ACCESSIBILITY HANDBOOK

Guide to Accessible Built Environments

The Case of Addis Ababa, Ethiopia

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PREFACE

LAURA POUSSA

The Finnish Association of People with Physical Disabilities (FPD) and the Ethiopian Disability Development Initiative (DDI) are two organizations of persons with mobility impairments. Our cooperation began ten years ago, encouraged by the Disability Partnership Finland (DPF). DPF is an umbrella organization of seven Finnish organizations of persons with disabilities active in development cooperation in the Global South.

The cooperation between FPD and DDI began with a survey 'Socio-economic Situations of Mobility Challenged People in Addis Ababa.' This survey revealed the harsh conditions in which persons with physical disabilities live in the capital city of Ethiopia. The results showed that obtaining a sufficient livelihood was a huge challenge to them, as well as the non-availability of quality assistive devices and the inaccessible built environment.

Following the survey, DDI and FPD started a project, 'Program for Independence and Economic Empowerment' (PIEE). The PIEE supported unemployed persons with disabilities in Addis Ababa by offering vocational training courses and the opportunity to start small businesses through micro-loans. As the project progressed, the promotion of accessibility in built environments became an additional focus area in the cooperation between DDI and FPD. Throughout the duration of the PIEE project, it became evident that participants with physical disabilities faced many obstacles due to inaccessible working environments and difficulties in commuting between their homes and workplaces due to inaccessible public transportation.

Promoting accessibility is a highly relevant theme for our international cooperation. FPD has experience in promoting the accessibility of built environments for almost 40 years. The promotion of accessibility is directly linked to Article 9 in the UN Convention on the Rights of Persons with Disabilities (UN CRPD). Both Finland and Ethiopia have signed and ratified the Convention. In addition, the promotion of accessibility is linked to several Sustainable Development Goals (SDGs) of the UN Agenda 2030. It is also important to recognize that accessibility is a prerequisite for other human rights of persons with disabilities, such as the right to education, employment, and independent living.

The first step in our Finnish–Ethiopian cooperation on accessibility promotion of the built environments was a conference for local authorities and organizations of persons with disabilities (OPDs) in Addis Ababa. Finnish architect and former director of FPD's accessibility center ESKE, Kirsti Pesola, participated in the conference and gave a lecture on accessibility. In addition to her lecture, Kirsti Pesola and FPD, jointly with DDI, organized three days training course for representatives of local authorities and OPDs on accessibility auditing by using the ESKEH method. In the following years, Kirsti Pesola started to also train local university students at the Ethiopian Institute of Architecture, Building Construction and City Development of the Addis Ababa University in accessibility design and auditing.

In 2020, FPD and DDI launched a pilot project, 'Accessible Ethiopia for All–Phase 1'. In 2022, 'Phase 2' of the project was launched and is set to continue for four years. Currently, DDI independently organizes accessibility training courses for future architects, engineers, and city planners at Addis Ababa University. DDI also carries out accessibility audits and small–scale accessibility renovation projects. Finally, DDI also raises awareness of the importance of the accessibility of the built environment in local society and advocates with other OPDs for improved Ethiopian legislation concerning accessibility.

This Accessibility Handbook is a part of the current project between FPD and DDI. There is a need for practical accessibility material which highlights the local Ethiopian context and provides accessibility solutions for improvement. This handbook provides accessibility standards and offers recommendations on conducting accessibility audits. Our goal is for it to effectively meet the needs of people in Ethiopia. However, we also hope that it is useful for the Disability Partnership Finland, its member OPDs, and their partners in the Global South. In addition, we hope that it can benefit other Finnish development practitioners, as well as their partners and stakeholders.

Laura Poussa
Coordinator for International Affairs
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YOSEF FEKADU

In Ethiopia, people with disabilities face day–to–day challenges, including inaccessible built environments, lack of accessible services, and the presence of stigma and discrimination. The idea for promoting accessibility emerged from the first–hand experiences of members of Disability Development Initiative (DDI). Ethiopia has remarkably beautiful landscapes, however, they pose a significant challenge to people with disabilities due to inaccessible infrastructure.

Through our cooperation with FPD on the PIEE project, we brought attention to challenges faced by people with disabilities in Ethiopia, such as inaccessible work environments and public transportation. Additionally, the rapid growth of the capital city often overlooked the needs of people with disabilities, and lack of enforcing laws and regulations to address these issues. All these factors encouraged us to actively advocate for and promote accessibility.

