



REHDA

UNIVERSAL INCLUSIVE DESIGN HANDBOOK

A Practical Guide for Accessible
and Inclusive Built Environments



EDITORIAL

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FOREWORD



Datuk Zaini Yusoff

President REHDA Malaysia

On behalf of REHDA Malaysia, I would like to extend my sincere appreciation to the ESG Chairperson and members of the ESG Committee 2024–2026 for their dedication and commitment in bringing this *REHDA Universal Inclusive Design Handbook* to fruition. Their collective effort reflects industry's strong commitment to advancing ESG principles, particularly in promoting a more inclusive and people-centred design built environment.

As property developers, our responsibility extends beyond constructing building. We not only deliver homes but also create neighbourhoods and spaces where people live, work and interact through different stages of their lives. Good designs should respond to the diverse needs of the communities and enable people of different ages and abilities to use and benefit from a safe and comfortable built environment.

This handbook provides practical guidance and useful insights to support developers, consultants, architects, planners and other industry stakeholders in incorporating inclusive design principles into their developments. As the industry continues to evolve, it is essential that we look beyond regulatory compliance and embrace design approaches that create lasting value, enhance user experience and contribute positively to society.

I hope this handbook will create awareness and encourage greater adoption of inclusive design across the property development industry. Incorporating inclusive design from the outset will enable us to create developments which are not only easily accessible and responsive but also more adaptable and resilient to the changing needs of the society in the years to come.

Once again, I commend the ESG Chairperson and the ESG Committee 2024–2026 for their outstanding contribution and commitment. Their efforts have laid an important foundation for the industry to move forward with greater awareness and purpose in shaping a more inclusive, sustainable and people-centred built environment.

Datuk Zaini B Yusoff

President, REHDA Malaysia

As responsible property developers, we are constantly seeking ways to build better. Our role goes beyond laying bricks and mortar or simply providing a roof over people's heads. Our shared goal as REHDA Malaysia is to envision and build buildings and spaces that enrich the lives of people and communities. The space we create must therefore be thoughtfully designed to be universally accessible, functional and welcoming to users from all walks of life. They should be spaces for truly living, not simply being.

The REHDA Malaysia ESG Committee is mandated to drive sustainable property development, raise environmental, social and governance awareness within the context of the property industry amongst our members, shape government policies that support the property industry and future-proof Malaysian real estate. As part of our mandate, we embarked on this journey to publish this *REHDA Universal Inclusive Design Handbook* to inspire and assist property developers to create and build better buildings.

Universal and inclusive design is an essential component of responsible and sustainable property development. As the built environment continues to evolve, it is increasingly important that buildings, public spaces, facilities and amenities are designed to be usable, accessible, safe and functional for all users. The introduction of this *REHDA Universal Inclusive Design Handbook* reflects the collective effort and commitment of REHDA's ESG Committee to promoting practical guidance and global best practices to support the property industry in creating, building, managing and operating more universally-designed and inclusive spaces for all.

The handbook also references Malaysian and global standards and best practices which makes it a handy guide for anyone embarking on building better spaces. It also presents selected project case studies from our REHDA members that demonstrate how inclusive design can be applied across various design elements and development contexts. Inclusive design is not limited to a single building typology or user group, but can be implemented across residential and commercial developments, public spaces, townships, mixed-use developments and transit-oriented developments to enhance accessibility, usability, safety, social interaction and the overall community experience.



Ms Teo Chui Ping

Chairperson of ESG Committee

FOREWORD

I would like to express my sincere appreciation to the ESG Committee for the 2024–2026 term for their valuable contribution, commitment and effort in realising the completion of this handbook, in particular Dr Yasmin Rasyid of Sime Darby Property for driving the initial idea and providing the framework and content and Ms Anis Nabilah binti Mahamad Sukkeri from REHDA Malaysia secretariat who was instrumental in creating the layout, key diagrams, putting together the text and photographs including overall conceptual design. Their dedication has made it possible to produce a meaningful reference that supports the industry's journey towards a more inclusive, sustainable and socially-responsible property landscape. I would also like to thank Prof. Veronica Ng Foong Peng, Head of Architecture Department at Sunway University for conducting a peer review of this handbook.

It is my hope that this handbook will serve as a useful guide and inspiration for the industry in delivering built environments that are accessible and beneficial to all so that we can all build better, enhance long-term asset values for property owners and contribute to nation building.



Teo Chui Ping

*Chairperson, ESG Committee
REHDA Malaysia*

TABLE OF CONTENTS

INTRODUCTION		PAGES
Strategic Policies, Frameworks and Initiatives		i
Section 1 Inclusive Design		
1.1	Beyond Compliance: The Value Case for Inclusive Design	1-1
1.2	Market Advantage: Responding to Diverse User Needs	1-1
1.3	Avoiding Costly Retrofits: Getting It Right the First Time	1-1
1.4	Future-Proofing Assets and Mitigating Risk	1-2
1.5	What is Inclusive Design ?	1-3
Section 2 Seven (7) Principles of Universal Design		
2.1	Key Principles of Universal Design	2-1
2.2	Principle 1: Equitable Use	2-1
2.3	Principle 2: Flexibility in Use	2-3
2.4	Principle 3: Simple and Intuitive Use	2-4
2.5	Principle 4: Perceptible Information	2-6
2.6	Principle 5: Tolerance for Error	2-7
2.7	Principle 6: Low Physical Effort	2-8
2.8	Principle 7: Size and Space for Approach and Use	2-9
Section 3 Practical Application: Design Checkpoints		
3.1	The Site and Landscape	3-1
3.2	Building Entrances and Lobbies	3-3
3.3	Vertical Movement (Stairs and Lifts)	3-5
3.4	Dwelling Units: Kitchens and Bathrooms	3-7
3.5	Common Facilities (Pools, Gyms, Community Halls, Playgrounds and Recreational Areas)	3-9
Section 4 Quick Checklist		
4.1	The Developer's Checklist	4-1

TABLE OF CONTENTS

INTRODUCTION		PAGES
Section 5	Case Studies: Inclusive Design in Practice	
5.1	Sime Darby Property <i>Inclusive Playground</i>	5-1
5.2	1 Utama City Group <i>Sensory Pod</i>	5-8
5.3	Suntrack Development Sdn Bhd <i>Universally-Designed Residence</i>	5-13
5.4	Sunway Property <i>Universal Access Township</i>	5-20
5.5	S P Setia <i>Inclusive Designed Neighbourhood</i>	5-22
5.6	GreenRE Health and Wellbeing (HWB) Tools Version 1.0	5-25
Glossary and References		

LIST OF TABLES

INTRODUCTION		PAGES
Alignment of the Inclusive Design Handbook with the United Nations Sustainable Development Goals (SDGs)		i
Section 1 Inclusive Design		
Table 1.1:	The Key Difference: Inclusion vs. Accessibility	1-3
Section 2 Seven (7) Principles of Universal Design		
Table 2.1:	Principle 1 – Equitable Use: Core Concept, Developer Focus and Key Checkpoints	2-1
Table 2.2:	Entrance and Egress Checkpoint	2-2
Table 2.3:	Vertical Circulation on Integrated Lifts and Common Controls	2-2
Table 2.4:	Shared Facilities and Amenities for Common Areas	2-2
Table 2.5:	Principle 2 – Flexibility in Use: Core Concept, Developer Focus and Key Checkpoints	2-3
Table 2.6:	Dwelling Unit Layout Design	2-3
Table 2.7:	Adaptable Kitchen and Workspace Design Features	2-3
Table 2.8:	Accessible Reach Ranges and Low-Effort Hardware	2-3
Table 2.9:	Principle 3 – Simple and Intuitive Use: Core Concept, Developer Focus and Key Checkpoints	2-4
Table 2.10:	Accessible Wayfinding and Signage Guidelines	2-5
Table 2.11:	Accessible Control Design Features	2-5
Table 2.12:	Principle 4 – Perceptible Information: Core Concept, Developer Focus and Key Checkpoints	2-6
Table 2.13:	Key Principles of Multi-Sensory Communication	2-6
Table 2.14:	Principle 5 – Tolerance for Error: Core Concept, Developer Focus and Key Checkpoints	2-7
Table 2.15:	Key Design Measures for Hazard Minimisation	2-7
Table 2.16:	Key Design Measures for Warning and Feedback Mechanisms	2-7
Table 2.17:	Key Design Measures for Fail-Safe Operations	2-8
Table 2.18:	Principle 6 – Low Physical Effort: Core Concept, Developer Focus and Key Checkpoints	2-8
Table 2.19:	Low Effort Operation of Controls, Doors and Fixtures	2-8
Table 2.20:	Accessible Movement and Rest Places	2-9
Table 2.21:	Key Design for Reach and Posture	2-9
Table 2.22:	Principle 7 – Size and Space for Approach and Use : Core Concept, Developer Focus and Key Checkpoints	2-9
Table 2.23:	Key Requirements for Accessible Manoeuvring and Circulation	2-10
Table 2.24:	Key Requirements for Accessible Reach Ranges and Controls	2-10
Table 2.25:	Key Requirements for Accessible Kitchens and Bathrooms	2-10

LIST OF TABLES

INTRODUCTION		PAGES
Section 3	Practical Application: Design Checkpoints	
Table 3.1:	Focus Areas and Application of Inclusive Exterior Design	3-1
Table 3.2:	Key Design Requirements for Accessible Routes and Pathways	3-1
Table 3.3:	Key Design Requirements for Arrival and Parking	3-2
Table 3.4:	Key Design Requirements for Lighting, Signage and Landscape	3-2
Table 3.5:	Focus Areas and Application of Building Entrances and Lobbies	3-3
Table 3.6:	Key Accessible Design and Safety Considerations for Thresholds and Doormats	3-3
Table 3.7:	Key Accessible Clear Passage and Design Doors	3-4
Table 3.8:	Key Accessibility Features for Lobby Circulation and Seating	3-4
Table 3.9:	Key Design Requirements for Accessible Reception and Service Counters	3-4
Table 3.10:	Focus Areas and Application on Vertical Movement (Stairs and Lifts)	3-5
Table 3.11:	Key Safety Design Considerations for Emergency Egress and Building Circulation	3-5
Table 3.12:	Key Accessible Design Considerations for Passenger Lifts	3-6
Table 3.13:	Key Accessible Design for Stairways	3-6
Table 3.14:	Focus Areas and Application on Dwelling Units: Bathrooms and Kitchens	3-7
Table 3.15:	Key Structural Provisions for Accessible Bathrooms	3-7
Table 3.16:	Key Design for Space and Fixtures	3-7
Table 3.17:	Dimension Verification	3-8
Table 3.18:	Key Kitchen Design Considerations for Safety and Preparedness	3-8
Table 3.19:	Inclusive Design Considerations for Accessible Appliances and Controls	3-8
Table 3.20:	Key Design on Flexibility and Layout	3-8
Table 3.21:	Focus Areas and Application on Common Facilities	3-9
Table 3.22:	Key Accessible Design Aquatic Areas	3-9
Table 3.23:	Key Accessible Design Function Rooms	3-9
Table 3.24:	Key Accessible Design for Gyms and Fitness	3-10
Table 3.25:	Key Accessible Design Playground and Recreational Areas	3-10
Section 4	Quick Checklist	
Table 4.1:	Site Developer's Checklist	4-1
Section 5	Case Studies: Inclusive Design in Practice	
Table 5.1:	GreenRE: 8 Main Categories and Direct Reference to Inclusive Design	5-27

LIST OF FIGURES

INTRODUCTION		PAGES
Section 1	Inclusive Design	
Figure 1.1:	Avoiding Costly Retrofits: Getting It Right the First Time	1-1
Figure 1.2:	Ramp to Accommodate Mobility	1-2
Figure 1.3:	Integrated into an Exhibition Space	1-2
Figure 1.4:	Accessible Toilet	1-2
Figure 1.5:	Inclusive Streetscape Design for Safe, Accessible and Comfortable Urban Movement	1-2
Figure 1.6:	The Three Pillars of Inclusive Design	1-5
Section 2	Seven (7) Principles of Universal Design	
Figure 2.1:	Global Alignment and Local Compliance	2-1
Figure 2.2:	Inclusive Design Features in a Building Lobby	2-2
Figure 2.3:	Inclusive Switch Height Design	2-3
Figure 2.4:	Flexible and Accessible Design Features in a Residential Interior	2-4
Figure 2.5:	Integrated Accessibility Features for Navigation and Building Control Features	2-5
Section 5	Case Studies: Inclusive Design in Practice	
Figure 5.1:	Masterplan Elmina Inclusive Playground	5-1
Figure 5.2:	Inclusive Playground Features	5-2
Figure 5.3:	Inclusive and Accessible Pathway Design	5-2
Figure 5.4:	Inclusive Playground Wayfinding	5-2
Figure 5.5:	Inclusive Playground at Elmina Township	5-3
Figure 5.6:	Inclusive Flush-mounted Roundabout	5-3
Figure 5.7:	Inclusive Sensory Play Columns	5-3
Figure 5.8:	Inclusive Playground Features Supporting Play for Children of All Abilities	5-4
Figure 5.9:	Sensory Landscape Features for Inclusive Nature-Based Play	5-5
Figure 5.10:	Wide and Safe Pedestrian Walkways	5-6
Figure 5.11:	Accessible Design Features	5-6
Figure 5.12:	Pocket Sliding Doors for Space Optimisation	5-6
Figure 5.13:	Multigenerational Living	5-6
Figure 5.14:	Bathroom Grab Bars	5-6
Figure 5.15:	Lever Handles	5-6
Figure 5.16:	Inclusive Playground Features in a High-Rise Residential Development	5-7

LIST OF FIGURES

INTRODUCTION		PAGES
Figure 5.17:	Clear and Accessible Wayfinding Systems	5-8
Figure 5.18:	Inclusive Sensory Pod, 1 Utama Shopping Center	5-8
Figure 5.19:	Inclusive and Autism-Friendly Design Applications at 1 Utama	5-9
Figure 5.20:	Features and Amenities of the Sensory Pod	5-11
Figure 5.21:	Inclusive Indoor Playground	5-11
Figure 5.22:	Multigenerational Community and Social Interaction	5-13
Figure 5.23:	Tuai Barat Residence: A High-Rise Development	5-13
Figure 5.24:	Threshold-Free Entrance to Tuai Barat Residence	5-14
Figure 5.25:	Pedestrian-Centered Walkways for Safe and Connected Circulation	5-14
Figure 5.26:	Wheelchair-accessible in Public Areas	5-15
Figure 5.27:	Wheelchair Turning Radius Design	5-15
Figure 5.28:	Accessible Communal Herb Garden	5-16
Figure 5.29:	Accessible Window Handle Height	5-16
Figure 5.30:	Inclusive and Accessible Entrance Ramp Design	5-16
Figure 5.31:	Accessible Design for Users of Public Facilities	5-17
Figure 5.32:	Multi-Ability Playground with Inclusive Safety Features	5-17
Figure 5.33:	Accessible Water Entry with Safety Elements	5-17
Figure 5.34:	Wide and Accessible Walkway Design	5-17
Figure 5.35:	Accessible Entrance Threshold with Recessed Entrance Mat	5-18
Figure 5.36:	Universal Design Features for Lift Cars	5-18
Figure 5.37:	Accessible Stairway with Continuous Handrails	5-18
Figure 5.38:	Accessible Refuge Area with Emergency Exit Access	5-19
Figure 5.39:	Accessible Pathway with Tactile Guidance and Signage	5-19
Figure 5.40:	Gentle Gradients for Walkways and Ramps	5-19
Figure 5.41:	Tactile Lift Controls and Braille Wayfinding Signage	5-19
Figure 5.42:	Seamless Corridors to Residential Units and Bathrooms	5-20
Figure 5.43:	Ramps for Seamless and Accessible Movement	5-20
Figure 5.44:	Seamless and Step-Free Access from the Car Park to Retail Areas and Outlets	5-21
Figure 5.45:	Leadership in Energy and Environmental Design (LEED) Award May 2025	5-22
Figure 5.46:	Illustration High-Rise Parkside Residences, Setia Federal Hill	5-22
Figure 5.47:	Illustration of the Inclusive Communal Amenities and Integrated Accessible Public Spaces	5-23

Strategic Policies, Frameworks and Initiatives

Sustainable Development Goals (SDGs)



This Inclusive Design Handbook aligns with several National Strategic Policies and Initiatives that support Malaysia's commitment to global sustainable development frameworks, including the United Nations Sustainable Development Goals (SDGs) and the New Urban Agenda (NUA) adopted at the UN Habitat III Conference.

