arms was chosen to enhance orientation.

orientation aid for people with visual impairments, poor acoustics can cause overstimulation for people with mental or cognitive impairments. The balcony railings balance these interests. They regulate the room for optimum acoustics with their unique circular perforated fronts and sound-absorbing material. Additionally, this design allows wheelchair users and others who cannot see over the railing to have an unobstructed view of the entire atrium.

Colours also play a key role in helping people find their way around the building. Each office wing has a distinctive colour – red, blue, green, and purple – in stark contrast to the surrounding area, making it easy for employees and visitors to navigate. The colours are further reflected in the signage, which also features raised letters to provide a range of reading and orientation options.

Many details considered

The building is equipped with several well-thought-out solutions and details that prove equality and different needs can be harmoniously combined. One example is the reception desk, which has two heights, thus ensuring that all visitors, whether standing or sitting in a wheelchair, receive information and assistance at eye level. The cloakroom lockers are also flexible, allowing coats to be hung at either of two levels. The lifts are yet another example of innovative accessibility: they can be operated using either a pushbutton or a foot switch. Additionally, the lift opens at both ends so that wheelchair users can exit without having to make a detour.

A special detail is the small round metal pins embedded in some of the wooden handrails, which

The lifts can be operated using either a push button or a foot switch.





Small metal pins embedded in the handrails indicate the floor.



Coat hooks are set at two levels to provide flexibility for users.

serve as an orientation aid for the visually impaired. A single pin in the handrail indicates that you are on the first floor, two pins indicate the second floor, and so on. These pins, which are also found in the handrail in the corridor, are not only practical but are also decorative.

A laboratory for the future

Since its opening in December 2012, the House of Disability Organizations has become a vibrant centre for disability organizations and related institutions. Many organizations have moved into the building, some have moved out, and new ones have arrived. In 2023 a total of 30 organizations were working in the House, including 16 DPOD members employing around 300 people.

To verify whether the efforts to create an equal workplace had been successful, the Danish Building Research Institute carried out a comprehensive user evaluation in 2016. The results showed that much had indeed been achieved and that the vast majority of users were satisfied with the accessibility and equality in the building. However, the study also showed that some solutions did not work as expected. As a result, the building is constantly being adapted and developed based on these findings and the experiences of its users. Says Mandrup Tang, “It was never our intention to make the house a static example of accessible solutions from 2012. Rather, the building is intended to function as a dynamic laboratory where new solutions are constantly being developed. This approach ensures that the building remains future-proof and serves as a model for similar construction projects.”

FURTHER INFORMATION

For more information on the House of Disability Organizations, please visit:

handicaporganisationerneshus.dk

If you want to stay up to date, you can do so via LinkedIn:

linkedin.com/showcase/handicaporganisationernes-hus

Magazine: The House of Disabilities (The full documentation used for this report in English is available here)

handicap.dk

The Handicaporganisationernes Hus (The Handicap Organization House) can also be visited as part of a guided tour. Book by e-mail at:

rundvisning@handicap.dk

Following the ten principles of accessible wayfinding

Wayfinding is a professional discipline devoted to offering guidance to people so as to allow them to travel confidently through any environment in a manner that is informed, safe, and reliable.

Accessible wayfinding – a discipline rooted in guiding all individuals through the spaces they find themselves in, both familiar and new – is gaining traction. Regardless of the form wayfinding takes, it requires adherence to three basic concepts: consistency, accessibility, and predictability. The localized application of wayfinding also needs to be rooted in careful contextual awareness and considered design.

Wayfinding is typically divided into several families, applied separately or in combination. This includes such examples as:

- individual signs (room names, storyboards, or markers at points of interest)
- facility or building signs
- open space navigation (e.g., public parks)
- system or network signage (transport systems or tourism trails)
- regional urban wayfinding (in urban precincts, neighbourhoods, or developments).

The history of accessible wayfinding as a formalized discipline can be traced to the explosion of international tourism and mega-events during the last decades of the 20th century. Owing to the influx of large groups of people with diverse language and cultural needs into concentrated areas, a reliable system of navigational information was required to allow for ease of access for all people. Further recognition is given to providing vulnerable users with the safest routes when moving through unfamiliar environments. Additionally, there is an inherent business benefit to accessible wayfinding.

Development of the Ten Principles of Accessible Wayfinding

Research into international best practices and regional design informants have contributed to accessible wayfinding projects developed in several South African cities over the last 15 years. Local contextualization and exhaustive end-user testing resulted in the setting of standards that would alleviate random and untested design implementation. Through this process, the following Ten Principles of Accessible Wayfinding came to be:

1. Legible signs. A considered and comprehensive family of iconic and legible signs in an area-wide application.
2. Strategic placement. The strategic and predictable placement of signs at key decision-making points derived from a system-wide mapping and tracking process. Signs should ideally be applied 600–1500mm from ground level to be truly inclusive.
3. Colour. Strong colour identification with clear tonal differentiation allows for easier recognition in the environment and aids users with limited visual abilities.
4. Pictograms. Pictogram-driven designs overcome language and reading barriers, enhance split-second recognition in visually busy spaces, and minimize content on maps or graphic representations. Although parallel systems with both text and Braille may be used, tactile presentation of pictograms may reduce the need for parallel content if legibility is tested with end-user representatives. End-user testing of technologically advanced prototypes allowed for the development of pictogram and text content at five levels of tactile differentiation to be developed and deployed in areas in Cape Town.

ABOUT THE EXPERTS

- **Susan Smit** is a Strategic Development Advisor in Cape Town, South Africa.
- **Guy Davis** is a Universal Design Consultant with Disability Solutions, Ltd, Cape Town, South Africa.
- **Bernard Lombaard** is a part-time collaborator and associate to Susan Smit.