The shared commitment to accessibility between DDI and FPD created a good opportunity for continued cooperation. We started from the PIEE project and extended to initiatives like 'Accessible Ethiopia for All' (Phase 1 and 2). The ongoing project includes accessibility training for university students, which has made DDI a pioneer in the area and has attracted recognition from the Ethiopian Institute of Architecture, Building Construction, and City Development at Addis Ababa University. This is evident from the increasing number of trainees from year to year and the instructors' keen interest in teaching about accessibility.

The cooperation between DDI and FPD has grown to jointly create an Accessibility Handbook. This handbook will play an important role in enhancing the accessible design knowledge of students and professionals. Moreover, it will serve as reference material for others planning to conduct accessibility audits, develop similar materials, or seek guidance on accessibility standards.

The implementation of laws and regulations in Ethiopia is often lacking or ineffective. It remains important to continue accessibility training, promote it at various levels, and continually raise awareness within society regarding accessibility matters.

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Laura Poussa (FPD) and Yosef Fekadu (DDI).
World Village Festival. Helsinki, 2023.

OVERVIEW

WHAT IS THIS HANDBOOK ABOUT?

This Accessibility Handbook seeks to promote accessibility and remove barriers to inclusion at educational, policy, and practical levels in Ethiopia and other countries in the Global South. In this handbook, the reader is introduced to concepts of disability, inclusion, accessibility and is provided with guides, standards, and tools for promoting accessibility in the built environments. This handbook also shares the expertise required to conduct an accessibility audit in non-residential premises and their outdoor spaces.

The accessibility standards and audit templates in this handbook are based on the accessibility work and expertise of The Finnish Association of People with Physical Disabilities (FPD) and Disability Development Initiative (DDI), as well as relevant Finnish and Ethiopian legislation, and guidelines from various international sources, all of which are mentioned in the bibliography.

BASIS FOR THIS HANDBOOK		
FPD AND DDI ACCESSIBILITY EXPERTISE	ETHIOPIAN AND FINNISH LOCAL LEGISLATION	INTERNATIONAL ACCESSIBILITY GUIDELINES

WHAT IS THE PURPOSE OF THIS HANDBOOK?

To serve as **educational material** for architecture, urban planning, and engineering students, introducing them to accessibility in the local context, accessibility standards, and auditing methods.

To function as a **design guide** for professionals, including architects, designers, and engineers, when planning and designing new built environments and when modifying or renovating existing ones.

To provide stakeholders in development and policy planning with **informative material** that serves as a baseline for future.

To offer **informative material** to any users and organizations of the general public, including but not limited to NGOs, OPDs, local authorities, and anyone interested in the topic of accessibility.

HOW TO USE THIS HANDBOOK?

This handbook is structured into five sections. Sections 1–2 serve as an introduction to disability and inclusion and emphasize the importance of accessibility in built environments. Sections 3–5 provide a practical guide, which includes accessibility criteria for different spaces within the built environment, audit tools, a link to audit templates, and resources for further reading.

NOTE! This handbook is based on the context of Addis Ababa, Ethiopia. However, it can also be used as an example in other countries in the Global South, both in urban and rural settings. It is important to note that accessibility standards in this handbook only serve as an example and should not be implemented without proper technical validation and adaptation to the local context. **Please refer to local legislation when using this handbook.**

SUSTAINABLE DEVELOPMENT GOALS

United Nations Sustainable Development Goals [1] provide a framework for addressing global challenges and creating a more sustainable future for all. This Accessibility Handbook addresses and contributes to the following Sustainable Development Goals.

Goal 4 – Quality Education

Aims to create an inclusive and equitable education system that recognizes and supports the rights of all children ensuring they have equal opportunities to develop their skills, knowledge, and potential.

Goal 9 – Industry, Innovation and Infrastructure

Focuses on building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation.

Goal 10 – Reduced Inequalities

Aims to reduce inequalities in income as well as those based on age, sex, disability, race, ethnicity, origin, religion, or economic or other status within a country.

Goal 11 – Sustainable Cities and Communities

Focuses on creating sustainable and inclusive cities and communities. This goal highlights the importance of creating accessible public spaces, buildings, and transportation systems.