The objectives of the Handbook are aligned with several SDGs, including:

Table: Alignment of the Inclusive Design Handbook with the United Nations Sustainable Development Goals (SDGs)



The Handbook supports the development of healthier and safer environments, through measures that contribute to the well-being of all users, including older persons, persons with disabilities, children, families and individuals with temporary mobility limitations.



The Handbook encourages relevant stakeholders to ensure that buildings and public spaces are designed and managed for universal accessibility, regardless of age, ability or background. It promotes an inclusive development approach that helps to mitigate exclusion in the built environment.



The Handbook supports the development of inclusive, resilient and future-ready urban areas, including cities, townships and neighbourhoods. It enhances community participation and liveability, while ensuring that urban environments remain adaptable and functional in response to evolving demographic needs, particularly ageing populations and shifting mobility requirements.



By promoting shared responsibility and collaboration across the development ecosystem through a common reference framework, the Handbook supports consistency in practice, encourages knowledge sharing and strengthens industry-wide commitment to inclusive, sustainable and socially responsible development.

New Urban Agenda (NUA)

Malaysia's national urban policy framework is broadly consistent with the principles of the New Urban Agenda (NUA), adopted at the UN Habitat III Conference in 2016. The Ministry of Housing and Local Government (KPKT) has subsequently supported the localisation and implementation of the NUA in Malaysia, promoting sustainable, inclusive, resilient and liveable urban development.

Inclusive, Accessible Cities and Communities

The New Urban Agenda promotes cities that are inclusive, accessible and equitable, where people of different backgrounds and abilities can participate in social, economic, cultural and civic life.

Adapted from the New Urban Agenda (NUA), UN Habitat III 2016

The 'Cities for All' concept under the NUA advocates for inclusive and accessible urban development that promotes equal participation and access for all groups.



Section 1

INCLUSIVE DESIGN



1.0 Introduction

1.1 Beyond Compliance: The Value Case for Inclusive Design

In today's evolving real estate landscape, regulatory compliance is an essential foundation while inclusive design is a market differentiator, when considered from the outset, inclusive design can enhance user experience, broaden market appeal, mitigate potential risks and contribute to the long-term value and resilience of a development.

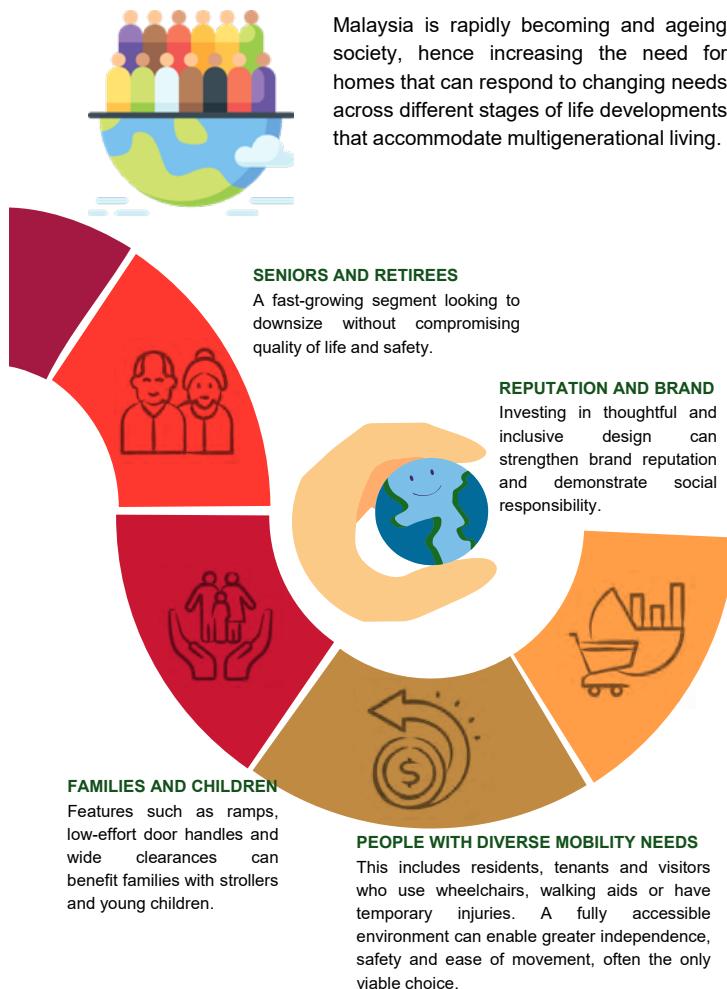
1.2 Market Advantage: Responding to Diverse User Needs

Adopting inclusive design principles can enhance a development's value and broaden its appeal to a wider range of potential buyers.

Inclusive Design is the practice of designing for the widest range of human abilities, needs and experiences across the entire lifespan. For modern-day developers, incorporating inclusive design principles can contribute to more adaptable, resilient and future-ready development.

1.3 Avoiding Costly Retrofits: Getting It Right the First Time

Retrofitting a completed building to meet new standards or accommodate changing user needs can be significantly more expensive and disruptive than integrating such considerations at the design stage.



Construction Design

Cost ratio of accessible construction is approximately 1 unit of cost when planned into the design phase, versus 100 units of cost for the same fix after construction is complete.



Design-Time Integration

Design for future adaptability early design decisions can provide greater flexibility for future needs. Features such as thickening bathroom walls for safe installation of future grab bars and adequate doorway clearances allow spaces to be more easily adapted when users' needs change over time.



Operational Savings

Inclusive infrastructure, such as simple, clearly marked wayfinding systems, reduces staff time spent on assisting navigation and handling complaints related to poor usability.

Figure 1.1: Avoiding Costly Retrofits: Getting It Right the First Time

1.4 Future-Proofing Assets and Mitigating Risk

Adopting a universal design approach can deliver intuitive and user-friendly solutions, enhance user experience, reduce the need for future modifications and safeguards developments against evolving regulatory requirements and changing user needs.

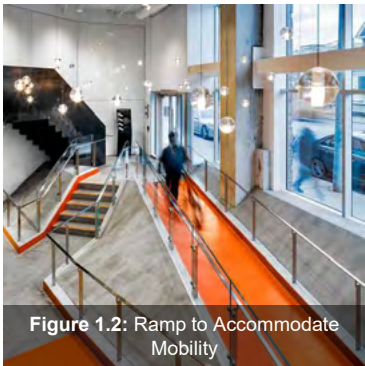


Figure 1.2: Ramp to Accommodate Mobility

Source: Designing Inclusive Places

Regulatory Resilience

Accessibility and universal design requirements continue to evolve in response to changing societal needs and expectations. Voluntary adoption of international best practices can help developments remain adaptable to future regulatory changes and reduce the need for costly modification later.



Figure 1.3: Integrated into an Exhibition Space

Source: Designing Inclusive Places

Asset Longevity

Buildings designed to accommodate a wide range of users and changing needs over time are better positioned to remain relevant and functioning throughout their life cycle. Adaptable design can help extend the usability of development and support its long-term value.

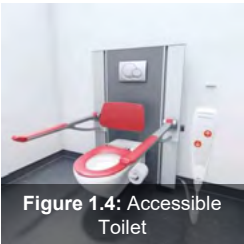


Figure 1.4: Accessible Toilet

Insurance and Liability

Proactively addressing accessibility and safety through inclusive design that can help reduce potential hazards and injury risks, while management reduces trip hazards and potentially mitigating liability claims and ensuring favourable insurance terms.

Source: Changing Places

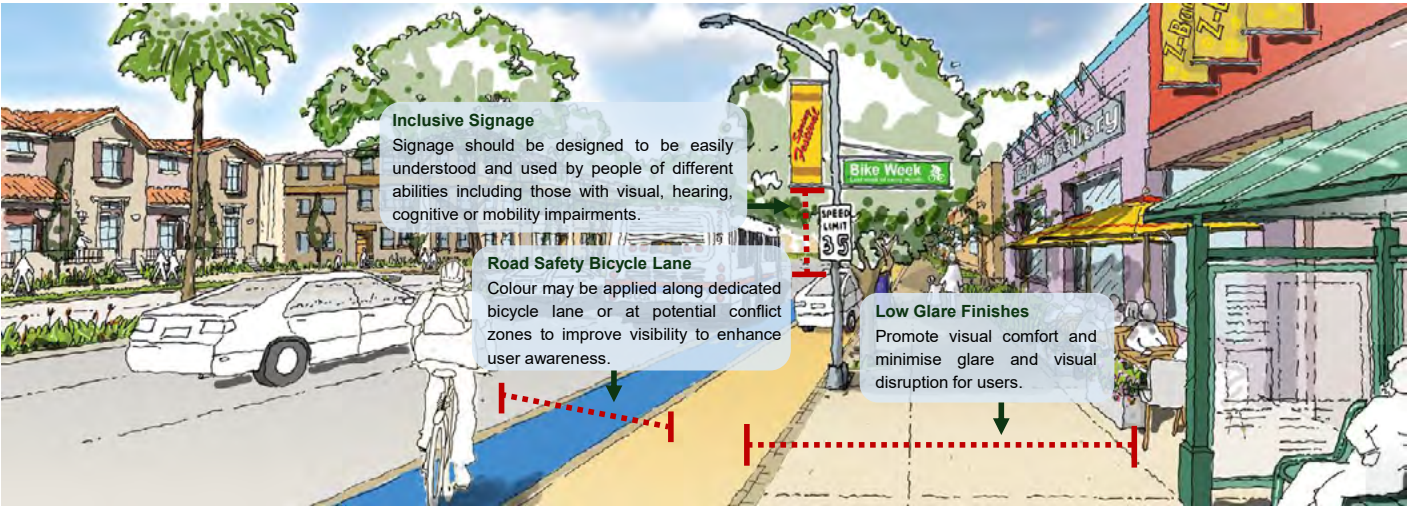


Figure 1.5: Inclusive Streetscape Design for Safe, Accessible and Comfortable Urban Movement

Source: Placeworks

1.5 What is Inclusive Design ?

Inclusive Design is a Development Philosophy,
Not a Checklist

Inclusive design seeks to eliminate barriers that hinder individuals’ participation in public life, while accessible design ensures that physical spaces are navigable and usable by everyone, including those with disabilities. These principles are particularly critical in urban settings, where the built environment directly influences the quality of life, mobility and independence of residents (Szaszák and Kecskés, 2020).



The Key Difference: Inclusion vs. Accessibility

For developers, understanding this distinction is critical in creating built environments that go beyond minimum accessibility requirements to meet the diverse needs for users.

Table 1.1: The Key Difference: Inclusion vs. Accessibility

FEATURE	ACCESSIBILITY (COMPLIANCE)	INCLUSIVE DESIGN (STRATEGY)
GOAL	Ensure space are accessible and visible, including compliance with applicable accessibility requirements (e.g., MS 1184).	Provides maximum human experience and market appeal.
FOCUS	Address barriers that may limit access and use, especially persons with disabilities.	Consider diverse user needs abilities and experience across different stages of life.
METHOD	Incorporate specific accessibility requirements and features into the design.	Integrate inclusive design consider actions from the concept and planning stages.
RESULT	An accessible and compliance development.	A more inclusive, adaptable and more user-responsive development.

Inclusive design recognises that a person's abilities are not fixed. It responds to full range of human experience, including:

PERMANENT DISABILITIES

Users with permanent disabilities, such as those who are blind, deaf or use mobility aids.

AGEING POPULATION

Designing for gradual changes in vision, mobility strength and cognitive processing that may occur as people age.

SITUATIONAL CONSTRAINTS

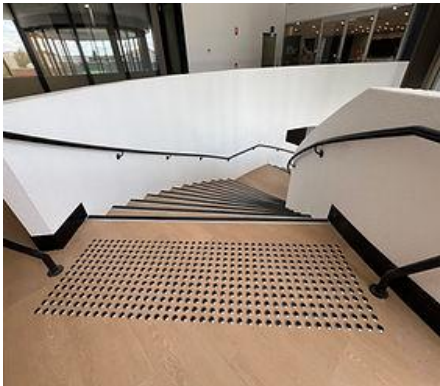
A parent pushing a stroller, a courier carrying a heavy package or an individual navigating a busy or unfamiliar environment.

TEMPORARY LIMITATIONS

A user with a temporary injury, such as a broken leg, or someone recovering from surgery or after a short-term condition that affects mobility or sensory ability.



Source: Youth Today



Source: Tactile Solutions



Source: Sinolifter



Source: RMJM



Source: kompan.com



Source: Arquifach



Source: Progressive Companies

Three (3) Pillars of Inclusive Design

An inclusive development addresses three fundamental areas of interaction, enabling all users to participate fully and equally:

THE THREE PILLARS OF INCLUSIVE SPACE



A. DESIGNING FOR THE BODY (PHYSICAL INCLUSION)

► Movement, reach and physical interaction



Wide corridors



Non-slip surfaces



Low-effort lever handles



Clear, safe gradients and ramps



B. DESIGNING FOR THE MIND (SENSORY AND COGNITIVE INCLUSION)



Clear communication



Simple wayfinding



High colour contrast



Reduced noise



Clear signage



Glare-free lighting



C. DESIGNING FOR THE COMMUNITY (SOCIAL INCLUSION)

Equitable, welcoming and participatory community



Accessible amenities



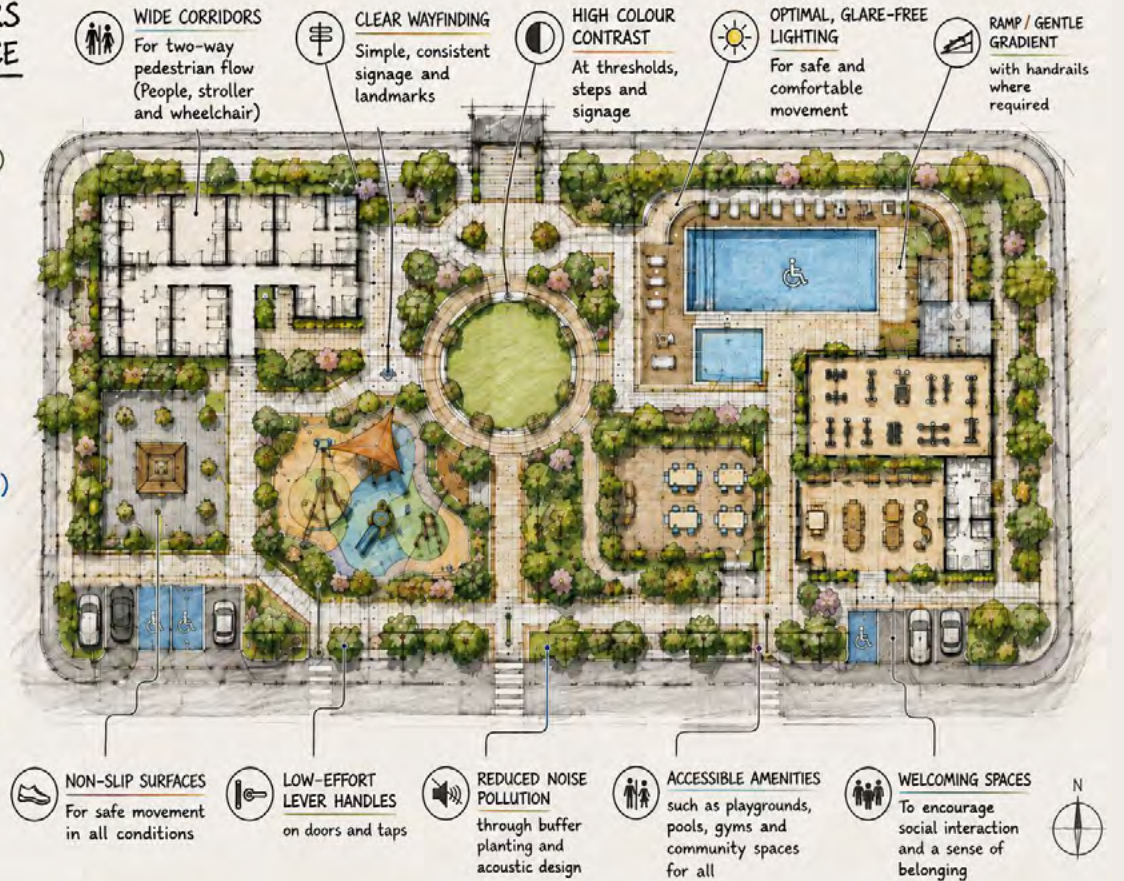
Welcoming spaces



Participation for all



Sense of belonging



Designed by: Anis Nabillah (REHDA Malaysia)

Figure 1.6: The Three Pillars of Inclusive Design

Section 2

SEVEN (7) PRINCIPLES OF UNIVERSAL DESIGN



2.0 Global and Local Reference Frameworks

2.1 Key Principles of Universal Design

While Universal Design provides the philosophy, international organisations provide significant references for its application.