In Cape Town, the Century City information panels include area-wide squircle-shape maps, a network of horizontally placed precinct maps, and supplementary directional signs.

5. Clear and concise. Keep visual and spatial clutter to a minimum. Sans serif fonts when using text, recognizable brand or colour application, and clearly defined image outlines are essential for accessibility and predictability.
6. Maintenance. Sign production and maintenance need to be suitable for the implementation environment. Alternative materials such as polyurethane paired with UV-resistant products are recommended in outdoor environments susceptible to the elements or where budget considerations are important, while the use of metal products should be tested for sharp edges or thermal properties when used on tactile signs.
7. Review authority. Establish an informed review authority to ensure consistency in design and implementation. This ensures uniformity and predictability, both of which are vital for vulnerable end-users and in expanding spaces.
8. User testing. Interactive end-user testing is the basis of accessibility.
9. Supplementary. Wayfinding should be both consistent with and supplementary to local regulatory signs to enhance predictability, limit interpretive confusion, and ease use.
10. Electronic consistency. Be consistent with appropriate electronic and online information by treating both physical and virtual content as components of one interactive family of accessible wayfinding information.

The Ten Principles are the guiding force for the design development and implementation of wayfinding in instances such as the celebrated multi-use urban development of Century City, Cape Town. The Century City family of information panels, area-wide squircle-shape maps (see left image), network of horizontally placed precinct maps (top right image), and supplementary directional signs is a successfully implemented showcasing of the Ten Principles.

This urban development elevated the concept of accessible wayfinding to a place-making building block in a wider urban network of accessible public transport wayfinding previously rolled out in Cape Town with the development of the city-wide MyCiTi public transport system.

With recognition to HHO Consulting Engineers (Pty) Ltd., Century City and the Century City Property Owners' Association (CCPOA), and Disability Solutions, Ltd.

Innovative Solutions from Brazil, Chile, Germany, and the United Kingdom



VIRTUAL REALITY FOR INCLUSION,
INSTITUTO JÔ CLEMENTE

City simulation to practice navigation from home

Brazil

The Virtual Reality for Inclusion project aims to enhance urban mobility for people with disabilities by creating a virtual environment that accurately simulates reality, allowing them to practice navigating from their homes to various city locations. The project seeks not only to improve their navigation skills but also to build their confidence and enable them to move around the city independently.

The project also offers such benefits as the ability to adapt the environment to the user's individual needs and assess the difficulty of tasks. By incorporating gamification elements, the project also provides an enjoyable experience while promoting the development of essential skills.

Virtual Reality for Inclusion is led by the Instituto Jô Clemente in Brazil, a non-profit organization focused on supporting people with intellectual disabilities. It was developed by the Integrated Systems Laboratory of the Polytechnic School of the University of São Paulo and fully funded by the France-based Alstom Foundation.

Read more about the project here (in English):

BARRIO GASTRONÓMICO INCLUSIVO,
FUNDACIÓN CRECENDO

Chile's first inclusive gastronomic neighbourhood

Chile



Plaza Ñuñoa is located in the Ñuñoa district of Santiago, Chile, and serves as an important cultural and social hub for the city. Situated in a popular area known for its restaurants, cafes, theatres, and live music venues, it is a vibrant place that attracts both locals and tourists. The importance of Plaza Ñuñoa extends beyond leisure, however, as it also hosts various public events such as festivals, art exhibitions, and community meetings, making it a focal point of the neighbourhood's identity and social life. Furthermore, the square has become a symbol of urban regeneration, with recent projects focusing on accessibility and inclusive public spaces, such as the Barrio Gastronómico Inclusivo (Inclusive Gastronomy Quarter), which aims to integrate accessibility into the local food scene.

The project is an initiative of Fundación Crescendo, which aims to create a fully accessible and inclusive environment, focusing on the integration of people with disabilities in the culinary sector. Together with the municipality of Ñuñoa, Fundación Crescendo launched the Hub de Inclusión, a social innovation laboratory that brings together local restaurants and businesses. Through workshops and collaborative meetings, the Hub is designing strategies to promote inclusion, with input from families, businesses, and public stakeholders.

Learn more about the project here (in Spanish):



WHEELMAP.ORG

Location-based accessibility data for almost 3 million places

Germany

Wheelmap.org is an interactive online platform that enhances the accessibility of public spaces for people with disabilities, particularly wheelchair users. Users can rate and share the accessibility status of different locations by categorizing them as 'accessible', 'partially accessible', or 'inaccessible'. The map displays these ratings using a colour-coded system for easy navigation. Users can also contribute by adding new locations or updating existing ones.

Wheelmap.org was developed by Sozialhelden e.V., a German non-profit organization dedicated to improving the lives of people with disabilities, and was launched in 2010. By 2024 over a million locations worldwide have been rated using this crowdsourcing strategy.

Wheelmap Pro is an advanced version of the Wheelmap app that helps businesses and communities systematically measure and improve accessibility by providing additional tools and analysis. Additionally, an Accessibility Cloud has been launched in collaboration with other non-profit organizations worldwide with similar ideas. This acts as a backend to bring together almost 200 additional data sources, covering nearly 3 million places.

Find out more about Wheelmap here: wheelmap.org

Learn more about the Accessibility Cloud here:

SIMON HUMPHREYS RIBA, MICROLINK PC

The 12 Design Pillars for Autism

United Kingdom

Simon Humphreys, a member of the Royal Institute of British Architects, has developed the '12 Pillars of Design for Autism' as a framework to guide the creation of built environments that are supportive, inclusive, and responsive to the needs of autistic individuals. These pillars provide guidance for architects, designers, and planners in developing spaces that promote comfort, independence, and well-being.