Goal 17 – Partnerships for the Goals

Aims to strengthen collaboration and cooperation among countries, organizations, and stakeholders to achieve the other Sustainable Development Goals (SDGs).

1. United Nations (2023). The 17 goals.

1

DISABILITY & INCLUSION

This section discusses the concept of disability and how it has changed over the last decades. It addresses the most common barriers people with disabilities experience in society and outlines disability inclusion in the Global South, particularly in Ethiopia.

1.1. WHAT IS DISABILITY?

Disability is part of being human. World Health Organization estimates that over one billion people of the global population experience disability, and almost everyone will temporarily or permanently experience disability at some point in their life [2]. The number of people with disabilities is rising worldwide due to various factors, including an aging population, advances in medical technology leading to longer life expectancy, and an increase in chronic diseases. In addition, armed conflicts, natural disasters, and accidents also contribute to a growing number of people with disabilities.

The United Nations Convention on the Rights of Persons with Disabilities (UN CRPD) states that disability is 'an evolving concept'. Article 1 of the Convention states that 'Persons with disabilities include those with long-term physical, mental, intellectual, or sensory impairments, which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others' [3].

The UN CRPD is an international treaty that recognizes the human rights of persons with disabilities and emphasizes the importance of creating an inclusive and accessible society that accommodates persons with disabilities and removes barriers to their full participation. The UN CRPD was adopted on December 13, 2006. To date, 186 countries have ratified the UN CRPD [4], and a growing number of countries worldwide are implementing standards, regulations, and legislation to enforce an inclusive and accessible society in alignment with the UN CRPD.

1.2. CONCEPT OF DISABILITY

The concept of disability has undergone significant changes in the last few decades. In the past, disability was often viewed as a medical issue, and people with disabilities were seen as recipients of care rather than as active members of society. However, the disability human rights movement and advances in technology, healthcare, and social policy have changed the understanding and concept of disability.

The social model of disability, which gained significant attention within the disability rights movement, presented a challenge to the dominant medical model. According to the social model, disability is primarily a result of societal barriers, discrimination, and the failure of society to accommodate diverse needs. In line with the social model, a human rights model of disability focuses on ensuring that people with disabilities enjoy the same rights and opportunities as everyone else. This approach is rooted in the UN CRPD.

Accessibility is one of the key components of the social and human rights model of disability. It refers to the design and provision of products, environments, and services that are usable by everyone. Accessibility is addressed in multiple UN CRPD articles. Article 9 (Accessibility) highlights the importance of ensuring access to the physical environment, transportation, information, and communications for people with disabilities. Other key UN CRPD articles related to accessibility are Article 19 (Living independently and being included in the community), Article 20 (Personal mobility), Article 24 (Education), Article 27 (Work and employment),

Article 29 (Participation in political and public life) and Article 30 (Participation in cultural life, recreation, leisure, and sport), among others. These articles collectively emphasize the significance of creating inclusive environments and removing barriers to ensure equal participation and opportunities for people with disabilities in various aspects of life.

1.3. BARRIERS TO INCLUSION

Despite a significant change in attitudes toward disability, in many countries, people with disabilities still face a number of challenges that hinder full inclusion and lead to marginalization and exclusion. The following list addresses the most common barriers:

Physical barriers: When education, employment, healthcare, and other everyday services are not physically accessible, it leads to limited participation and unequal opportunities for people with disabilities. Some of the most common physical barriers include inaccessible public transportation, buildings with no or dangerous wheelchair access, inaccessible toilets, uneven or poorly maintained circulation routes, and a lack of tactile paving, among many others. In Section 3 of this Accessibility Handbook, we analyze a wide range of physical barriers and provide solutions for improved accessibility.

Attitudinal barriers: This includes stigma, negative perceptions, and assumptions. Attitudinal barriers emerge from lack of understanding, leading people to ignore, pity, or judge. Attitudinal barriers may be particularly difficult to address when beliefs are deeply rooted in culture, tradition, and religion, limiting possibilities for people with disabilities in education, employment, and social involvement.

Communication and information barriers: People need communication to work, learn, build relationships, and seek support, yet people with hearing, visual, speaking, or cognitive impairments often encounter communication and information barriers. Examples of these barriers include lack of sign language interpretation, unclear wayfinding, lack of signage in Braille and tactile information, as well as, inaccessible communication services, such as inaccessible websites.