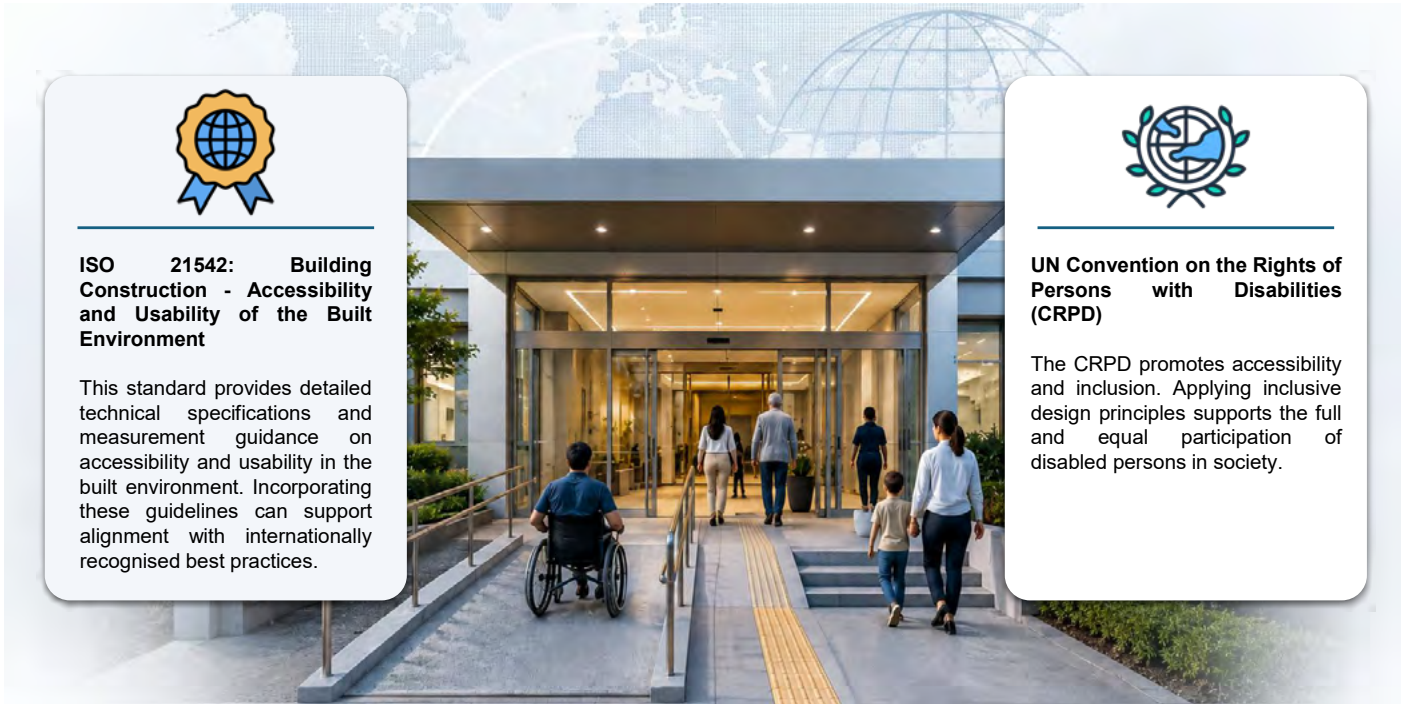


Figure 2.1: Global Alignment and Local Compliance
Source: REHDA Malaysia

2.2 Principle 1: Equitable Use

Table 2.1: Principle 1 – Equitable Use: Core Concept, Developer Focus and Key Checkpoints

Core Concept The design is useful and marketable to people with diverse abilities. Provide the same means of use for all users or equivalent means when necessary and avoid segregating or stigmatizing any user group.	Developer Focus Dignity, Sameness and Choice. An equitable development provides an equally convenient and dignified experience for all users.	The Equitable Checkpoints A person using a wheelchair, a parent with a stroller or a courier delivering a package should all be able to access the property, its facilities and information through the same high-quality infrastructure.
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Entrances and Egress Routes

Table 2.2: Entrance and Egress Checkpoint

Identical Main Access The accessible entrance should be the primary entrance. Where a ramp is provided, it should be adjacent to the main steps, leading to the same entrance. Accessible routes should avoid unnecessary detours of access through service entrances.
Equal Door Operation All main entry and lobby doors should require low physical effort or be fully automated. Door width, opening force to open it and handle type should accommodate for the widest possible range of users.
Equitable Waiting Areas Drop-off zones and waiting areas should provide comfortable seating options for all users, including those who cannot stand for long periods.

Vertical Circulation (Lifts and Stairs)

Table 2.3: Vertical Circulation on Integrated Lifts and Common Controls

Integrated Lifts Lifts should be centrally located easy to find and conveniently positioned alongside after primary means of vertical circulation, rather than in distant or less accessible locations.	Common Controls Lift call should be buttons and control panels are within reach for both standing and seated users, in accordance with MS 1184 guidelines.
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Shared Facilities and Amenities

Table 2.4: Shared Facilities and Amenities for Common Areas

Inclusive Washrooms Public washrooms should include at least one universally accessible, all-gender or family restroom. This provides flexibility for users of diverse needs, including disabled persons and those requiring assistance.	Pool and Gym Access Common amenities should provide access for all users, with appropriate accessible routes and facilities.	Clearance in Common Areas Furniture in public area should be arranged to provide clear, wide and obstruction-free access for all users.
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INCLUSIVE DESIGN LOBBY



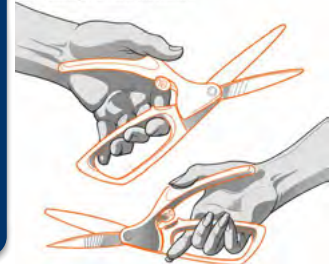
2.3 Principle 2: Flexibility in Use

Table 2.5: Principle 2 – Flexibility in Use: Core Concept, Developer Focus and Key Checkpoints

Core Concept The design accommodates a wide range of individual preferences and abilities. It provides choices in methods of use and facilitates the users' accuracy and precision.	Developer Focus Adaptability, Customisation and Longevity. This principle supports future-proofing by allowing a dwelling unit to grow and adapt to the resident's changing needs over time while minimising the need for major structural modification.	The Flexibility Checkpoints Designing adaptable spaces that can be customized to accommodate diverse physical and cognitive needs at any point in time.
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Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.



Source: Mill Pond Porch

Dwelling Unit Layouts

Table 2.6: Dwelling Unit Layout Design

Convertible Spaces Where possible, layouts using non-load-bearing internal walls to be more easily, dwelling reconfigured for example, by combining two smaller rooms into a larger accessible bedroom or creating a workspace.
Door Swing Options Where appropriate consider door configurations that facilitate emergency access and allow doors to be opened if a user requires assistance inside.
Integrated Reinforced Walls Where to appropriate, provide suitable wall reinforcement around toilet, showers and specify install plywood backing or solid bathtub to facilitate future installation of grab bars without extensive alteration works.

Controls and Mechanisms

Table 2.8: Accessible Reach Ranges and Low-Effort Hardware

Varied Reach Ranges

Position light switches, thermostat controls and power outlets within accessible reach ranges to accommodate both standing and seated users, in accordance with applicable standards.

Low-Effort Hardware

Where appropriate, specify lever handles for doors and taps instead of knobs or circular handles. Levers are easier to operate for users with reduced grip strength or limited hand mobility.

Kitchen and Workspace Adaptability

Table 2.7: Adaptable Kitchen and Workspace Design Features

Adaptable Cabinetry Design cabinetry beneath the sinks and cooktops so, that it can be readily adapted or removed where required. This allows a seated user to access work surface without having major modifications.	Flexible Lighting Multiple-zoned lighting in key areas such as living and kitchen, allow users to adjust the brightness and focus of light, accommodate to varying visual needs.
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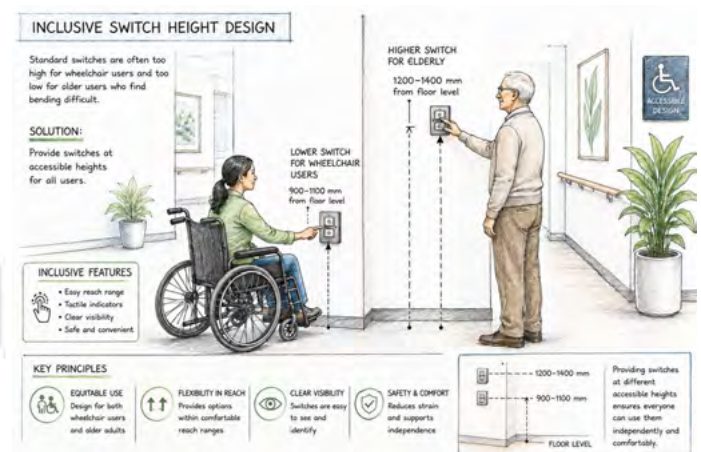


Figure 2.3: Inclusive Switch Height Design

Source: REHDA Malaysia

FLEXIBILITY IN USE

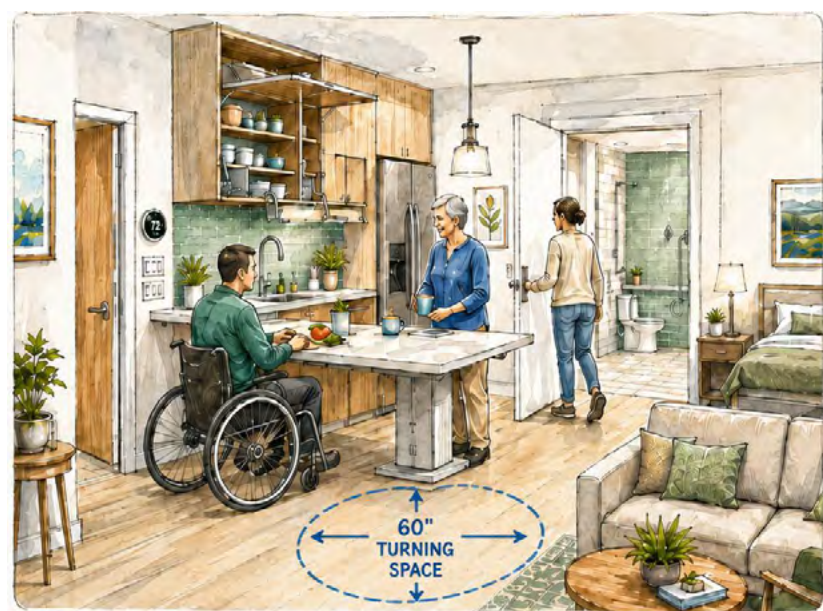


Figure 2.4: Flexible and Accessible Design Features in a Residential Interior

Source: REHDA Malaysia



WIDE DOORS
At least 32 inches clear width for easy access.



OPEN FLOOR PLAN
Clear paths and unobstructed movement.



REACHABLE STORAGE
Pull-down or open shelves within easy reach.



ACCESSIBLE OUTLETS
Mounted within accessible reach for ease of use and future flexibility.



ADJUSTABLE SURFACES
Height-adjustable to accommodate users with varying needs.

2.4 Principle 3: Simple and Intuitive Use

Table 2.9: Principle 3 – Simple and Intuitive Use: Core Concept, Developer Focus and Key Checkpoints

Core Concept

Design is easy to understand, regardless of the user’s experience, knowledge, language skills or current concentration level.

Developer Focus

Clarity, Predictability and Confidence. Good intuitive design minimises cognitive load, and creates a safer, less stressful environment, particularly for users with cognitive or memory limitations and those unfamiliar with the local language.

The Intuitive Checkpoints

Intuitive design relies on consistent and clear communication. When users approached a control or navigation point, they should be able to anticipate its purpose, operation and expected outcome.



Source: Mill Pond Porch

Wayfinding and Signage

Table 2.10: Accessible Wayfinding and Signage Guidelines

Clarity over Style Prioritise legibility by using large, simple and avoid overly-stylised or reflective materials for signage.	Universal Iconography Use internationally-recognised symbols and icons (e.g., the wheelchair symbol, directional arrows, washroom figures) to convey information without relying solely on text.
Layered Information Place wayfinding information at key decision points, such as entrances and lift lobbies. Ensure signage is readable from two distances: - Up close for detailed reading; and - Far away for quick direction.	Consistency Use consistent colours, fonts, symbols and placement across floor plans, directories and directional signage throughout the development.

Controls and Operation

Table 2.11: Accessible Control Design Features

Visible Function Controls such as light switches, door openers or thermostats, should be clearly marked visually contrasted against surrounding surfaces for easy identification.
Logical Arrangement Arrange controls logically to correspond with the sequence or location of the functions they operate (e.g., lift buttons arranged in floor sequence).
Affordance Design elements should visually indicate their intended use. For example, a flat surface suggests pushing while a handle suggests pulling.