The pillars focus on key elements such as acoustic control and light management, aiming to minimize stimuli and reduce stress. Spatial sequencing and the inclusion of safe transition zones facilitate intuitive orientation and promote a sense of security. The implementation of clear wayfinding and high-visibility signage ensures ease of navigation. Additionally, the inclusion of sensitive zones and individual control of light, temperature, and sound allows for better adaptation to personal needs. The use of soothing colours, natural references, and flexible spaces creates an environment that encourages adaptation and autonomy.

Simon Humphreys works independently for a variety of clients, both public and private, as well as acting as the Autism Design Consultant to ongoing projects in the United States, Middle East, Channel Islands, and Europe. He frequently collaborates with Microlink, a UK-based company specializing in reasonable adjustments and assistive technology (microlinkpc.com).

Learn more about the '12 Pillars of Design for Autism' here:

CASE STUDY: CITY OF BEPPU, JAPAN

Being known as the “inclusive and healing city” requires a comprehensive approach

Beppu, a small city in Kyūshū, Japan, attracts 5.4 million visitors each year, drawn by its 2,300 hot springs and commitment to accessibility. With inclusive infrastructure, disability-friendly services, and a long-standing culture of social inclusion, Beppu has become a model city for barrier-free living.



The city of Beppu in Japan is known as the ‘inclusive and healing city’. This is partly due to the healing properties of its hot springs, or onsen, and partly to the city’s commitment to accessibility. This includes regular public awareness campaigns and training for city staff.

The city of Beppu has a population of just 113,000, but around 5.4 million people visit every year. This is due to the city's 2,300 onsen, natural hot springs that bubble to the surface when water is heated by volcanic activity. The healing properties of the onsen have led to the development of numerous health facilities in the city located on the island of Kyūshū, in addition to the many baths.

Over the years people with limited mobility or chronic pain were often sent to Beppu for rehabilitation, which led it to become known as the "inclusive and healing city." Given its popular health programmes, Beppu wanted to ensure that its infrastructure and public services were accessible to everyone.

Since April 2014, the Beppu City Ordinance for Safe and Secure Living for People With or Without Disabilities has provided the legal framework for ensuring accessibility and inclusion in all areas of city life. The ordinance mandates improvements in public infrastructure, emergency preparedness, and various services, thus ensuring that the city is built to meet the needs of people with disabilities. Mr. Satoshi Okubo, Manager of Beppu's Disabled Persons' Welfare Section, explains that "The ordinance outlines the city's obligations to achieve a coexisting society, such as raising awareness among citizens and businesses, and implementing policies for reasonable accommodation in specific situations."

A city without barriers

Beppu is indeed a barrier-free city for visitors, with wide pavements and ramps. In key areas, such as sidewalks, pedestrian crossings, and public transport hubs, tactile paving and audible guidance systems help people find their way around. Clear, pictorial signs are used throughout the city so that people with cognitive disabilities or language barriers can easily understand directions and information. Public buildings and tourist attractions are also signposted in Braille.

ACCESSIBILITY HIGHLIGHTS OF THE CITY OF BEPPU

The city of Beppu's accessible and inclusive features include the following:

- **Urban space:** Beppu features wide, accessible pavements and ramps, with key areas equipped with tactile paving and audible guidance systems.
- **Public signage:** The city uses easy-to-understand pictorial signs, and public buildings and tourist attractions also have signs in Braille.
- **Public transport:** Public transport includes low-floor buses, and both buses and trains provide designated seats for people with disabilities.
- **Accessible taxis:** Taxis equipped with ramps and lifts are available for passengers with disabilities.
- **Accommodation:** Hotels offer rooms with wider doors, lower tables, accessible bathrooms, grab rails, and emergency systems.
- **Inclusive sightseeing:** Special guides help visitors find accessible routes and activities tailored to their needs.
- **Leisure activities:** Beppu promotes inclusive sports and leisure activities; and cultural institutions are designed to be accessible, with support services available.
- **Emergency planning:** Urban planning includes accessible evacuation routes, accommodations, and trained personnel to assist in emergencies.
- **Public awareness:** Regular campaigns educate citizens on the importance of inclusion and accessibility.
- **Accessible onsen:** Many onsen have been adapted with ramps, handrails, bath chairs, and other features to accommodate people with disabilities.



Beppu has about 2,300 onsen springs and 148 public baths. Many of them have been equipped with ramps, handrails, bath chairs, and other adaptations.

Public transport is equipped with low-floor buses, and both buses and trains have designated seats for people with disabilities. Beppu also has accessible taxis, which are equipped with ramps and lifts.

A number of the city's hotels offer wheelchair-accessible rooms with wider doors, lower tables, and accessible bathrooms that include grab rails and emergency systems. There are also special guides who suggest accessible routes and activities for people with different needs.

Wellness and safety

In line with Beppu's commitment to promoting an active lifestyle, inclusive sports and cultural events are promoted, and access to leisure activities is provided for people with disabilities. Notably, Beppu's museums, galleries, and theatres have support services to enable people with disabilities to participate in cultural life.

Given Japan's vulnerability to natural disasters, Beppu has also incorporated disability-friendly emergency planning into its urban planning. This includes accessible evacuation routes, disability-friendly accommodations, and trained personnel to provide assistance in the event of an emergency.

But the city's efforts go beyond infrastructure. Beppu regularly conducts public awareness campaigns to educate citizens about the importance of inclusion and accessibility. It also actively involves people with disabilities in planning and decision-making processes, ensuring that their needs are taken into account when developing new projects or initiatives.

Accessible hot springs

The main reason people come to Beppu is the onsen, which literally means "hot spring" – a term used for both the springs and the baths. Beppu has about 2,300 onsen springs and 148 public baths. To make these traditional bathing facilities accessible to people with disabilities, many onsen have been equipped with ramps, handrails, bath chairs, and other adaptations.