Institutional barriers: This includes policies, practices, and strategies that discriminate against people with disabilities. For example, a lack of disability-inclusive education policies and strategies can make it challenging for students with disabilities to access quality education. Institutional barriers often result from lack of awareness among those responsible for policies and a lack of involvement of people with disabilities in the decision-making process.

Poverty: Poverty is among the most significant barriers for people with disabilities in developing countries. According to the United Nations, disability and poverty have a strong bidirectional link [5]: 1) Disability may cause or lead to poverty due to employment barriers and additional expenses associated with living with a disability, such as increased medical, housing, and transportation costs. 2) Poverty may cause disability through malnutrition, poor healthcare, and dangerous working or living conditions. Moreover, living in rural areas or facing poverty may also mean limited access to essential resources, including healthcare, social services, and rehabilitation facilities.

1.4. INCLUSION IN GLOBAL SOUTH AND ETHIOPIA

It is estimated that 80 percent of persons with disabilities live in developing countries. Many developing countries have ratified the UN CRPD, signaling their commitment to ensuring equal access and opportunities for people with disabilities. However, many of these countries face challenges in reaching this commitment due to limited resources, inaccessible infrastructure, and lack of awareness and education on disability issues.

Ethiopia is a country with a population of over 120 million and stands as the second most populous nation in Africa. Based on the World Report on Disability (2011) [6], there are 15 million people living with disabilities in Ethiopia. However, it is important to note that the current figures are likely to be higher than the estimates provided in 2011.

Most people with disabilities in Ethiopia live in rural areas with limited access to basic services, such as education and healthcare. Children with disabilities are less likely to attend school, and adults with disabilities are more likely to be unemployed or work in low-paying jobs [7]. Moreover, people with disabilities often face stigma and discrimination, which often leads to social isolation and exclusion.

According to the UNICEF Briefing note [7], legislation and policies in Ethiopia have typically used a medical model approach without considering the social or human rights models of disability. However, more recent policies align more closely with the definition used in the UN CRPD. Ethiopia ratified the UN CRPD in 2010 and has since issued various policies to promote inclusion, participation, and equal rights for people with disabilities.

Some of the key policies issued in Ethiopia are the 'Right to Employment of Persons with Disability Proclamation' (2008), which aims to protect the rights of people with disabilities in the workplace and prohibit discrimination. The 'Growth and Transformation Plan' (2010) emphasizes preventing disability and providing education and training, rehabilitation, and equal access and opportunities to people with disabilities. The 'National Plan of Action on Disability' (2012) aims to overcome barriers to equality of opportunity and the full participation of people with disabilities in society.

In terms of the built environments and accessibility, Ethiopia has issued the 'Building Proclamation' (2009) and 'Building Regulation' (2011). These documents provide a national standard for the construction of buildings or alternation of their use, and they include minimum accessibility requirements for the built environment. The accessibility requirements outlined in these policies have been considered and incorporated in the development of this Accessibility Handbook. To learn more about these policies, see Appendices | Accessibility legislation (page 104).

2. World Health Organization. (2022). Disability.
3. United Nations. (2006). Convention on the Rights of Persons with Disabilities.
4. UN Treaty Database. (2023). Ratification Status for CRPD.
5. United Nations. (2004). Toolkit on Disability for Africa. Introducing the UNCRPD.
6. World Health Organization & World Bank. (2011). World Report on Disability.
7. UNICEF. (2018). Situation and access to services of persons with disabilities in Addis Ababa. Briefing note.


Otto Bock
QUALITY FOR LIFE

2

ACCESSIBILITY

This section discusses the importance of accessibility in built environments. It addresses common misconceptions related to accessibility and emphasizes the significance of universal design in creating inclusive environments. Readers are also introduced to the Disability Development Initiative (DDI) and their work towards creating 'Accessible Ethiopia for All.'

2.1. WHAT IS ACCESSIBILITY?

Accessibility is a comprehensive approach that allows all people to live in their homes and conveniently participate in work life, hobbies, culture, and education. An accessible environment is not only important for people with disabilities but also benefits the wider community.