INCLUSIVE DESIGN IN ACTION

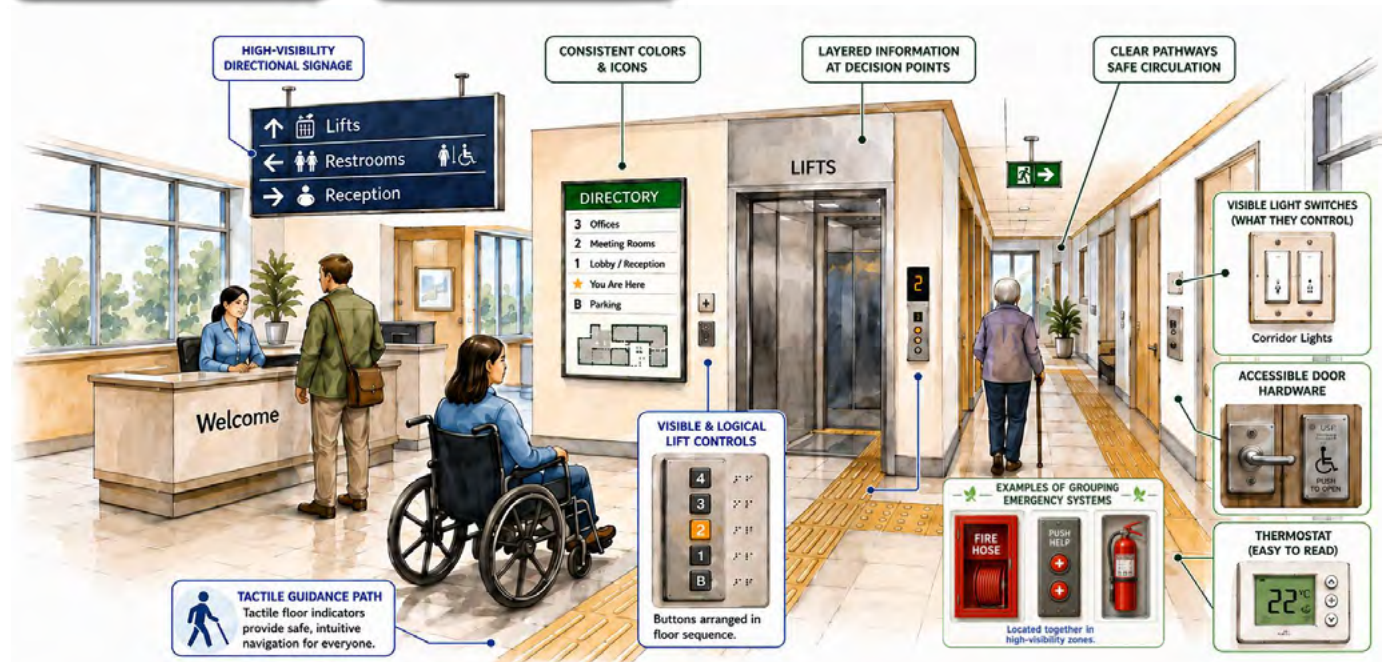


Figure 2.5: Integrated Accessibility Features for Navigation and Building Control Features

Source: REHDA Malaysia

2.5 Principle 4: Perceptible Information

Table 2.12: Principle 4 – Perceptible Information: Core Concept, Developer Focus and Key Checkpoints

Core Concept The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities (vision, hearing, touch).
Developer Focus Multi-Sensory Communication, Safety and Orientation. This principle ensures that communication of critical information, particularly safety and wayfinding information, is conveyed through more than one sensory channel.
The Perceptible Checkpoints Perceptible information uses multiple channels—visual, auditory and tactile to communicate essential building functions, alerts and navigation points to users.

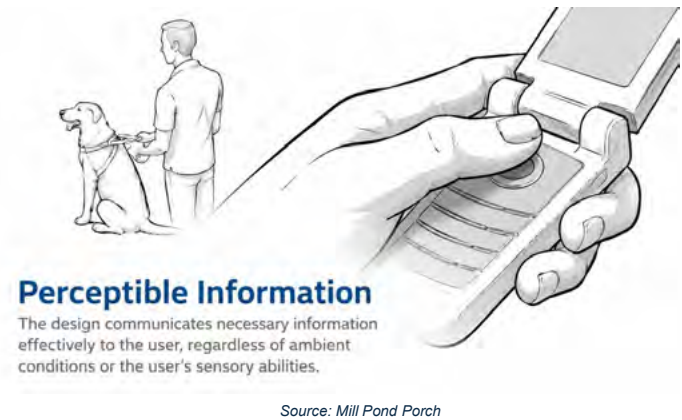


Table 2.13: Key Principles of Multi-Sensory Communication

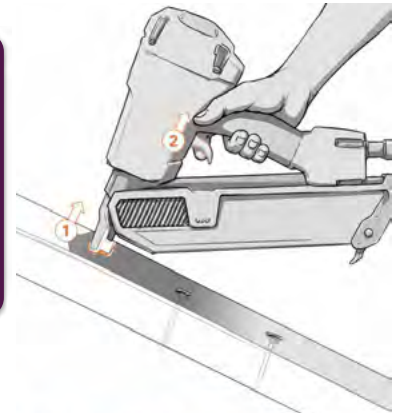
Visual Communication (Contrast and Readability)			
 High Contrast Use high colour contrast for all critical visual elements, including signages, steps and handrails.	 Glare Reduction Specify matte or low-glare finishes for flooring and walls, especially in lobbies and large common areas with high light exposure.	 Optimal Lighting Provide consistent and uniform lighting along public routes, while minimising dark shadows and excessive glare.	
Tactile Communication (Touch and Texture)			
 Tactile Ground Indicators (TGSIs) Install detectable warning surfaces such as ‘tactile paving’ at the top and bottom of ramps and stairs and before hazardous areas like platforms or vehicular drop-off zones.	 Braille and Raised Text Key permanent signage, such as room numbers, lift controls and emergency information, should incorporate raised text and Braille, positioned consistently at an easy-to-read height and location.	 Floor Material Changes Use subtle, yet detectable, changes in floor texture or material to indicate transitions between zones, providing additional tactile cues for navigation.	
Auditory Communication (Alert and Systems)			
 Multi-Sensory Systems Fire alarm systems should incorporate appropriate audible and visual alerts to accommodate users with different sensory needs, in accordance with applicable fire safety requirements.	 Clear Public Address Systems Ensure any public address or emergency announcement system including those in lift, clubhouses and car parks transmits clear, intelligible speech, with minimal background noise or echo.	 Lift Announcements Audible announcements of the floor number and direction of travel should be clear and calm, accompanied by visible floor indicators.	

Source: REHDA Malaysia

2.6 Principle 5: Tolerance for Error

Table 2.14: Principle 5 – Tolerance for Error: Core Concept, Developer Focus and Key Checkpoints

Core Concept The design minimises hazards and the adverse consequences of accidental or unintended actions. It focuses while reducing the potential for user.	Developer Focus Safety, Risk Reduction and Minimising Damage. Designing with tolerance for error can help protect users from accidental harm and reduce unnecessary damage or wear to the property.	The Error Checkpoints Tolerance for Error involves anticipating user mistakes arising from haste, distraction or physical limitations and incorporating safeguards to mitigate associated risks.
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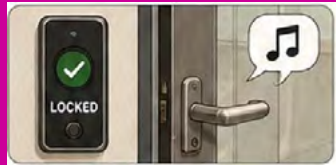
Hazard Minimisation

Table 2.15: Key Design Measures for Hazard Minimisation

 Non-Slip Surface Specify slip-resistant flooring materials in common areas, particularly in areas prone to wet conditions, such as pool decks, external walkways and bathrooms. 	 Seamless Transition Minimise abrupt changes in level that may pose trip hazards. Where unavoidable, thresholds or level changes should be clearly identifiable and appropriately designed to minimise risk. 	 Rounded Edges Architectural fixtures such as countertop corners and built-in seating in common areas should incorporate, rounder or chamfered edges to minimize injury from accidental contact. 	Tolerance for Error The design minimizes hazards and the adverse consequences of accidental or unintended actions. <i>Source: Mill Pond Porch</i>  Safe Zones Clearly delineate vehicular paths from pedestrian walkways using appropriate physical separation visual contrast differentiation material. 
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Warning and Feedback Mechanisms

Table 2.16: Key Design Measures for Warning and Feedback Mechanisms

 Critical Alerts Warnings should provide appropriate visual, tactile or auditory cues, where relevant to alert users to potential hazards. 	 Confirmation Provide immediate, clear feedback when an action has been successfully completed. For example, on locking mechanism lights up green when secured; an entrance door emits a soft chime when it has fully closed. 
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Source: REHDA Malaysia

Fail-Safe Operations

Table 2.17: Key Design Measures for Fail-Safe Operations

 Soft Closers Where appropriate, doors and cabinetry should incorporate controlled or soft-closing mechanisms to prevent injury to hands and fingers and minimise repetitive wear and tear. 	 Auto-Shutoff Systems Incorporate automatic shut-off systems where appropriate to reduce unintended use and wastage such as timed or sensor-operated taps and motion-active lighting in common areas. 	 System Reversibility Critical controls should be designed so that an erroneous action can be easily reversed or undone where appropriate, systems and controls should allow users to safely correct or reversed unintended actions, without compromising safety. 
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Source: REHDA Malaysia

2.7 Principle 6: Low Physical Effort

Table 2.18: Principle 6 – Low Physical Effort: Core Concept, Developer Focus and Key Checkpoints

Core Concept The design can be used efficiently, comfortably and safely with a minimum of fatigue.	Developer Focus Comfort, Efficiency and Usability. Low effort design improves the daily experience by making the built environment easier and more comfortable to use for users with varying levels of strength and mobility.	The Low Physical Effort Checkpoints Low physical effort involves reducing the force, repetitive actions and physical strain required to interact with and move through the built environment.
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Low Physical Effort

The design can be used efficiently and comfortably with a minimum of fatigue.

Source: Mill Pond Porch

Table 2.19: Low Effort Operation of Controls, Doors and Fixtures

Operation of Controls and Doors			
Lever Handles Where appropriate, specify lever handles instead of knobs for doors and cabinetry as they require less grip strength and can be operated with a closed hand or elbow. 	Low Force Operating Doors should require minimal force to operate, especially at entrances and common facilities. Where installed, door closers should facilitate ease of opening and comply with applicable accessibility requirements. 	Automated Access Consider automatic sliding or swinging doors at primary entrances and other high traffic access points to reduce the physical effort required for entry and exit. 	Sensor Taps Consider sensor-operated taps in common washrooms to reduce the need for gripping or turning, benefiting users with limited hand strength or mobility. 

Table 2.20: Accessible Movement and Rest Places

Movement and Rest		
Minimising Travel Distance Locate common services, such as lift, mailboxes and waste disposal areas, logically to minimise the distance users need to travel. 	Gentle Gradients Maintain the gentlest gradients possible on all exterior walkways and ramps. While a maximum ramp slope is regulated, aiming for gentler slopes (maximum gradient 1:12). Where feasible, provide gentle gradients along external walkways and ramps to reduce physical effort, in accordance with applicable accessibility requirement. 	Resting Places Integrate accessible seating within common areas and automatic sliding or swinging doors at all primary entrances. This eliminates the need for any physical effort to enter the development. 

Table 2.21: Key Design for Reach and Posture

Reach and Posture	
Optimised Reach Located frequently used controls, including intercoms, lift buttons and electrical switches, within a comfortable and accessible reach range to minimise unnecessary stretching or bending. 	Pull-Out Storage Consider pull-out drawers and shelving in kitchens and wardrobes to reduce the need for users to reach deep into cabinets or bend excessively. 

Source: REHDA Malaysia

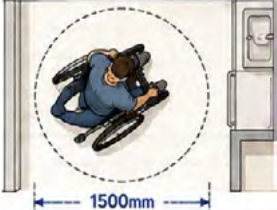
2.8 Principle 7: Size and Space for Approach and Use

Table 2.22: Principle 7 – Size and Space for Approach and Use : Core Concept, Developer Focus and Key Checkpoints

Core Concept Appropriate size and space is provided for approach, reach, manipulation and use, regardless of the user's body size, posture or mobility.	Developer Focus Critical Dimensions, Compliance and Clearances. This principle emphasises the importance of incorporating appropriate dimensions and clearances at the planning stage to support usability and minimise the need for subsequent remedial works.	Dimensional Checkpoints Size and space should accommodate users with diverse body sizes, postures and mobility needs, including those using mobility aids.	 Size and Space for Approach and Use Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility. Source: Mill Pond Porch
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Manoeuvring and Circulation

Table 2.23: Key Requirements for Accessible Manoeuvring and Circulation

Minimum Clear Width Common corridors, walkways and accessible routes provide sufficient clear width to allow for two-way passage and accommodate mobility devices (wheelchairs, scooters, strollers). 	Turning Radii Provide sufficient manoeuvring space at key locations such as lift lobbies, accessible washrooms and kitchen work areas to accommodate wheelchair users. 	Door Clear Openings Doorways should provide sufficient clear opening width for users to pass through comfortably, in accordance with applicable accessibility requirements. 
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Reach Ranges and Controls

Table 2.24: Key Requirements for Accessible Reach Ranges and Controls

Optimal Control Height Located frequently used operational controls—light switches, intercoms and lift buttons within an accessible reach range that accommodates both seated and standing users. 	Clear Floor Space at Controls Provide sufficient clear floor space of 750mm x 1200mm (or equivalent) in front of operating controls to allow users including wheelchair users to pull up and operate them comfortably. 	Avoid Deep Overhangs In areas like ATMs, service counters or mailboxes, ensure the features can be reached without requiring users to lean excessively over an obstruction. 
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Space Around Fixtures (Wet Areas)

Table 2.25: Key Requirements for Accessible Kitchens and Bathrooms

Accessible Kitchens Provide sufficient clear floor space of at least 1500mm between opposing cabinets and walls in accessible kitchens. Sinks and food preparation areas should incorporate appropriate knee and toe clearance where required. 	Accessible Bathrooms - Provide sufficient clear floor space adjacent to the toilet to facilitate wheelchair transfer. - Sinks should be positioned at an accessible height with adequate knee clearance beneath, and any exposed hot-water pipes should be suitably protected where necessary. 
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Source: REHDA Malaysia

Section 3

PRACTICAL APPLICATION: DESIGN CHECKPOINTS





The Site Checkpoints

3.0 Practical Application: Design Checkpoints

3.1 The Site and Landscape

Table 3.1: Focus Areas and Application of Inclusive Exterior Design

Focus Area		Application Goal
External pedestrian routes, parking facilities, drop-off points and landscaped common areas within the development.		To enable users, whether arriving by car, public transport or on foot to approach, navigate and use external spaces safely and with dignity.

Table 3.2: Key Design Consideration for Accessible Routes and Pathways

Accessible Routes and Pathways (Principle 6, Principle 7)			
An accessible route provides a continuous, unobstructed path connecting key areas, including parking facilities, entrances and amenities.			
Minimum Clear Width Main pedestrian routes and walkways should provide sufficient clear width of minimum 1200mm to accommodate users passing including those using mobility devices. 	Surface Pathways should be firm, stable and slip-resistant in both wet and dry conditions. Avoid loose gravel, uneven cobbles or high-glare polished surfaces.  FIRM, STABLE, NON-SLIP LOOSE GRAVEL / UNEVEN COBBLES  HIGH-GLARE POLISHED STONE NON-SLIP TEXTURED FINISH	Gradients Where feasible, provide gentle gradients along pedestrian routes to reduce physical effort. ○ Ramps: should adhere to maximum slope requirement. ○ Ramps and walkways: Integrate frequent resting platforms (at least 1500mm x 1500mm) for users with low stamina. 	Drainage Ensure drains and grates should be flush with adjoining surfaces, with openings of less than 13mm to minimise the risk of mobility aids, wheels or footwear getting caught.  FLUSH SURFACE OPENINGS < 13mm OPENINGS > 13mm HAZARD RISK

Source: REHDA Malaysia

Table 3.3: Key Design Requirements for Arrival and Parking

Arrival and Parking (Principle 1, Principle 7)	
Arrival and parking areas are the important first points of access in inclusive development, providing connections from safe, convenient and barrier-free accessible parking bays and drop-off zones located close to the main entrance.	
 Designated Accessible Bays Accessible parking bays should be clearly marked and located along the shortest possible accessible route to the main entrance. The bays should connect directly to an accessible pedestrian route without requiring users to pass behind parked vehicles.	
 Bay Dimensions Accessible parking bays should provide sufficient space of 3600mm wide x 4800mm length to allow users to safely enter exit and transfer from the vehicles in accordance with applicable accessibility requirements.	
 Drop-off Zones Provide a covered and level passenger drop-off area adjacent to the main entrance, accessible route to the building, free from steep curbs.	