One of the most popular onsen with locals is Furosen, located in the centre of the city, not far from the railway station. The original bath was built in the second half of the 19th century and later expanded into a three-story building due to the number of visitors. In 2014 the Furosen was extensively renovated and redesigned so that people with disabilities can access the bath without steps. A lift was installed, and handrails were added to the paths. A multi-purpose toilet and low-level showers were also installed.

"No Charity, but a Chance"

Another special building in the city is called Taiyo-no-ie (House of the Sun), operated by the social welfare organization Japan Sun Industries. Taiyo-no-ie was founded in 1965 by Dr. Yutaka Nakamura, who believed that people with disabilities had the potential to lead productive lives if given the necessary support.

True to Nakamura's motto "No Charity, but a Chance," Taiyo-no-ie not only offers therapeutic care



Given Japan's disaster risk, Beppu's emergency planning includes accessible evacuation routes, shelters and trained personnel.



Taiyo-no-ie (House of the Sun) provides therapeutic care, training, and jobs for people with disabilities, fostering an inclusive workspace.

but also provides training and employment opportunities for people with disabilities. It fosters an environment in which people with and without disabilities work together, contributing to the local economy and promoting social inclusion. The idea of people with disabilities earning their own living was revolutionary in 1965, and to this day the institution that Nakamura founded serves as a model for similar projects in many other organizations and cities in Japan.

Birth attendant of the Paralympics

Nakamura was also a pioneer in the field of rehabilitation for people with disabilities in Japan. In 1960, as head of the orthopaedic department at Beppu National Hospital, he travelled to the United States and England for six months to deepen his research into rehabilitation. During this time he met the German neurologist Sir Ludwig Guttmann, who had organized the first Stoke Mandeville Games for people with disabilities in 1948, parallel to the London Olympics.

Upon his return, Nakamura initiated the establishment of the Oita Prefecture Disabled Sports Association. The first Oita Games for persons with disabilities were held in 1961; and in 1962 Nakamura even sold his car to enable himself and two patients from Beppu National Hospital to attend the Stoke Mandeville Games as athletes. This made such an impression on sport authorities that in 1964 the newly formed International Paralympic Executive Committee chose Tokyo to host the world's second Paralympic Games.

FURTHER INFORMATION

This is the official website of Beppu City (in Japanese and English):

city.beppu.oita.jp

An overview of the accessible onsen in Beppu can be found here (in English):

https://enjoyonsen.city.beppu-jp.com/onsen/accessible-for-all

Find out more about inclusive disaster prevention in the city of Beppu here (in English):

dinf.ne.jp/d/0/394.html

Find out more about Dr. Yutaka Nakamura and his achievements in adaptive sports:

www.taiyonoie.or.jp/english/sports

“Not only buildings but also exhibits have to follow accessibility guidelines!”

Universal Design has become more prevalent in the general use of architectural design, but has rarely been applied to exhibits.

In the United States, laws such as the Americans with Disabilities Act (ADA) plus state and local laws address equal access and inclusive opportunities for the public with disabilities who visit public sites such as zoos and aquariums. These requirements include features such as accessible parking and routes (e.g., ramps, wide entrances, smooth surfaces, and the absence of abrupt transitions, gaps, or protruding objects) as well as such other specific requirements that must be followed. However, access to exhibits has not been incorporated into any disability law, and this can severely affect a person’s visit.

Some efforts have been made to provide guidelines to address the accessibility of exhibits. The original work was done by Jan Majewski of the Smithsonian Institute back in the 1980s; and my own contribution was to the 1998 “Everyone’s Welcome” manual published by the American Association of Museums, based on my 18 years of experience as Access Coordinator for People with Disabilities at the Brookfield Zoo in Illinois.

One feature of these exhibit guidelines is the incorporation of Universal Design principles. These principles go above and beyond the ADA guidelines and various state and local codes. The use of these principles has been merged into guidelines for enhancing exhibits to allow guests with various disabilities to enjoy and understand information more effectively. Much like the ADA guidelines, they include such features as accessible parking and routes, wide entrances, and clear floor space, among others.

Enhanced signage

The font size used in various signage should be 18 points or larger and provide a contrast of colour of at least 70 per cent between the lettering and background. The text should appear over a solid background and never over a picture, as the various coloration and dimensions of pictures can make reading the letters very difficult. The background of the sign should be a matte finish to prevent any glare from lighting.

Another important feature in signage legibility is the type of fonts used. Script, condensed, extended, light, and ornate Italic fonts are all difficult to read by a person with low vision. The best fonts to use include sans serif fonts, such as Helvetica, Ariel, Univers, and Futura, as well as simple serif fonts such as New Century Schoolbook, Times Roman, and Palatino.

The location of signage or labels depends on the type of exhibit involved. For wall-mounted signage a height between 54 and 66 inches is optimal for a person standing, using a wheelchair, a shorter adult, or a child to comfortably read. For small labels, using 54 inches to the centreline is a good standard to follow.

For labels within an exhibit case or on a barrier railing, the optimal heights are between 36 inches to the bottom and 40 inches to the top of the label.