An accessible environment can improve safety, reduce accidents, and increase the overall quality of life. In addition, it can provide economic benefits by increasing participation in society, including the workforce. Creating an accessible environment is an ongoing process that requires careful planning, implementation, and maintenance.

Accessibility is a human right, and it is addressed in the UN CRPD Article 9 [8], which defines measures to be taken by state parties to ensure accessibility. These measures include the identification and elimination of obstacles and barriers to accessibility and apply to the physical environment, such as indoor and outdoor facilities, including schools, housing, medical facilities, and workplaces, as well as transportation, information and communications, and other facilities and services open or provided to the public, both in urban and in rural areas.

2.2. MISCONCEPTIONS ABOUT ACCESSIBILITY

Despite the global recognition of accessibility, there are still numerous misconceptions that hinder the progress of creating accessible services and environments.

Misconception 1: Accessibility is only for people with disabilities

Accessible built environments benefit not only people with disabilities but a much wider range of people, for example, the elderly, pregnant women, parents with strollers, children, and others. Anyone can experience a temporary or permanent disability, such as a short-term injury or accident. Therefore, accessibility is a concern that affects everyone, not just people with disabilities.

Misconception 2: Accessibility is too expensive

Another misconception is that making environments and services accessible is too expensive, especially in countries with limited resources. However, it is important to note that adding accessibility features after construction is usually far more expensive than including them during the initial design and construction phase. Moreover, the cost of inaccessibility, such as lost productivity and reduced participation in society, can be far greater than the cost of accessibility.

Misconception 3: Accessibility is not a priority

Accessibility is often considered a low priority, especially in developing countries, where there may be more pressing issues such as poverty, healthcare, and education. However, it is important to ensure that people with disabilities, both adults and children, have access to services and opportunities. Lack of accessibility exacerbates poverty by limiting opportunities for education, employment, and participation in society. Accessibility is a part of sustainable development that aims for the future instead of short-sighted solutions.

2.3. ACCESSIBILITY AND UNIVERSAL DESIGN

Universal design is an approach to design that aims to create products, environments, and services that are accessible, usable, and beneficial to people of all abilities, without the need for adaptation or specialized design [9]. It goes beyond accommodating people with disabilities and seeks to address the needs of a diverse range of users.

The concept of universal design originated in the 1980s in response to the growing recognition of the limitations of traditional design practices, which often excluded or marginalized certain groups in society. The term 'universal design' was coined by a working group of architects, product designers, engineers and environmental design researchers, led by architect Ronald Mace, who advocated for the design of environments that could be accessed and used by everyone to the greatest extent possible.

Since its inception, universal design has gained significant recognition and has been applied in various fields, including architecture, product design, transportation, information technology, and public policy. It has become an important framework for promoting inclusivity and accessibility, emphasizing the integration of diversity and equity in design processes and outcomes.

EXAMPLES OF UNIVERSAL DESIGN IN BUILT ENVIRONMENTS

Ramps: Ramp at the building entrance is a key example of universal design. A ramp provides access for people with mobility impairments, but it also benefits a wide range of other users, including those carrying heavy loads, parents with strollers, people with temporary injuries, and the elderly. Ramps promote inclusivity and equal access.

Signage and way-finding: Text with high-contrast colors, clear symbols, tactile markings and Braille are all examples of accessible signage. Accessible signage benefits people with visual impairments, reading difficulties, and other groups, such as non-native speakers of a language or people with cognitive impairments.

Doors: Accessible doors allow everyone to independently and comfortably access buildings and spaces. Accessible doors feature wider doorways, handles for easy operation, low thresholds to prevent the risk of falling, visual contrast for better identification, automatic doors for convenient entry, among other elements.

Public transportation: Accessible public transportation ensures an inclusive means of travel for a wide range of users. With features such as low-floor entrances, wheelchair ramps, audible and visual announcements, accessible public transportation benefits people with mobility, visual and hearing impairments, the elderly, and others.

The seven principles of universal design provide a framework for creating inclusive and accessible built environments. These principles can be applied to evaluate existing designs, guide the design process and educate designers and consumers about the characteristics of more usable products and environments [10].

THE SEVEN PRINCIPLES OF UNIVERSAL DESIGN

Principle 1 | EQUITABLE USE
The design is useful and marketable to people with diverse abilities.

Principle 2 | FLEXIBLE IN USE
The design accommodates a wide range of individual preferences and abilities.