Table 3.4: Key Design Requirements for Lighting, Signage and Landscape

Lighting, Signage and Landscape (Principle 3, Principle 4)			
The landscape design should be planned to enhance wayfinding and promote user safety, ensuring that it supports clear navigation and accessibility rather than creating visual or physical obstructions.			
Consistent Lighting Ensure all pedestrian routes, parking areas and transition zones are lit uniformly and consistently throughout the night. Avoid dark spots and overly bright, glaring light fixtures (Principle 4).	Non-Obstruction Landscape features (e.g., planters, low-hanging branches, water features) should not obstruct pathways or reduce the required clear width.	Intuitive Wayfinding Use large, clear, high-contrast signage that is consistently placed at key junctions. Integrate Tactile Ground Surface Indicators (TGSIs) to alert users to hazards like approaching roads or the top/bottom of stairs.	Seating Integration Integrate shaded, robust seating at regular intervals (every 30m – 50m) along long outdoor paths, ensuring the space beside the seat is large enough for a wheelchair or stroller to pull up alongside.
			

Source: REHDA Malaysia

3.2 Building Entrances and Lobbies

Table 3.5: Focus Areas and Application of Building Entrances and Lobbies

Focus Area
The transition zone between external areas and building's main circulation systems including lifts and stairs.
Application Goal
To enable users to enter, navigate the public spaces and locate key services such as reception areas and lifts easily and independently.



Entrance and Lobby Checkpoints

The lobby serves as a key access and orientation point within the building. Inclusive design supports safe movement, intuitive wayfinding and a positive user experience.

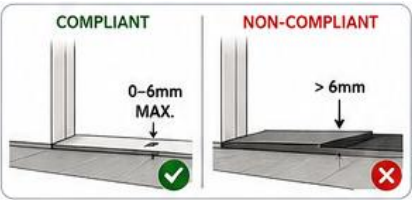
Table 3.6: Key Accessible Design and Safety Considerations for Thresholds and Doormats

Thresholds and Doormats (Principle 5, Principle 7)

Poorly designed thresholds can create trip hazards and impede users of mobility devices.

Flush Thresholds

Where feasible, thresholds between external and internal spaces should be flush or leveled with a maximum height of 6mm to facilitate smooth and safe passage.



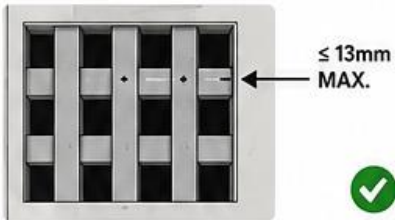
Recessed Matting

Doormats or grills should be recessed completely into the floor so that their mat surfaces are level with the adjoining finished floor. Avoid thick or unsecured matting that may create trip hazard or obstruct mobility aids.



Grille Openings

Where floor grates or grilles are provided, openings should be appropriately sized not more than 13mm and positioned to minimize the risk of mobility aids from getting trapped.



Source: REHDA Malaysia

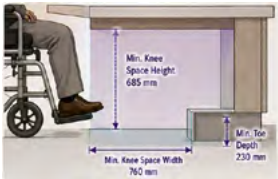
Table 3.7: Key Accessible Clear Passage and Design Doors

Lobby Entrance and Door Design (Principle 4, Principle 7)		
The door should communicate clearly and operate with minimal effort.		
Clear Opening Primary entrance and security doors should provide sufficient clear opening width of 800mm to accommodate users, including those using mobility devices (Principle 7).	Automatic/Low Effort Doors Install automatic sliding or swinging doors at the main entry to eliminate physical effort (Principle 6). If manual doors are used, specify automatic door closers that require less than 22 N (Newton) of opening force.	Contrasting Frames Provide sufficient visual contrast between door frames or architectural elements and surrounding wall surfaces to make doorway easier to identify (Principle 4).
		

Table 3.8: Key Accessibility Features for Lobby Circulation and Seating

Lobby Circulation and Seating Design (Principle 6, Principle 7)		
The lobby should serve as a clear, safe manoeuvring space.		
manoeuvring Space Provide sufficient clear manoeuvring space of 1500mm near entrances and lift lobbies to accommodate wheelchair users to turn comfortably.	Clear Pathways Position furniture planters and other features away from primary circulation routes leading to reception areas and lifts. Avoid low-level obstacles areas that may difficult to detect (Principle 6).	High-Contrast Seating Provide comfortable seating options that contrast with the floor color, making them easier to identify for users with low vision.
		

Table 3.9: Key Design Requirements for Accessible Reception and Service Counters

Reception and Service Counters (Principle 1, Principle 2)		
Reception and service counters should provide accessible and equitable service for users with varying needs.		
Varying Counter Height Provide a lowered section of the approximately 750mm of the reception to accommodate seated users and children to facilitate face to face communication with staff (Principles 1 and Principle 2).	Knee and Toe Space Provide sufficient knee and toe clearance beneath the lowered counter section to allow seated users to approach the work surface comfortably.	Acoustics Use materials that minimise echo and reverberation in the lobby, to improve speech (Principle 4).
		

Source: REHDA Malaysia

3.3 Vertical Movement (Stairs and Lifts)

Table 3.10: Focus Areas and Application on Vertical Movement (Stairs and Lifts)

Focus Area
All means of travelling between floors, including common passenger lifts and escalators (where applicable).
Application Goal
To enable users to move easily and independently between floors with clear orientation and minimal physical effort.
Vertical Movement Checkpoints
Vertical movement is a key indicator of a building's overall inclusive design quality. The focus should be on consistent design and effective safety information (<i>Principles 4 and Principle 5</i>). Inclusive vertical circulation supports safe, intuitive and independent movement between floors, with consistent design and clear safety information.



Table 3.11: Key Safety Design Considerations for Emergency Egress and Building Circulation

Emergency and Egress (<i>Principle 5</i>)	
Emergency and Egress provision should incorporate inclusive safety measures.	
Refuge Areas Provide designated Areas of Refugee on upper floors of multi-storey buildings. These should be marked, protected from fire and equipped with a two-way communication system.	Controls and Communication Emergency alarm buttons, intercoms and other controls should be clearly visible, easy to operate, and positioned within accessible reach, where appropriate, visual and audible indicators should be provided to accommodate users with different sensory needs.



Source: REHDA Malaysia

Table 3.12: Key Accessible Design Considerations for Passenger Lifts

Passenger Lifts (Principle 1, Principle 4)		
Lifts should be provided sufficient space for users to enter, manoeuvre and exit comfortably, with clearly marked signage and effective communication of essential information.		
Size and Capacity Lift cars shall be dimensioned to accommodate mobility devices, with a minimum capacity of 1,000 kg recommended as a global benchmark for inclusive design and accessibility. Clear door opening width shall be sufficient to ensure unobstructed access for users and companions.	Controls and Communication - o Call Buttons: External and internal call buttons should be positioned between 900mm and 1200mm above the floor level. - o Tactile and Braille: Lift control buttons should include raised tactile characters and Braille in accordance with applicable (Principle 4). - o Audible Announcements: Lifts should provide clear, audible announcements of floor level and direction of travel (Principle 4). - o Mirror Placement: Avoid placing mirrors directly opposite the lift door, as the reflection of a person approaching the doorway can cause disorientation or confusion for some users.	Waiting Area Provide sufficient clear manoeuvring space of 1500mm in front of lift doors on each floor to accommodate wheelchair users.
		

Table 3.13: Key Accessible Design for Stairways

Stairways (Principle 4, Principle 5, Principle 6)		
While lifts are the primary accessible route, stairs should be safe, comfortable and clearly perceptible.		
Handrails Staircases (and ramps) should have continuous handrails on both sides shall be provided along pedestrian walkways, building corridors, ramps, and stairways to facilitate safe and accessible movement. - o Handrails should be installed at a height of not less than 840mm and not more than 900mm above the finished floor level (FFL). - o A clear space of 50mm to 100mm shall be maintained between the handrail and the wall to ensure adequate grip and user safety. - o Handrails shall be designed with a graspable profile having a circumference or width between 40mm and 60mm. The surface finish shall be slip-resistant and suitable for safe, continuous use by all users.	Visual Contrast Use high-contrast colour banding or stair nosing to clearly delineate the edge of every step to improve visibility (Principle 4).	
	Tread and Riser Maintain consistent riser height and tread throughout the entire flight of stairs to minimize trip hazards (Principle 5).	
	Open Risers Stairs should incorporate closed risers to enhance visual clarity and reduce the risk of falls.	

Source: REHDA Malaysia

3.4 Dwelling Units: Bathrooms and Kitchens

Table 3.14: Focus Areas and Application on Dwelling Units: Bathrooms and Kitchens

Focus Area	Application Goal
Private areas of home where flexibility and safety are important in accommodating residents' changing needs over time.	Integrate adaptability into dwelling design to accommodate residents' changing needs over time, while minimising the need for extensive modifications to the core building structure (<i>Principle 2</i>).

Bathroom Checkpoints

Bathrooms require particular attention to safety and accessibility due to the potential risk of falls and the need to accommodate changing mobility needs incorporating adaptability at the outset can facilitate future modifications with minimal modification works.

ACCESSIBLE BATHROOMS

Table 3.15: Key Structural Provisions for Accessible Bathrooms

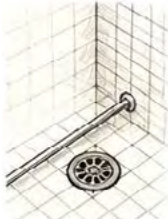
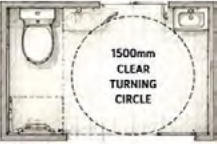
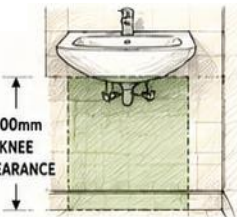
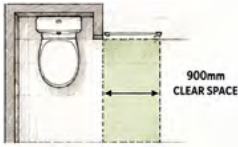
Structural Preparedness (<i>Principle 2</i>)			
Reinforced Walls Provide suitable reinforcement walls around toilets and shower areas to facilitate the future installation of grab bars and other support accessories.			Level Access Shower Provide a flush, level-entry shower without steps or raised thresholds to minimize trip hazards (<i>Principle 5</i>) and facilitate hazards and facilitate access for users with mobility devices (<i>Principle 7</i>).
			Drainage Provide appropriate floor gradients and drainage to minimize water pooling while maintaining a level-access shower entrance (<i>Principle 5</i>).

Table 3.16: Key Design for Space and Fixtures

Space and Fixtures (<i>Principle 7</i>)			
Clearance: Turning Circle Provide sufficient clear manoeuvring space of 1500mm to allow users of wheelchairs or other mobility devices to turn safely and comfortably.		Basin Access Provide sufficient knee clearance of 700mm beneath basins to facilitate a comfortable forward approach for seated users.	Toilet Placement Position the toilet with adequate clear space on at least one side to allow safe lateral transfer from a wheelchair or mobility device.
			

Source: REHDA Malaysia

Table 3.17: Dimension Verification

Control and Safety (Principle 5, Principle 6)	
Single –Lever Taps Provide single-lever taps for basins and shower to facilitate easy and precise temperature control for users with limited hand strength (Principle 6).	
	Emergency Cord/Button Provide an emergency pull cord or button near the toilet positioned with accessible reach (300mm to 400mm from the floor level) in the event of a fall (Principle 5).
	

ACCESSIBLE KITCHENS

Table 3.18: Key Kitchen Design Considerations for Safety and Preparedness

Structural Preparedness (Principle 2)			
Clear Circulation Maintain clear, unobstructed pathways of minimum 1200mm wide through the kitchen to facilitate safe and comfortable movement.		Adaptable Workstation Ensure the floor is sloped to an internal (linear or point) drain to prevent water pooling while still allowing easy floor cleaning (Principle 5).	
		Cabinetry Innovations Use pull-out shelves, revolving corner storage and wide drawers to improve access to stored items and reduce excessive bending or reaching.	
		Appliances and Controls Select appliances with accessible controls, intuitive interfaces and appropriate placement to facilitate safe and convenient use .	

Table 3.19: Inclusive Design Considerations for Accessible Appliances and Controls

Appliances and Controls (Principle 3, Principle 4)		
Front Controls (Cooktops) Specify cooktops with front or side-mounted controls to reduce the need for users to reach across hot burners (Principle 3 and Principle 5).		Oven Placement Where feasible position ovens at an accessible height to minimize bending when handling hot items.
		Clear Displays and Intuitive Controls Select appliances with high-contrast displays and simple, intuitive controls (Principle 3) for better visibility and operation.
		

Table 3.20: Key Design on Flexibility and Layout

Flexibility and Layout (Principle 2, Principle 7)		
Circulation Width Provide sufficient clear circulation space of at least 1200mm between opposing cabinets and appliances to facilitate safe and comfortable movement.		Adaptable Worktop Design a section of the main countertop worktop, such as the sink or food preparation area, for easily removable, or height-adjustable where appropriate.
		
		Accessible Drawer Storage Consider drawers in place of deep, low cabinets to improve access and visibility of stored items.
		

Source: REHDA Malaysia

3.5 Common Facilities (Pools, Gyms, Community Halls, Playgrounds and Recreational Areas)

Table 3.21: Focus Areas and Application on Common Facilities

Focus Area	Application Goal
All shared amenities, leisure facilities, clubhouses, playgrounds and community gathering spaces.	To enable residents of different ages and abilities to participate (<i>Principle 1</i>) safely and with dignity.

Common Facility Checkpoints

Accessibility of amenities can enhance quality of life and contribute to the overall value of the community. Inclusion should extend beyond the unit door.

ACCESSIBLE SWIMMING POOLS

Table 3.22: Key Accessible Design Aquatic Areas

Swimming Pools and Aquatic Areas (<i>Principle 1, Principle 5</i>)
Accessible entry and safety are important considerations in swimming pools and aquatic areas. Accessible Entry Provide at least one accessible means of entering and exiting the pool, such as an appropriate pool lift or a gently sloped, zero-entry access route. Pool Deck Surface Provide slip-resistant pool deck surfaces that support safe movement in wet conditions. Avoid excessively textured surfaces that may cause discomfort or impede mobility devices (<i>Principle 5</i>). Accessible Washrooms/Change Rooms The nearest public washroom and changing facility should provide appropriate accessible features, including sufficient manoeuvring space and provision for grab bars.



ACCESSIBLE COMMUNITY HALLS & FUNCTION ROOMS

Table 3.23: Key Accessible Design Function Rooms

Community Halls and Function Rooms (<i>Principle 1, Principle 4</i>)
Focus on circulation space and access to equipment. Platform/Stage Access Provide an accessible route to raised stages or platforms, such as appropriate ramp or wheelchair lift (<i>Principle 1</i>). Acoustics and Lighting Use sound-absorbing materials, such as carpets and acoustic panels, to reduce echo and improve speech (<i>Principle 4</i>). Provide adjustable lighting to accommodate different activities and uses (<i>Principle 2</i>). Seating Flexibility Provide flexible seating arrangements with sufficient clear spaces to accommodate users with mobility devices.



Source: REHDA Malaysia

ACCESSIBLE GYMS AND FITNESS

Table 3.24: Key Accessible Design for Gyms and Fitness

Gyms and Fitness (Principle 6, Principle 7)
Provide sufficient circulation space and convenient access to fitness equipment Manoeuvring Space Provide sufficient clear space of minimum 1200mm and all exercise machines and equipment to allow users of mobility devices to approach, manoeuvre and transfer safely. Accessible Equipment Provide accessible fitness equipment that can accommodate users with different mobility needs, including equipment designed for use from a seated position such as upper-body resistance machines or recumbent bicycle. Clear Paths Provide continuous, unobstructed circulation route from the entrance to fitness equipment and accessible washrooms (Principle 7). Hydration Stations Provide water dispenser or drinking fountains at suitable heights to accommodate both seated and standing users (Principle 1).