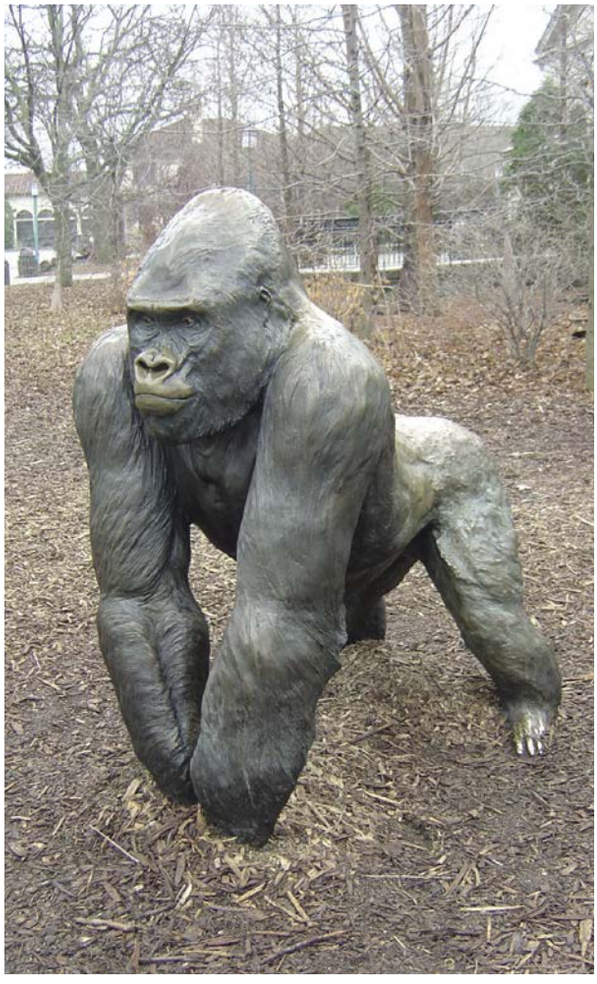
Display cases

Besides the use of signage and labels, specific guidance is recommended for viewing into exhibits and display cases. Display cases are recommended to be between 33 to 40 inches above finished floor (AFF)

ABOUT THE AUTHOR



Mark Trieglaff is an accessibility consultant with over 30 years’ experience in the disability field, and the founder of ACTServices, Inc., based in Wheaton, Illinois, United States.



At Brookfield Zoo the main focus was to provide life-size detailed statues of animals that people could see up close and touch.





Haptic experience of a gorilla's hand.

for best viewing. Heights above this range can make it more difficult to see the objects on display.

For wall mounted displays, the bottom of the case should be mounted at 33 to 40 inches AFF and go up from there. Depending on what is displayed, smaller objects should be placed at the lower part of the case.

Multi-sensory exhibits

For exhibits with live animal collections or that are very large, viewing by a person with lower vision is nearly impossible and can make the visit less enjoyable. At Brookfield Zoo we used a multi-sensory approach for exhibits. The main focus was to provide life-size detailed statues of animals that people could see up close and touch. The second option was to provide small statues but with extensive detail. The third option was to provide a two-dimensional cut-out of the animal but again life size.

The Zoo was able to provide detailed, life-sized statues in various locations. A gorilla statue was provided at the Tropic World; a dolphin and sea turtle statue at the Seven Seas building; a duck, turtle, and frog statue were provided at the Indian Lake Trail; and a two-dimensional cut-out of a Siberian tiger was provided at the big cats exhibit. In addition, some exhibits included a recording of animal sounds or even various animal musk that people could smell.

Use of smartphones

The National Park Service (NPS) has taken a step further to increase the accessibility of exhibits through the use of smartphones. The NPS has developed an app for over 400 national parks that provides detailed information not only on the parks but on the exhibits as well. The information includes additional accessibility features that can enhance the experience for people with different types of disabilities. In particular, the app provides a verbal description of the exhibit and its features, which is very helpful for people with low vision or total sight loss.

One of the oldest continuously inhabited settlements becomes an inclusive, smart city

In 2015, Varanasi, one of the oldest human settlements and a UNESCO cultural heritage site, was selected among one of the 100 smart cities in India. The aim of this initiative is to make urban life more sustainable, efficient, and inclusive through improvements in technology and infrastructure.

Located in the heart of the Ganges valley in the state of Uttar Pradesh, Varanasi is believed to be one of the oldest continuously inhabited cities in the world. Historical evidence suggests that the city is over 3,000 years old, with some estimates dating back as far as 5,000 years or more. Formerly known as Kashi, it is also one of the most culturally significant cities in India, mentioned in many ancient Hindu texts and considered the home city of Shiva.

Today Varanasi – which is a UNESCO-designated Creative City of Music – is home to over 1.5 million people and is growing rapidly, surrounded by a large suburban area of villages that depend on Varanasi for access to urban facilities and services.

India's 'Smart City Mission'

In 2015, Varanasi was selected by the Indian Government as one of 100 cities for the Smart City Mission, aimed at preserving its cultural heritage while meeting the demands of modern urbanization. The Smart City Mission seeks to make urban areas more efficient, sustainable, and inclusive through technological innovation, modern infrastructure, and improved services. Mr. Shakambhari Nandan Sonthalia, Public Relations/ Information Officer of Varanasi Smart City Limited, the nodal agency for implementing the mission, explains that "The Smart City programme focuses on improving basic urban infrastructure, including roads, water supply, waste management, and sanitation. These improvements will ensure that Varanasi can cope with its growing population and increasing number of visitors."

Inclusive BASIIC for Varanasi

In 2018, Varanasi was among the first cities included in the newly created Building Accessible, Safe, and Inclusive India Cities (BASIIC) programme, initiated by India's National Institute of Urban Affairs (NIUA) and supported by the Ministry of Housing and Urban Affairs and the UK's Foreign Commonwealth and Development Office. The aim of the programme is to make Indian cities safer, more accessible, and inclusive for all citizens, especially people with disabilities, the elderly, and other marginalized groups. According to Ms. Debolina Kundu, Director of NIUA, "The programme promoted the principles of universal accessibility, safety, and inclusion as a project cycle approach at central, state, and local levels. It has been supporting Varanasi Smart City Limited and other departments to adopt these principles in their upcoming projects. The programme is envisioned to expand and translate such efforts to all 4,900-plus Urban Local Bodies of India."