Principle 3 | SIMPLE AND INTUITIVE USE
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principle 4 | PERCEPTIBLE INFORMATION
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle 5 | TOLERANCE FOR ERROR
The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Principle 6 | LOW PHYSICAL EFFORT
The design can be used efficiently and comfortably and with a minimum of fatigue.

Principle 7 | SIZE AND SPACE FOR APPROACH AND USE
Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

8. United Nations. Article 9 – Accessibility.
9. United Nations. Article 2 – Definitions.
10. Centre of Excellence in Universal Design. The 7 Principles.

2.4. TOWARDS 'ACCESSIBLE ETHIOPIA FOR ALL'

Disability Development Initiative (DDI) has been working in partnership with the Finnish Association of People with Physical Disabilities (FPD) to raise awareness and advocate for accessibility in Ethiopia.

DDI closely collaborates with Ethiopian authorities, as well as public and private service providers, organizations representing people with disabilities (OPDs), and non-governmental organizations (NGOs) to achieve their accessibility goals.

Through the project 'Accessible Ethiopia for All', which began in 2020, DDI has implemented various accessibility-related initiatives, including yearly training courses, accessibility surveys, audits, and a renovation project.

ACCESSIBILITY WORK OF DDI

ACCESSIBILITY TRAINING

Over 1000 students have been trained on accessibility

ACCESSIBILITY SURVEYS & AUDITS

More than 230 primary schools have been surveyed

ACCESSIBILITY RENOVATION

One primary school in Addis Ababa has been renovated

ACCESSIBILITY TRAINING

One of DDI's major activities in promoting accessibility is an accessibility training course for students at the Ethiopian Institute of Architecture, Building Construction and City Development (EiABC) which takes place every year.

In the four-day training course, students are introduced to general information on disability, disability rights, accessibility, and the issues of accessibility in the local context. In addition to learning the basic terms and concepts, students gain practical experience by learning to recognize physical barriers and familiarizing themselves with various mobility aids. Students are also trained to conduct an accessibility audit and learn how to use auditing equipment and tools. Through this course, DDI aims to show a successful example of accessible design integration in students' projects and their future work.

Accessibility training has taken place since 2017. Over the years, DDI has trained students in various study programs, including architecture, construction technology & management, and urban & regional planning. As of 2023, over one thousand students have participated in the accessibility training.

Fig. 1. During the accessibility training, students test a variety of different assistive devices and mobility aids. In this photo, students are using white canes on tactile warning and directional surfaces.

Fig. 2. A student is using a wheelchair and testing different surfaces and slopes of a ramp to assess how easy or difficult it is to move in the built environment.

Fig. 3. A student is testing a wheelchair and learning about reachable heights and distances. This helps to understand the height of various items, such as door handles, sockets, etc.

Fig. 4. Students gain knowledge and learn the skills to conduct an accessibility audit, e.g., take measurements using different audit tools.

Fig. 5. A student is testing crutches to explore the movement on different surfaces and levels within the built environment.

ACCESSIBILITY SURVEYS AND AUDITS

In 2019–2020, DDI carried out a general accessibility survey encompassing 230 primary schools in Addis Ababa. The survey included observations to identify potential barriers and understand the overall accessibility needs.

The school survey indicated that children with disabilities were not able to fully participate in education due to inaccessible facilities.

- More than 75% of school compound entrances were not accessible.
- Over 75% of schools had inaccessible routes to toilets and wash areas.
- Around 80% of schools had no accessible routes to classrooms.
- Around 95% of schools with more than one level had only stairs as a means of access.

The survey also indicated multiple challenges that students with disabilities experience in their day-to-day lives at school. For example, when the routes are inaccessible, the students may need to ask for assistance from their peers or teachers to go to the classroom or toilet. Some students may avoid eating or drinking to avoid using the toilet. And if the school facilities are entirely inaccessible, students with disabilities may be forced to stay at home.

After the general survey, DDI conducted a detailed accessibility audit of four primary schools and two youth enrichment centers in Addis Ababa, aiming to obtain further insights into accessibility challenges and opportunities for improvement. This audit included an in-depth evaluation using FPD's accessibility guidelines and audit tools to assess the accessibility barriers and provide solutions for improvement.