ACCESSIBLE PLAYGROUNDS AND RECREATIONAL AREAS

Table 3.25: Key Accessible Design Playground and Recreational Areas

Playgrounds and Recreational Areas (Principle 3, Principle 5)
These areas should promote inclusive and enjoyable play experiences for children of different ages and abilities, as well and accompanying adults. Accessible Surfacing Provide firm, stable and accessible surfing within and around play areas to facilitate movement for users of mobility devices. Avoid loose materials that may impede mobility (Principle 6). Pathways to Play Provide firm, level and constructed pathways connecting the playground entrance to accessible play areas and equipment (Principle 7). Inclusive Equipment Provide inclusive play equipment that accommodates children with different abilities and mobility needs, including transfer platforms and interactive elements that can be used from seated position.



Source: REHDA Malaysia

Section 4

QUICK CHECKLIST





Developer's Checklist

4.0 Quick Checklist

4.1 Developer's Checklist

Purpose:

This checklist provides a practical reference for site managers and quality control teams to reviewing inclusive design considerations and verify that relevant accessibility and future-ready design provisions are appropriately implemented on-site.

Table 4.1: Site Developer's Checklist

Area	Checkpoint	Criteria	Status (✓)	
I	Site and Landscape			
	Pedestrian Pathways	Clear width maintained on main routes	Minimum 1200mm clear width	
	Parking and Arrival	Accessible parking bay dimensions	Minimum 3600mm wide, level, shortest route to entrance	
	Gradients	Ramps and sloped walkways	Maximum gradient of 1:12 with resting platforms provided at appropriate levels	
	Surfaces	All exterior pathways	Firm, stable and slip-resistant surfaces, avoid loose gravel and other materials that may impede mobility	

Table 4.1: Site Developer's Checklist (cont')

Area	Checkpoint	Criteria	Status (✓)	
II	Entrances and Lobbies			
	Thresholds	Connection between exterior and lobby	Flush or maximum 6mm bevelled threshold where unavoidable	
	Door Operation	Main entry door hardware	• Lever handles or other accessible door hardware • Automatic or manual doors complying with applicable opening-force requirements, <22 N if technical team	
	Door Passage	Clear width when the door is open	Minimum 800mm clear opening width	
	Manoeuvring	Space around reception and lifts	Minimum 1500mm clear turning circle	
	Reception Counter	Public-facing service point	Lowered counter seating section at approximately 750mm with sufficient knee and toe clearance for seated users	

Table 4.1: Site Developer's Checklist (cont')

Area	Checkpoint	Criteria	Status (✓)	
III	Vertical Movement			
	Lifts (Controls)	Internal and external call buttons	Positioned between 900mm and 1200mm above floor level	
	Lifts (Information)	Communication features	Provides announcements and tactile characters/Braille on controls	
	Stairs (Handrails)	All common staircases	Handrails provided on both sides to facilitate safe and comfortable movement	
	Stairs (Safety)	Visual detection of steps	High-contrast nosing strips delineate the edge of each step	
IV	Common Facilities			
	Pools	Pool entry	Accessible means of entry and exit provided (e.g., pool lift or sloped ramp)	
	Showers	Circulation space	Minimum 1200mm clear circulation space around exercise equipment	
	Basins	Stage/platform access	Accessible via a ramp of wheelchair lift	
	Clearance	Ground surfacing material	Firm, accessible surfacing provided (e.g., poured in place rubber) avoid loose materials	
	Emergency	Water coolers/drinking fountains	Outlet positioned at an accessible height	
V	Dwelling Units (Wet Areas)			
	Bathrooms	Grab bar preparedness	Suitable wall reinforcement provided around toilets and shower areas for future installation of grab bars	
	Showers	Entry to shower area	Flush, level access shower recess without steps or raised thresholds	
	Basins	Underside clearance	Minimum 700mm knee clearance beneath basin, with exposed pipes suitably protected	
	Clearance	Manoeuvring space in bathroom/ kitchen	Minimum 1500mm clear turning circle 1200mm-wide circulation path	
	Emergency	Safety controls	Emergency pull cord/button installed near floor (800mm to 1100mm)	

Section 5

CASE STUDIES: INCLUSIVE DESIGN IN PRACTICE



5.0 Case Studies: Inclusive Design in Practice

5.1 Sime Darby Property

Masterplan of Elmina Inclusive Playground





Figure 5.2: Inclusive Playground Features



Figure 5.3: Inclusive and Accessible Pathway Design

Contrasting texture and coloured pathways are designed to enhance tactile and sensory stimulation while supporting safe and accessible movement for wheelchair users.



Figure 5.4: Inclusive Playground Wayfinding

Source: Sime Darby Property



Figure 5.5: Inclusive Playground at Elmina Township

Incorporates impact-attenuating surfaces to provide safer cushioning for children with varying mobility and sensory needs.



Figure 5.6: Inclusive Flush-mounted Roundabout



Figure 5.7: Inclusive Sensory Play Columns

Rocks and timber play elements were designed with smooth, safe finishes to minimise injury risks while encouraging active play.

Source: Sime Darby Property

The playground incorporates 37 integrated play structure components, 12 loose play elements and approximately is different materials.



Figure 5.8: Inclusive Playground Features Supporting Play for Children of All Abilities

Source: Sime Darby Property



- Pebbles, stones and landscape elements with varying textures, colours and patterns provide sensory stimulation opportunities.
- Native trees and planting were carefully selected to enhance sensory engagement through texture, colour and fragrance, while promoting biodiversity.
- Landscape design integrates local species to promote environmental awareness, learning and connection to nature.



Figure 5.9: Sensory Landscape Features for Inclusive Nature-Based Play

Source: Sime Darby Property

Sime Darby Property Townships

Landed Residential



Figure 5.10: Wide and Safe Pedestrian Walkways
(Elmina Valley, Bandar Bukit Raja, Serenia City)



Figure 5.13: Multigenerational Living
(Elmina Valley, Bandar Bukit Raja, Serenia City)



Figure 5.11: Accessible Design Features
(Elmina Valley, Bandar Bukit Raja, Serenia City)



Figure 5.12: Pocket Sliding Doors for Space Optimisation
(Elmina Valley, Bandar Bukit Raja, Serenia City)



Figure 5.14: Bathroom Grab Bars
(Ilham Residence)



Figure 5.15: Lever Handles
(Ilham Residence)

Source: Sime Darby Property

Inclusive Playground: Sime Darby Property

High-Rise Residential



Figure 5.16: Inclusive Playground Features in a High-Rise Residential Development

Source: Sime Darby Property

5.2 1 Utama City Group

Sensory Pod: 1 Utama Shopping Centre, Petaling Jaya, Selangor

1 Utama's 'As I Am - Celebrating Differences' initiative reflects a thoughtful approach to shaping curated spaces and experiences, with a focus on making 1 Utama an accessible mall for all.

The mall's facilities such as the Sensory Pod, Sensory Walls and Playtime Kids Inclusive Playground demonstrates how design can meaningfully support sensory, cognitive and social needs within a retail environment, regardless of age, gender and abilities.

Inclusivity and Wellbeing In Mind

The concept of universal design forms the foundation for supporting the autistic community and individuals with diverse sensory and developmental needs, fostering a safe and welcoming environment within 1 Utama:

- Communal facilities are designed to support the needs of individuals with Autism Spectrum Disorder (ASD).
- Multi-sensory elements to engage all senses.
- Quiet environment with soft touches to help reduce sensory overload.
- Open-concept playground for children of all abilities, to play together in a safe and inclusive environment.
- Spacious, open layout prevents crowding and sensory stress.
- Clear sightlines for caregiver supervision and safety.
- Sensory walls with colourful textures that stimulate touch and sight.
- Easy access from the mall to the facility with close amenities nearby.



Source: 1 Utama Shopping Centre



ENHANCING THE SHOPPER EXPERIENCE

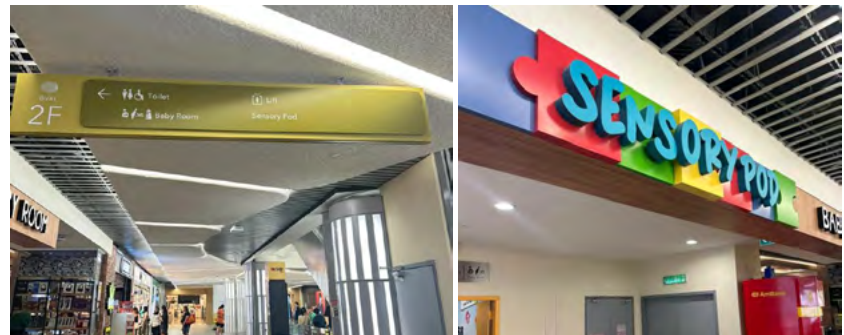


Figure 5.17: Clear and Accessible Wayfinding Systems

High visibility with clear wayfinding and clear, highly visible wayfinding and directional signage that can be easily read from a distance



Figure 5.18: Inclusive Sensory Pod, 1 Utama Shopping Center

PRINCIPLES APPLIED IN 1 UTAMA'S 'AS I AM' CONCEPT

Inclusive Design Experience

- Strategically located next to the baby room and near the Customer Service Centre, providing convenient access to family friendly amenities and quick assistance.
- QR codes are provided for member registration.
- A digital QR code reader integrated with the 1Utama SuperApp, together with automatic sliding doors, provides effortless access to the Sensory Pod.
- Multiple activities and environments for physical, emotional, sensory and cognitive development.
- Wheelchair-accessible spaces, Braille and communication boards to support inclusive communication and participation.
- Accessible routes and customised wayfinding.
- Universal design features throughout the facilities.
- Ample seating for rest and comfort.
- Gentle gradient separating the mall floor and playground area.

Tolerance for Error

- Furnishings, equipment and interior design are carefully selected to minimise risks and hazards.
- Soft surfaces, barriers and rounded edges help reduce the risk of injury, including soft silicone protectors at corners and cupboards to protect children and caregivers from sharp edges.

Easy-to-Understand for Individuals on the Autism Spectrum

- The 'As I Am' logo features a vibrant, colorful design paired with the tagline 'Celebrating Differences', symbolising a commitment to inclusivity and enhanced visibility.
- Simple signage with tailored message and visual support.
- Clear step-by-step instructions in communication materials and tutorials.

Flexible and Accessible Layout

- Spacious layout and walkways for 'As I Am' facilities prevents overcrowding and sensory stress; walls are also clad with sensory tactiles.
- Wide passages allow easy navigation for children, caregivers and mobility aids.
- Open-concept layout allows movement between play zones.
- Flexible space supports both group activities and individual play.
- Clear sightlines help children and caregivers anticipate movement and interactions.



Figure 5.19: Inclusive and Autism-Friendly Design Applications at 1 Utama

Source: 1 Utama Shopping Centre

SENSORY POD

1 Utama's Sensory Pod is a calming space for 'As I Am' members of all ages who may feel overwhelmed within the mall. Spacing 800 sq ft it comprises two distinct zones- Awan Play Space and Owl Quiet Zone, designed to support different emotional and sensory needs, whether it's freedom to play and explore or a soothing corner to read and self-regulate.

Location: 2nd Floor Oval (next to the Baby Room)



Awan Play Space

Awan Play Space provides a calming and imaginative environment with multi sensory play equipment, acoustic wall panels and dedicated areas for rest and reading. Noise-cancelling headphones and offer sensory support features are also available to help users manage sensory stimulation and feel at ease.



Owl Quiet Zone

Owl Quiet Zone provides a dimly lit, tranquil environment designed for rest and relaxation. Soft lighting and quiet spaces promotes comfort and privacy, while the Chromotherapy station offers a soothing visual experience through illuminated bubble tubes with changing colours.



Source: 1 Utama Shopping Centre





Figure 5.20: Features and Amenities of the Sensory Pod

playtime kids
Inclusive Playground

For Every Child No Matter Their Differences

Located on the 2nd Floor of 1 Utama E, PlayTime Kids Inclusive Playground is accessible for all children regardless of their abilities.

Featuring child-safe slides and play structures that encourage social interaction and kindness among children, the space incorporates sensory elements that gently stimulate touch and sight, supporting engaging and inclusive play experiences for all.

Source: 1 Utama Shopping Centre



Figure 5.21: Inclusive Indoor Playground



Tactile Wall Climbing

A sensory-rich activity that develops motor skills, spatial awareness and coordination.

Supports children with diverse learning activities



Customised Equipment

Play structures, balancing beams, slides promote activity and social interaction, with physical padded surfaces and safety rails for added safety

Vibrant, colourful rubber flooring provides a safe and non-toxic play surface

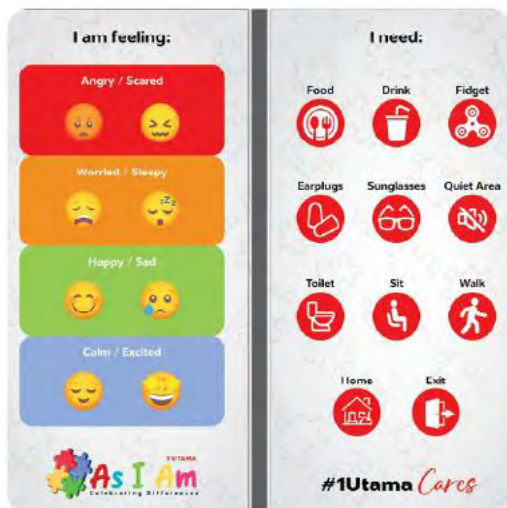
Wheelchair-accessible play features



Sensory Wall Panels

Specialised sensory walls support fine motor skills and stimulate the senses, including sight and touch

Designing For All



Complimentary for kids aged 12 years and below, 1 Utama Sensory kits helps little ones on the spectrum manage sensory stimuli in a fun and engaging way



Source: 1 Utama Shopping Centre

5.3 Suntrack Development Sdn Bhd

Tuai Barat Residence, Setia Alam, Shah Alam, Selangor

Tuai Barat Residence is a 330-unit residential condominium strategically located in Setia Alam, Selangor. Inspired by East Malaysian longhouse culture, the development promotes community, inclusivity and multigenerational harmony living through creating universal design principles a safe, accessible and well-connected environment for residents of all ages and abilities. To strengthen its Universal Design approach, Suntrack engage Dr Naziaty Yaacob from the Faculty of Built Environment,

to ensure design innovation is up to par, the company engaged Dr Naziaty Yaacob from the Faculty of Built Environment, Universiti Malaya as it an expert in universal design as consultant as one of the contributors to the Malaysian Standard for Universal Design (MS1184:2014), Dr Naziaty provided expertise towards the development's comprehensive incorporation of Universal Design Principle.



Figure 5.22: Multigenerational Community and Social Interaction

Source: Suntrack Development Sdn Bhd



Figure 5.23: Tuai Barat Residence: A High-Rise Development

Objectives

The development embrace the concept of MAGIC: Multi-Ability, Multigenerational, Inclusive Community, a term coined by gerontologist Dr Bill Thomas. This reflected through:

- **Universally-designed homes** that support ageing in place and adapt to changing mobility needs.
- **Inclusive community spaces and activity areas** that enable elderly, persons with disabilities and children with diverse needs to participate, engage and thrive together.
- **Practical to safety-focused design**, that supports the well-being of residents of all ages and abilities, including fire protection measures beyond statutory requirements.
- **Intentional placemaking** that encourages social in the action and strengthens community connections.
- **On-site care that supports** the health and wellbeing of the community.