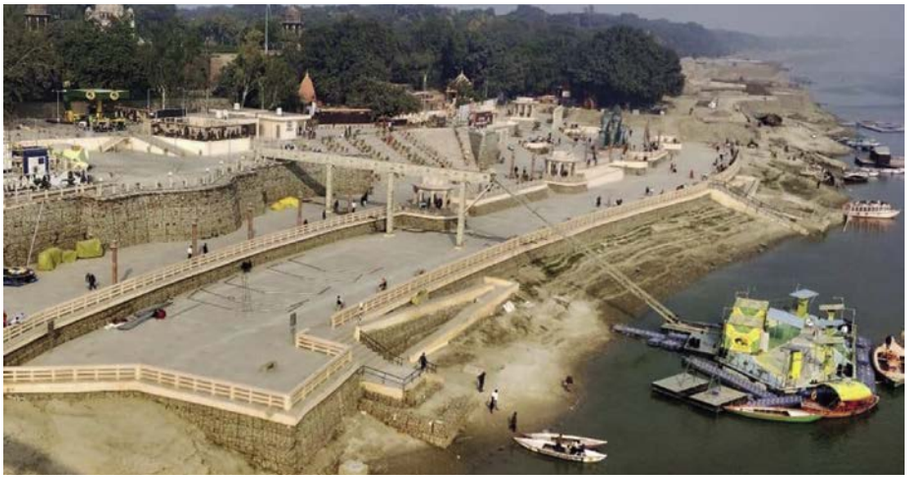
Public space and mobility for all

An important part of the Smart City Varanasi project is improving the accessibility of public spaces. As part of this initiative, pavements and roads have been upgraded to make them accessible to wheelchair users and people with visual or hearing impairments. These pavements now feature lowered curbs, tactile paving, and wider sidewalks. Parking spaces for persons with disabilities have been created close to public buildings to assist people with disabilities in accessing public services and areas. Additionally, digital signage and audible signals are being installed in public places to aid those with visual impairments and other groups in navigating their surroundings.

The initiative also includes enhancements to public transport. Accessible low-floor buses have been introduced in Varanasi, featuring designated seats for people with disabilities, audio systems for individuals with visual impairments, and improved access to real-time information on traffic, timetables, and directions. E-rickshaws are also being promoted as accessible and environmentally friendly mobility options. As Sonthalia reports, "The public transport system will be optimized by promoting e-rickshaws,



Namo Ghat has been re-developed as the first model ghat in Varanasi. The name derives from three large sculptures posed in a namaste gesture.



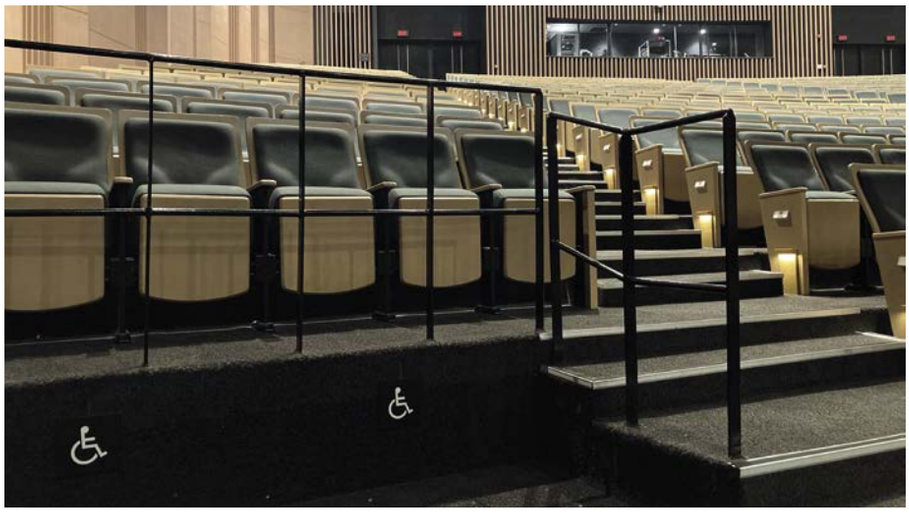
A specially constructed ramp with handrails leads down to the Ganges, providing easy access to the banks of the holy river.

improving bus services, and developing smart mobility solutions such as integrated transport apps. This will provide residents and visitors with affordable, eco-friendly, and accessible mobility options."

Digitalization and inclusive education

The introduction of smart technologies to enhance accessibility for people with disabilities is a key goal of the Smart Cities Mission. Many public services in Varanasi have been digitized to improve accessibility for all citizens. The city's websites have been adapted to provide language support, high-contrast displays, and other features that facilitate access to information; and people with disabilities can now complete applications, tax payments, and other administrative tasks online. Telemedicine services have also been implemented as part of the Smart City initiative.

Schools and educational centres have begun developing accessible infrastructure, including ramps and more inclusive learning materials tailored for students with disabilities; and digital education and employment opportunities are also being promoted to create new career prospects. One example is the Machhodari Smart School, which has been renovated to provide an inclusive environment for 700 students, including children with disabilities. In addition to such modern facilities as a computer room, multi-purpose hall, and rainwater harvesting system, the school has installed ramps, elevators, tactile pathways, and specially designed restrooms.





The centre was designed from the outset to be accessible to people with disabilities.

Varanasi is also home to the newly built Rudraksh International Cooperation and Convention Centre, featuring a 1,200-seat auditorium.

ACCESSIBILITY HIGHLIGHTS OF CITY OF VARANASI

The many features that make the city of Varanasi accessible and inclusive include the following:

- **Public spaces:** Upgraded pavements with lowered curbs, tactile paving, and wider sidewalks.
- **Improved access:** Dedicated parking spaces outside public buildings to facilitate access for people with disabilities.
- **Public orientation:** Digital signage and audible signals installed in public areas to help visually impaired individuals navigate their surroundings.
- **Public transport:** Introduction of low-floor buses with designated seating for people with disabilities, audio systems, and enhanced real-time information.
- **Public services:** Adapted online platforms that provide accessible services, enabling people with disabilities to complete administrative tasks online.
- **Educational infrastructure:** Schools equipped with ramps, tactile pathways, elevators, and specially designed restrooms to accommodate students with disabilities.
- **Historical sites:** Development of accessible routes and wheelchair access to cultural and religious points of interest, including the famous ghats.
- **Digital Twin City:** Creation of a 3D digital map of Varanasi to enhance urban planning and accessibility.
- **Citizen involvement:** Workshops and co-design initiatives to ensure the inclusion of the concerns of people with disabilities in project planning.

Making heritage accessible to all

As a major tourist attraction, Varanasi is making efforts to improve access to points of interest for people with disabilities. Accessible routes and wheelchair access to historical and cultural sites are being developed, with a focus on the famous ghats (steps leading down to the Ganges), which are vital public spaces that serve both religious and recreational purposes for the community.

The most prominent project is the Khidkiya Ghat, known since its renovation as Namo Ghat, which has been redeveloped as the first model ghat in Varanasi. The name derives from three large sculptures posed in a namaste gesture – the traditional Indian greeting of pressing the palms of your hands together, bowing slightly, and making eye contact. A specially constructed ramp with handrails leads down to the river, providing easy access for the elderly and people with disabilities, allowing them to walk or use a wheelchair directly to the banks of the holy river. A designated bathing area ensures their safety during rituals and ceremonies.

Additionally, a multi-purpose platform on the riverbank can serve as a helipad or host various cultural events, further enhancing the inclusivity of the ghats. These improvements demonstrate the city's commitment to ensuring that everyone, regardless of ability, can experience the beauty of the Ganges. Sonthalia sees no conflict between heritage conservation and accessibility: "While heritage protection laws and Archaeological Survey of India provisions are essential for safeguarding the historical integrity of heritage sites, they do not prevent efforts to make these sites accessible. In fact, ensuring that heritage sites are safe, secure, and inclusive is a fundamental responsibility."

Varanasi's future and its digital twin

Preservation is not the only goal in Varanasi, as the city is also home to the Rudraksh International

Machhodari Smart School today provides an inclusive environment for 700 students.





Citizens have been involved in the planning and decision-making process, enhancing the city's inclusivity.

Cooperation and Convention Centre, featuring a 1,200-seat auditorium, meeting rooms, and a Japanese garden. The centre was designed from the outset to be accessible to people with disabilities.

The transformation of the Sigra Stadium into a modern sports complex is also planned for 2024. The facility will include indoor sports areas, two swimming pools, a football pitch, an Olympic-standard running track, and a cricket training ground. The stadium will be designed with ramps, elevators, accessible seating, and facilities for athletes with disabilities to ensure inclusivity in sports activities.

An important initiative for future projects is the creation of a Digital Twin City, which involves developing a 3D digital map of Varanasi covering 160 square kilometres. This project aims to provide accurate elevation models and detailed maps to enhance urban planning and accessibility.

Involving citizens in urban planning

As with the conversion of historic buildings, NIUA experts have been involved in these new construction projects as part of the BASIIC programme to ensure actual accessibility in the plans.

The interests and wishes of citizens have also been considered in all projects, significantly influencing the design and features of Namo Ghat. "The co-design workshop and subsequent city stakeholder workshop helped bring the concerns of persons with disabilities living in Varanasi to the attention of the relevant departments," says NIUA Director Kundu. "This initiative helped create awareness and empathy, influencing current projects and investments to integrate the principles of universal accessibility and inclusion."

According to Sonthalia, this aligns well with the Smart City Initiative: "One of the core principles of the Smart City Initiative is to involve citizens in the planning and decision-making process. Enhancing the city's inclusivity through projects such as Namo Ghat, Rudraksh International, Sigra Stadium, the city's parks, and the Kashi Darshan Unified Tourist Pass can boost tourism, investment, and overall economic growth by making the city more attractive to both domestic and international tourists."

FURTHER INFORMATION

The official website of Varanasi provides information about the city and tourism:

varanasi.nic.in

Here you can find information about Smart City initiatives, projects, and developments in Varanasi:

varanasismartcity.gov.in

This is the official page for the Smart Cities Mission, offering information about the programme and the cities participating, including Varanasi:

smartcities.gov.in

Here you can find a report on the co-design workshops conducted by NIUA:

niua.in/intranet/sites/default/files/2183.pdf

EXPERT COMMENT: GERALD CRADDOCK ON CHANGING PLACES-TOILETS

“Improved hygiene leads to greater dignity, better business, and increased participation in society.”

Changing places-toilets offer larger sanitary facilities that address the needs of people for whom other sanitary accommodations are inadequate.

The Universal Design guidelines for changing places-toilets are aimed at designers, building managers, and owners of facilities as well as clients, industry professionals, and disability stakeholders. They have been developed jointly with a technical advisory group from Ireland in 2023–2024 and to complement generic building regulations.

A changing places toilet is an accessible sanitary facility with a toilet, hoist, basin, adult-sized changing bench, and optional shower with adequate space for use by persons with a range of abilities who may require assistance. Such toilets enable people with complex care needs to take part in everyday activities such as travel, shopping, family days out, or attending a sporting or cultural event, including people using larger motorized wheelchairs. In addition, some neurodiverse people may also benefit, as there is more space provided and excessive noise can be avoided.

Key considerations

- Changing places-toilets are an additional and separate requirement to the provision of a unisex wheelchair-accessible WC.
- Builders and planners should consider providing such toilets in buildings and public spaces even where they are not required by the building regulations so as to maximise access and use for all.
- Ideally, locate the toilet adjacent to other sanitary facilities.
- Consider the location at the early design stages to ensure it allows for convenient access.
- Consider the availability of accessible parking in relation to the location of a changing places toilet.
- Ensure that the design and installation meet the minimum requirements of the building regulations.
- Engage with end-users to identify and respond to their key needs and preferences.
- Pay attention to detail in the design, equipment, and finishes specified in the “Universal Guidelines.”
- Provide pre-visit information and well-designed signage to enable people to easily locate and use a changing places toilet.
- Enable end-users to gain access easily without having to overcome complex security arrangements.
- Train staff on management procedures for the facility.