Design Approach

- The architectural design of Tuai Barat Residence emphasizes thoughtful detailing, including and community, creating an environment where residents of different ages and abilities can connect and interact.
- The entrance leads to a threshold-free sculptural lobby providing seamless access while visually defining the transition between external and internal space



Figure 5.24: Threshold-Free Entrance to Tuai Barat Residence

Pedestrian-centric

- Elevated, covered pedestrian walkways provide safe, vehicle-free circulation throughout the development, ensuring seamless connectivity across all key areas.
- Continuous links integrate the clubhouse, car park and other shared spaces, enhancing accessibility and convenience.
- Designed as a woven structure, the walkways allow natural daylight and ventilation while softening the transition between external and internal spaces.



Figure 5.25: Pedestrian-Centered Walkways for Safe and Connected Circulation

Source: Suntrack Development Sdn Bhd

Key Design Features

- Selected rooms and bathrooms are designed to accommodate wheelchair turning radius requirements.
- Ergonomics considerations are incorporated into the selection of furniture for common areas, including chairs with armrests to assist older persons when standing and sitting.
- The interior design extends beyond individual units to communal areas, with emphasis on placemaking and shared spaces that encourage interaction among residents of diverse abilities and generations.
- Corridors and footpaths are fully wheelchair-accessible, supported by ramps and universally accessible amenities. Facilities cater to all age groups, including a child-safe swimming pool, playground and senior-friendly gymnasium, supporting inclusive, safe community living.



Figure 5.26: Wheelchair-accessible in Public Areas

Bedroom Configuration and Layout Planning

- All units comprise three bedrooms and two bathrooms, with at least one bedroom and one bathroom designed for wheelchair turning radius.
 - i. **Type A:** Master bedroom and master bathroom are wheelchair-accessible
 - ii. **Type B:** Common bedroom and common bathroom are wheelchair-accessible
- These configurations provide flexibility to accommodate different household and mobility needs with a generation living environment.

Source: Suntrack Development Sdn Bhd



Figure 5.27: Wheelchair Turning Radius Design

Materials, Accessibility and Functional Design

- High-quality, slip-resistant porcelain floor tiles are used in living areas, dry kitchens, bathrooms and foyers.
- Non-reflective finishes with subtle patterns support a safer environment, including dementia-friendly design consideration.
- **Barrier-free design features include:**
 - i. 900mm clear door widths for wheelchair access
 - ii. Electrical switches and window levers positioned at 1,200mm height
 - iii. Minimal floor level differences, with integrated ramps in key transition areas
 - iv. Flat, seamless transitions between internal and external spaces, supported by drain mats to prevent rainwater ingress



Figure 5.28: Accessible Communal Herb Garden

Combining functional and universally accessible design, the communal garden provides an inclusive environment that encourages interaction, participation and connection with nature.

Source: Suntrack Development Sdn Bhd

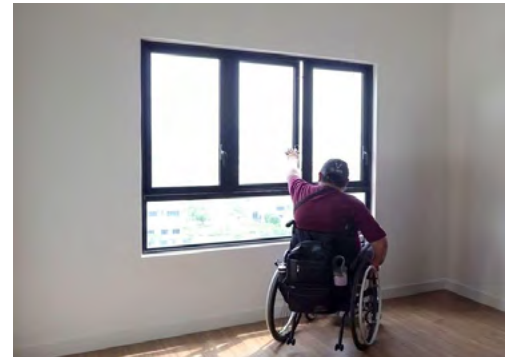


Figure 5.29: Accessible Window Handle Height



Figure 5.30: Inclusive and Accessible Entrance Ramp Design

Communal Herb Garden

- The communal herb garden provides residents with opportunities to cultivate herbs and participate in horticultural activities.
- The garden incorporates wider pathways between planter boxes to enable wheelchair users to navigate the space and participate in gardening activities. A potting shed provides storage for gardening tools and supplies.

Outdoor Fenced Playground

- The multi-ability playground enables children of different abilities to play and interact together. Inclusive playground components support children with diverse needs, while the fence and gated enclosure provide a safe and secure play environment seating is provided for parents and caregivers.

Swimming Pool and Wading Pool

A 450mm raised pool edge provides an additional safety barrier for young children and persons with visual impairments. Steps with handrails provide an accessible alternative to pool ladders for older persons and users with mobility limitations.

Care Office

Staffed by a nurse and caregiver, the care office provides basic medical support, emergency response and coordination of wellness and community health programmes.

Surau

Separate surau are provided for men and women equipped with air conditioning with prayer spaces oriented towards the Qibla. The ablution areas have been given consideration to accommodate wheelchair users.

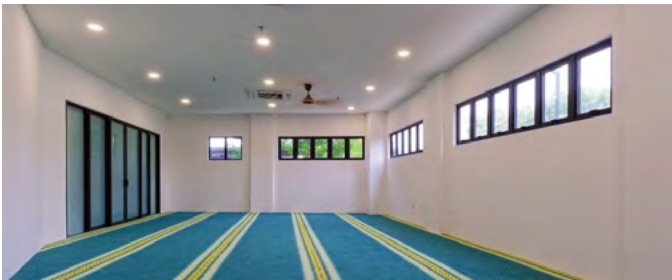


Figure 5.31: Accessible Design for Users of Public Facilities

Source: Suntrack Development Sdn Bhd



Figure 5.32: Multi-Ability Playground with Inclusive Safety Features



Figure 5.33: Accessible Water Entry with Safety Elements

Safety Features

Tuai Barat Residence adopts an enhanced approach to fire safety, going beyond current regulatory requirements, to ensure considerations especially for older persons and persons with disabilities who require more time for escape. Fire sprinklers are installed within all residential units and throughout the common areas of the condominium block.

Barrier-free Access

Gentle ramps are provided throughout the development, while recessed drain mats enable seamless transitions between internal and external spaces. Minimising changes in floor level helps reduce trip hazards.

Universal Design – Lift Cars

A secondary lift control panel is positioned horizontally on the side wall of the lift car for easier access by wheelchair users. A mirrored rear wall assists users when reversing out of the lift, while Braille buttons and voice announcements support persons with visual impairments.

Handrails and Railings

- Gaps and openings in railings are limited to 100mm or less to enhance child safety. Handrails are provided on both sides of fire stairways to support residents who may require assistance when ascending or descending the stairs.
- Provided handrails for fire stairs on both sides of the stairs so that residents requiring assistance can support themselves in both directions of the stairs.



Figure 5.34: Wide and Accessible Walkway Design

Source: Suntrack Development Sdn Bhd



Figure 5.35: Accessible Entrance Threshold with Recessed Entrance Mat



Figure 5.36: Universal Design Features for Lift Cars

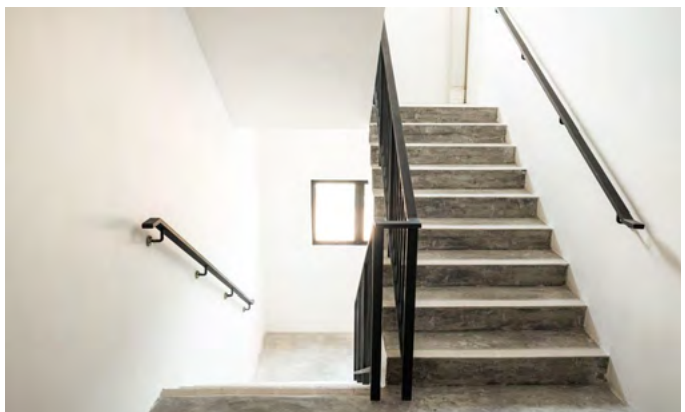


Figure 5.37: Accessible Stairway with Continuous Handrails

Barrier-free Access

Ramps, wide doorways and lifts are provided to accommodate wheelchair users and persons with mobility limitations. A minimum gradient is provided for short ramps, while footpaths around accessible parking spaces are lowered to the same level for ease of access.

Tactile Paths and Signage

Tactile paving and Braille signage assist persons with visual impairments to navigate spaces safely and independently. The design and placement of Braille signage in common areas were reviewed in collaboration with the Malaysia Association for the Blind to enhance accuracy, usability and accessibility. Voice announcements in lifts provide further assistance in identifying floor levels.

Fire Protection

Each floor is equipped with a protected rescue/refuge area adjacent to the fire stair, providing a safe waiting area during emergencies for wheelchair users, pregnant women, older persons and others who may require assistance.



Figure 5.38: Accessible Refuge Area with Emergency Exit Access

Source: Suntrack Development Sdn Bhd



Figure 5.39: Accessible Pathway with Tactile Guidance and Signage



Figure 5.40: Gentle Gradients for Walkways and Ramps



Figure 5.41: Tactile Lift Controls and Braille Wayfinding Signage

5.4 Sunway Property

Universal Access

Sunway Property's Sunway Design and Development Architecture (SDDA) framework incorporates universal accessibility under its 4th pillar, 'Lifestyle and New Experiences'. The framework promotes developments that support multigenerational living and cater to all users of different ages, abilities and needs. Key design considerations include:

Residential Development – Design Considerations

Common Outdoor Areas – Ramp with handrails and gentle gradients provide accessible circulation

Common Changing Rooms – Inclusive-designed changing rooms incorporate step-free access and lowered wash basins for children and persons with disabilities.

Common Facilities Within Building – Step-free entrances and lever handles enhance accessibility

Unit Foyer Entrances – Common areas provide sufficient width to accommodate two-way wheelchair circulation.

Switches and Power Outlets – Positioned at accessible heights to accommodate users with different abilities.

Unit Design – Bathrooms and bedrooms in high-rise developments incorporate step-free access.

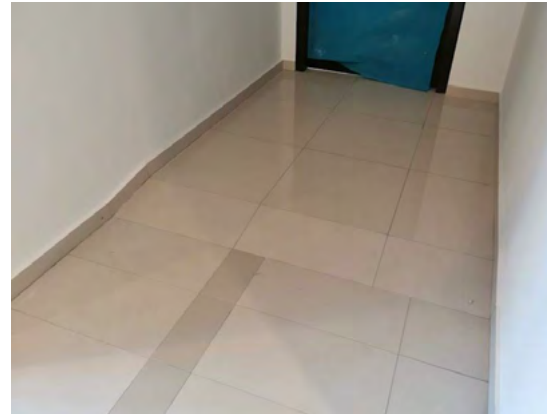


Figure 5.42: Seamless Corridors to Residential Units and Bathrooms

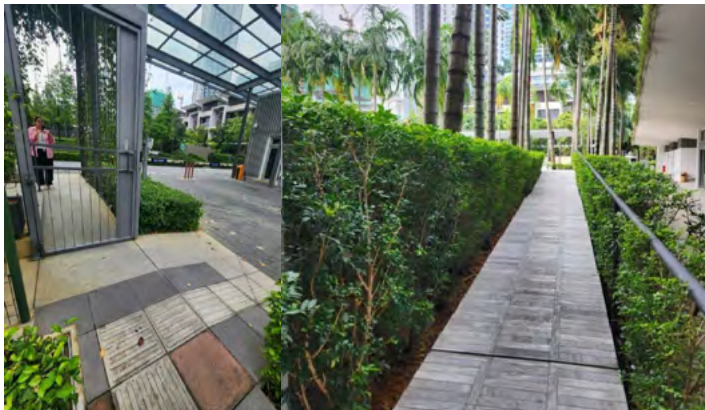


Figure 5.43: Ramps for Seamless and Accessible Movement

Source: Sunway Property

Seamless connections between the development and public walkways ramps to incorporate facilities access for older persons, wheelchair users and persons with strollers.

Commercial – Retail and Office Development

Common Facilities – Step-free entrances provide accessible entry to common facilities.

Car park Access – Seamless access is provided directly from the car park to retail units.

Common Washrooms – Inclusive changing rooms incorporate step-free access and lowered wash basins for children and persons with disabilities.

Entrances, Retail Units and Office Levels – Step-free entry and seamless access is provided throughout drop-off areas, entrances, retail units and office levels.



Figure 5.44: Seamless and Step-Free Access from the Car Park to Retail Areas and Outlets

Source: Sunway Property

5.5 S P Setia

Parkside Residences, Setia Federal Hill, Bangsar, Kuala Lumpur

Setia Federal Hill is a 52-acre mixed-use development in Kuala Lumpur. It demonstrates how inclusive design principles are embedded at the neighbourhood scale through an integrated approach to planning, mobility and infrastructure.

In May 2025, the development became the first in Malaysia to achieve LEED for Neighborhood Development (LEED ND) Platinum certification, providing independent, third-party recognition of its performance across neighbourhood-scale criteria, including walkability, urban connectivity, integrated land use planning and the provision of a high-quality, publicly-accessible environment.

The project offers transferable insights into inclusive urban development. Its pedestrian-centred masterplan, barrier-free circulation, direct transit linkage and support for multi-generational living demonstrate how inclusivity can be integrated into high-density, development without compromising development intensity or viability.



Figure 5.45: Leadership in Energy and Environmental Design (LEED) Award May 2025

Source: S P Setia



Figure 5.46: Illustration High-Rise Parkside Residences, Setia Federal Hill

Pedestrian-Centric Masterplan

- Vehicular traffic is concentrated at the site perimeter, resulting in a largely vehicle-free internal environment.
- The internal boulevard provides a continuous, predictable and low-conflict path of travel, supporting children, elderly users and persons with mobility or visual impairments.
- This approach enhances cognitive legibility and pedestrian safety, key principles of inclusive urban design.

Continuous Accessible Public Space

A defining feature of the development is its integrated green connectivity, which enhances pedestrian movement and creates a cohesive communal environment across the development.

- The roof functions as a fully accessible, ramp-connected circulation spine, enabling step-free movement across residential, retail and recreational zones.
- The integrated communal green space encourages interaction and shared use among different user groups within the development.

Transit-Oriented Development (TOD) Accessibility

Planned direct linkage to Bangsar LRT station extends accessibility beyond the site boundary:

- The planned pedestrian linkage to Bangsar LRT station will provide convenient access for users who do not drive, including older persons with temporary or permanent mobility limitations.
- This linkage is intended to reduce reliance on private vehicles while supporting equitable access to public transport, aligned with LEED-ND 'Smart Location and Linkage' criteria.