Difference between changing places-toilets and wheelchair accessible unisex WCs

A changing places toilet is not a replacement for a wheelchair accessible unisex WC designed for independent use. It is an additional facility to address the needs of people for whom other sanitary accommodations are inadequate. Important differences include allowing personal assistants/carers to assist someone in the room, and offering other functions such as equipment and space to change clothing, attending to personal care, and in some instances showering.



Layout of a Changing Places-toilets

ABOUT THE AUTHOR



Gerald Craddock is head of the Centre for Excellence in Universal Design (CEUD) at the National Disability Authority in Dublin, Ireland, which recently published the “Universal Design Guidelines for Changing Places-Toilets,” developed by O’Herlihy Access Consultancy.

Innovative Solutions from Uganda and the United States



TOM AND RUTH HARKIN CENTER, DRAKE UNIVERSITY

A building that represents the Americans with Disabilities Act

United States

Opened in 2020, the Tom and Ruth Harkin Center at Drake University serves as a hub for research, policy advocacy, and community engagement on issues of disability and social justice. The building is home to the Harkin Institute for Public Policy & Citizen Engagement, founded by Tom Harkin and his wife in 2013. Harkin was the lead sponsor of the Americans with Disabilities Act (ADA) in the United States Senate. Due to the growth of the Institute and the desire for a facility that would represent the legacy of the 1990 ADA, a new accessible building was planned.

Designed by BNIM Architects and located on the campus of Drake University in Des Moines, Iowa, the building is a model of inclusive design through its thoughtful integration of accessibility and Universal Design principles. It features doorways and corridors wide enough to accommodate a variety of mobility devices, adjustable lighting to meet sensory needs, acoustically designed rooms to minimize echo and assist hearing, and Braille signage throughout. In addition, its furniture and workstations are adjustable to different heights to ensure they can be used by people of all physical abilities.

Find out more by using this QR-Code:

SCHOOL ACCESSIBILITY COMPANION GUIDE, HUMANITY AND INCLUSION

A simple guide to building accessible schools

Uganda

Humanity & Inclusion (HI), formerly known as Handicap International, was founded in France in 1982. Since then, it has expanded into a global organization operating in over 60 countries to support people with disabilities and vulnerable communities. HI also works to improve school accessibility in low-income countries, where construction standards often lack enforcement. These standards are frequently seen as overly technical and difficult to interpret.

In Uganda, HI supported the development of a School Accessibility Companion Guide (SACG) to complement the national Building Control Code. SACG provides a practical, user-friendly reference to highlight key standards for creating accessible school environments. It is designed not only for architects and engineers but also for education stakeholders, students, teachers, parents, and community members, empowering them to assess school conditions and identify accessibility barriers, thus fostering a collaborative approach to more inclusive education.

Get the full guide here:

Innovative Solutions from Israel and the United Kingdom

WELCOME, NEATEBOX

Making accessible places personalized

United Kingdom

WelcoMe is an accessibility solution designed to enhance the experience of people with disabilities visiting public places such as shops, museums, or offices. It operates as an online platform that allows users to notify venues of their intended visit, detailing any individual needs or accommodations required. Venue staff receive these details in advance, enabling them to prepare and provide personalized support, ensuring smoother, more inclusive interactions.

WelcoMe's interface is user-friendly, with options to highlight mobility, sensory, or cognitive support needs, enabling venues to respond thoughtfully. By 2024 the service has been available in over 240 venues across the United Kingdom and the Republic of Ireland, offering WelcoMe alongside their other access and inclusion services, including Members of Parliament's constituency offices, thus helping persons with disabilities meet their representatives without anxiety.

The solution was developed by Neatebox, a Scottish company specializing in inclusive technology.

Find out more about WelcoMe: wel-co.me



TOWER OF DAVID MUSEUM

Renovations and special programmes make an ancient museum accessible

Israel

Located at the Jaffa Gate entrance to the Old City, the Tower of David Jerusalem Museum is housed in the ancient citadel that once defended the city. Today it is one of Israel's most important cultural institutions and Jerusalem's official museum, interweaving the city's historical narrative with its significance to Judaism, Christianity, and Islam.

The museum has undergone several renovations over the years, with a major recent renovation completed in 2023. This extensive renovation project aimed to make the museum as accessible as possible, despite the historic nature of the building. Lifts and ramps have been installed to make the exhibition areas accessible, and the museum offers a range of technical aids for people with various disabilities.

Special opening hours create a quieter atmosphere, and a tailored programme of activities is accessible to people with various disabilities. For example, following consultations with parents and disability organizations, the museum has developed a specific programme for children both with and without disabilities.

Learn more about accessibility at the Tower of David Museum:



Using intentional, high-contrast colours to make spaces easier to navigate (Mary Free Bed YMCA).

Ten Case Studies of Inclusive Spaces

1 **Airport**
iGA Istanbul Airport, Turkey

2 **Community Centre**
Mary Free Bed YMCA, United States

3 **Community Space**
Enabling Village, Singapore

4 **Hotel**
ILUNION Hotels, Spain

5 **Library**
Punggol Regional Library, Singapore

6 **Museum**
Rijksmuseum Amsterdam, Netherlands

7 8 **Office Buildings**
Central Bank of Ireland, Dublin
Handicaporganisationernes Hus, Denmark

9 10 **Urban Planning**
City of Beppu, Japan
City of Varanasi, India

... plus Expert comments, and twenty Short Reviews of innovative solutions.

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