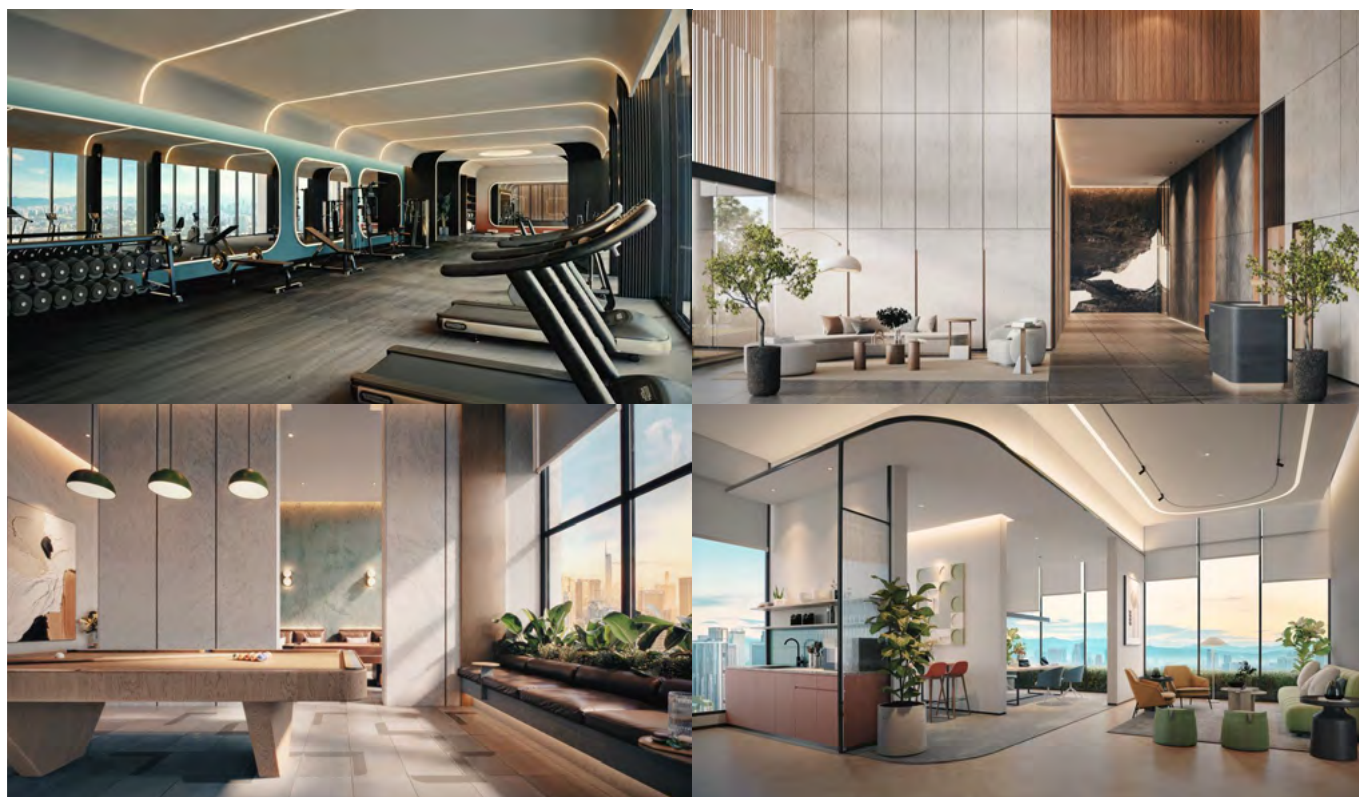


Figure 5.47: Illustration of the Inclusive Communal Amenities and Integrated Accessible Public Spaces

Source: S P Setia

Key Design Features

Multigenerational Residential Design

- Within Parkside Residences, inclusivity is addressed vertically and internally through unit planning and circulation systems:
- Dual-key unit configurations allow older parents or caregivers to live independently while remaining connected to the household, supporting privacy, dignity and intergenerational care.
- Unit sizes range from 463 sq ft to 1,281 sq ft, accommodating household compositions, from single occupants and young families to extended households.

Vertical Circulation and Lift Strategy

The provision of 7 + 1 high-speed lifts serving 14 units per floor significantly helps reduce waiting times, benefitting wheelchair users, residents with limited standing tolerance and parents with strollers or young children.

Built-In Convenience and Ease of Access

- A dedicated parcel and food delivery room consolidates deliveries within the main building, reducing unnecessary movements and providing added convenience for residents with reduced mobility, caregivers and persons recovery from injury.

Inclusive Social and Wellness Infrastructure

Amenities are deliberately distributed across multiple levels, to cater to different sensory and physical needs:

- Low-stimulation spaces, such as meditation gardens and yoga decks with quiet environment for elderly persons, neurodivergent individuals and other users seeking a quieter setting.
- Graduated water features, including shallow and children's pools alongside the main pool, enable participation by non-swimmers, and children within a shared recreational environment.

5.6 GreenRE Health and Wellbeing (HWB) Tools Version 1.0

What is GreenRE Health and Wellbeing Certification (HWB)?

Developed by GreenRE, a subsidiary of REHDA, this pilot certification released in February 2026 evaluates how effectively a development supports physical, mental and social wellbeing.

Separate assessment tools are available for:

- HWBRES

Health and Wellbeing (HWB) – Residential
Residential developments (landed or high-rise; new and existing buildings)
- HWBNR

Health and Wellbeing (HWB) – Non-Residential
Non-residential developments (new and existing buildings); core and shell, interior or whole building

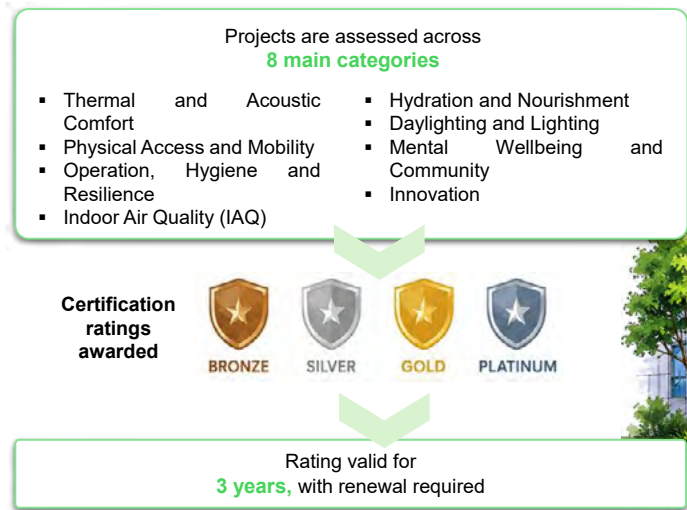
Focus Area

A certifiable, scored framework to measure and elevate occupant health, comfort and inclusion beyond minimum accessibility standards.

Application Goal

To translate the Seven (7) Principles of Universal Design into measurable, third-party verified performance that delivers higher asset value and stronger market appeal.

CERTIFICATION FRAMEWORK

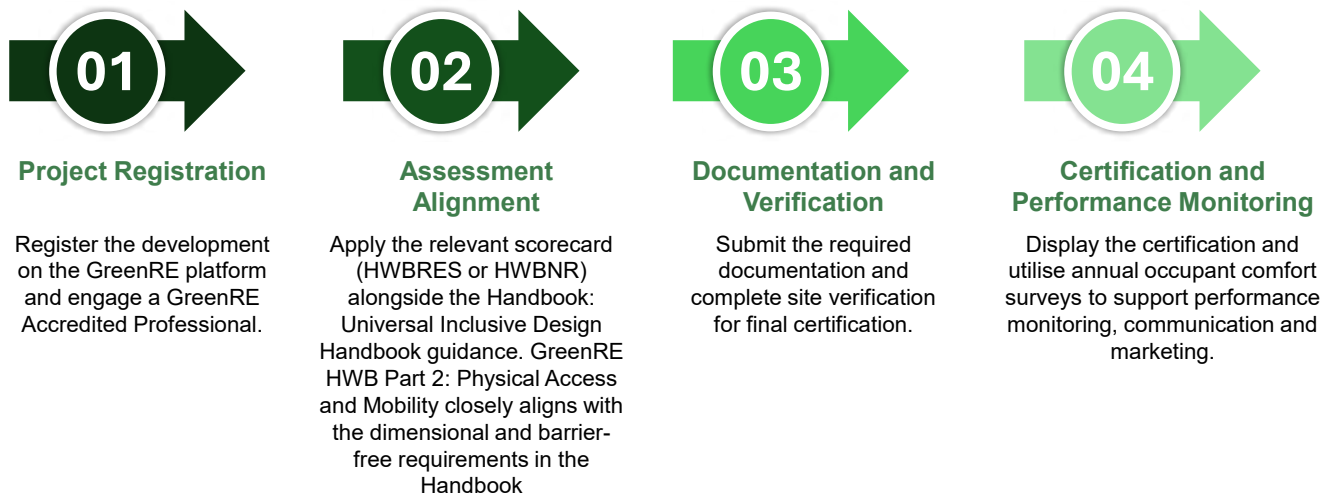


This certification complements and does not replace the inclusive design. It recognises features aligned with this handbook while adding quantifiable health performance indicators such as thermal comfort, indoor air quality, biophilic design and operational resilience.

Why Developers Should Adopt HWBRES/HWBNR Certification (Business Case)



Developer Action: How to Integrate the Tool



GreenRE: 8 Main Categories and Direct Reference to Inclusive Design

Table 5.1: GreenRE: 8 Main Categories and Direct References to Inclusive Design

Categories	Min Credits (RES / NR)	Max Credits (RES / NR)	Direct References
Part 1: Thermal and Acoustic Comfort	4 / 3	14 / 9	<i>Principles 4 and 6 of Inclusive Design</i> together with <i>Section 3.1 Site and Landscape (Lighting, Signage and Landscape)</i> emphasise the importance of creating safe, comfortable and accessible environments for all users.
Part 2: Physical Access and Mobility	7 / 8	23 / 22	The strongest alignment is observed with <i>Principles 1, 6 and 7</i> together with entirety of <i>Section 3: Practical Application Checkpoints</i> , which collectively addresses accessible routes, entrances, vertical circulation, bathrooms and shared facilities to support an inclusive and universally accessible environment.
Part 3: Operations, Hygiene and Resilience	7 / 5	24 / 15	<i>Principle 5</i> together with <i>Section 3.5: Common Facilities (Pool, Gym, Community Hall, Playground and Recreational Areas)</i> , highlights the importance of providing accessible and well-designed supporting facilities that enhance comfort, usability and inclusivity for all users.
Part 4: Indoor Air Quality (IAQ)	6 / 8	20 / 23	<i>Principle 4's</i> emphasises cognitive accessibility thorough clear, intuitive communication within the built environment to support understanding, wayfinding and ease of use for all users.
Part 5: Hydration and Nourishment	3 / 5	10 / 17	<i>Principle 2</i> focuses on socially inclusive and welcoming environments that support equitable access and community participation.
Part 6: Daylighting and Lighting	3 / 3	8 / 9	<i>Principle 4</i> together with <i>Sections 3.1 Site and Landscape</i> and <i>3.2 Building Entrance and Lobbies</i> highlights the use of well-designed illumination in enhancing visibility, clarity and wayfinding, enabling spaces to be safely and easing navigated by all users.
Part 7: Mental Wellbeing and Community	10 / 8	33 / 24	<i>Sections 1.5: Three Pillars of Inclusive Design</i> and <i>3.5: Common Facilities (Pool, Gym, Community Hall and Playground and Recreational Areas)</i> , together with <i>Principles 1 and 3</i> reinforce the importance of inclusive, accessible and socially connected environments through well-planned shared amenities that promote equity, usability and community interaction for all users.
Part 8: Innovation	0 / 0	8 / 11	<i>Section 1.4: Future-proofing</i> , supported by the GreenRE Accredited Professional framework, emphasises the importance of proactive, resilient design strategies that anticipate long-term needs and support sustainable, adaptable built environments.

Total Minimum Credits Required: 40
Total Possible Credits: 140 (Residential) / 130 (Non-Residential).

GLOSSARY AND REFERENCES





GLOSSARY AND REFERENCES

A

Term	Definition
Accessibility	The measure of whether a place or service can be reached and used by people with a specific impairment. This is the minimum legal requirement.
Adaptability	The capacity of a building element or space to be easily altered or modified to suit a user's changing needs without major structural work (e.g., a unit that can accept a grab bar without breaking the wall).
Audible Announcements	Voice notifications (e.g., in a lift or public transit) that communicate essential information, critical for users with low vision.

C

Clear Opening	The actual, unobstructed width of a doorway or passage when the door is open, measured from the face of the door to the door stop.
Colour Contrast	The difference in lightness or darkness between two adjacent surfaces (e.g., text and background or a stair nosing and the tread). High contrast is essential for users with low vision.

E

Equitable Use	<i>(Principle 1)</i> Designing the environment so the same means of use are provided for all users, avoiding segregation or stigmatization.
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F

Term	Definition
Flexibility in Use	<i>(Principle 2)</i> Designing spaces or products that accommodate a wide range of individual preferences and abilities (e.g., adjustable heights, reversible layouts).
Future-Proofing	Designing features into the initial construction that will save on the cost of modifications later, such as reinforcing walls for future grab bar installation.

L

Level Access	A continuous, even surface without steps or vertical changes in elevation. Essential for entry thresholds and roll-in showers
Low Physical Effort	<i>(Principle 6)</i> Designing controls and mechanisms (like lever handles or gentle slopes) that can be used efficiently and comfortably with a minimum of physical fatigue or strain.

P

Perceptible Information	<i>(Principle 4)</i> Communicating critical information effectively through multiple sensory channels (visual, tactile, auditory)..
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R

Reinforced Blocking	Structural support (e.g., plywood or solid lumber) placed within non-load-bearing walls during framing, specifically in wet areas, to ensure future grab bars can be safely and securely installed.
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T

Term	Definition
Threshold	The raised sill or transition at the bottom of a door frame. In inclusive design, this should be flush or minimized to prevent tripping.
Tolerance for Error	(Principle 5) Designing the environment to minimize the adverse consequences of accidental or unintended user actions (e.g., non-slip floors, rounded edges).

U

Term	Definition
Universal Design	The holistic design philosophy that forms the basis of this handbook; designing for the widest range of human diversity and ability, from the outset.

References

- 1) Department of Standards Malaysia. (2014). MS 1184:2014: Code of practice for universal design and accessibility in the built environment.
- 2) GreenRE. (n.d.). GreenRE Health and Wellbeing (HWB) – Non-Residential (HWBNR).
- 3) GreenRE. (n.d.). GreenRE Health and Wellbeing (HWB) – Residential (HWBRES).
- 4) GreenRE. (n.d.). Health and wellbeing tools and templates. <https://www.greenre.org/>
- 5) Government of Malaysia. (2024). Uniform Building By-Laws 1984.
- 6) PLANMalaysia. (2011). Garis Panduan Perancangan Reka Bentuk Sejagat (Universal Design).
- 7) Sime Darby Property. (n.d.). A day of your life in the City Elmina [Video]. YouTube. <https://www.youtube.com/watch?v=bqX1f53eMDc>
- 8) Szaszák, G., & Kecskés, T. (2020). Universal open space design to inform digital technologies for a disability-inclusive place-making on the example of Hungary. Smart Cities, 3(4), 1293–1333. <https://doi.org/10.3390/smartcities3040063>

Image References

- 1) Designing Inclusive Places. <https://designinginclusiveplaces.bdp.com/physical> . Accessed 3 June 2026
- 2) Designing Inclusive Places. <https://architizer.com/blog/inspiration/industry/universal-design-inclusive-architecture/> . Accessed 3 June 2026
- 3) Placeworks. <https://placeworks.com/portfolio/santa-anas-harbor-boulevard/> . Accessed 3 June 2026
- 4) Changing Places. <https://www.changingplaces.org.nz/accessible-toilet> . Accessed 17 August 2026
- 5) Urban Redevelopment Authority Singapore. <https://www.ur.gov.sg/news/articles/more-inclusive-active-neighbourhoods/> . Accessed 2 July 2026
- 6) Youth Today. <https://youthtoday.org/2024/04/universal-design-builds-in-accessibility-for-disabled-people-on-the-front-end/> . Accessed 6 July 2026
- 7) Sinolifter. <https://www.sinolifter.com/> . Accessed 6 July 2026
- 8) Kompas. <https://www.kompas.com/en/int/products/play/inclusive-playground-equipment> . Accessed 17 August 2026
- 9) Tactile Solution. <https://www.tactilesolutions.com.au/projects-8?srsId=AfmBOoq0WZZs8S6f5Lqlh7AtDzAICP032zZXOkSroQXaFLC2YZDHxa1s> . Accessed 6 July 2026
- 10) RMJM. <https://rmjm.com/inclusive-design-accessible-architecture/> . Accessed 6 July 2026
- 11) Arquifach. <https://www.arquifach.com/en/inclusive-architecture-what-it-is/> . Accessed 6 July 2026
- 12) Progressive Companies. <https://www.weareprogressive.com/insights/universal-design-strategies-support-truly-inclusive-environments> . Accessed 24 August 2026
- 13) Mill Pond Porch. <https://millpondporch.com/2017/11/27/equitable-use-of-the-gospel-the-principles-of-universal-design-and-the-church/> . Accessed 10 July 2026



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