The survey and audits indicated an urgent need for improved accessibility of these primary schools. The findings demonstrated the significant barriers and challenges faced by students with disabilities in accessing education due to inaccessible facilities and routes within schools. In 2023, 'Dil Be Tigel Primary School', one of the audited schools, was selected for an accessibility renovation project.

ACCESSIBILITY RENOVATION PROJECT

In 2023, DDI completed its first accessibility renovation project at 'Dil Be Tigel Primary School'. The renovation focused on improving accessibility in two main areas: 1) the entrance to the school compound and 2) the routes within the compound. As a result of the renovation, the school's entrance and pathways have been made accessible and allow safe and independent circulation within the compound. The new accessible routes provide connections between the entrance, classroom, dining hall, and toilets.

Dil Be Tigel Primary School
before and after →

Fig. 6. Circulation (before). The entrance and circulation within the school's compound were inaccessible due to uneven terrain and lack of clear pathways.

Fig 7. Circulation (after). To create safe and accessible circulation routes, a sloped pathway with tactile surfaces was constructed to connect the school's entrance to other facilities.

Fig. 8. Pathways (before). The pathways presented various accessibility challenges due to uneven surfaces and open gutters along the routes.

Fig. 9. Pathways (after). Accessibility of the pathways was improved by removing obstacles, creating clear pathways, and adding tactile paving surfaces.

Fig. 10. Classroom entry (before). Prior to the renovation, all classroom entrances were inaccessible to different mobility aid users.

Fig. 11. Classroom entry (after). To improve accessibility, a ramp was installed to provide access to at least one classroom.

3

GUIDE TO ACCESSIBLE BUILT ENVIRONMENTS

Whether you are a student, designer or builder, this guide aims to equip you with the necessary knowledge to create accessible built environments. This guide provides general design considerations, and standards for a variety of different building elements, as well as, specific design recommendations for spaces like classrooms, libraries, dining halls, playgrounds and more.

Accessibility recommendations and illustrations in this handbook only serve as an example and should not be implemented without technical validation and adaptation to the local context.

3.1. GENERAL DESIGN RECOMMENDATIONS

To ensure safe and independent access and navigation of the built environments, it is important to consider diverse accessibility and sensory needs (hearing, vision, mobility, cognitive). In this section, we provide general design recommendations that will help to create more accessible and inclusive spaces for everyone.

3.1.1. ACOUSTIC ENVIRONMENT

Making an accessible acoustic environment requires designing a pleasant sound environment by minimizing communication barriers like echoes, reverberation, and background noise. It is also important to provide sound transfer systems in the environment to enhance hearing.

ACCESSIBILITY RECOMMENDATIONS

BACKGROUND NOISE LEVELS AND REVERBERATION TIME

People with hearing impairments may experience communication barriers caused by disruptive background noises, such as ventilation or outdoor traffic, which can make it difficult to understand others.

Other communication barriers might occur if there is an echo in the space, which causes reverberation (the time during which an echo can be heard in the space). For people with hearing impairments, the reverberation time should be short.

If the reverberation lingers, the sounds of words can mix, making it difficult to understand what others are saying. In rooms where people need to be able to communicate by speaking, the recommended reverberation time is approximately 0.5 seconds. Such spaces include schools, nurseries, offices, and healthcare facilities. In spaces intended for playing and listening to music, the target reverberation time is approximately 1.5–2.0 seconds.

There are multiple ways to reduce background noise and reverberation time:

- Use sound-absorbing materials (especially on the walls and ceilings):

Soft materials, such as wood, carpets, fabrics, and acoustic boards, absorb sound and reduce background noise levels and reverberation in the space. While hard surfaces, such as concrete, glass, or natural stone, reflect sound, which produces an echo. Note! Avoid using thick and soft carpets as they can be difficult to move around with wheeled mobility aids.

- Use noise barriers:

Walls, partitions, and doors can block noise from entering or leaving a space, particularly in noisy areas such as technical premises or outdoor areas. Double doors can be used when extra good sound isolation is needed.

Tip: The reverberation time can be assessed by making a loud noise in the room, e.g., clapping hands. The echo duration caused by the clapping gives a rough estimate of the reverberation time. For a more accurate assessment of the acoustic properties of space, the reverberation time must be measured by a specialist.

SOUND TRANSFER SYSTEMS

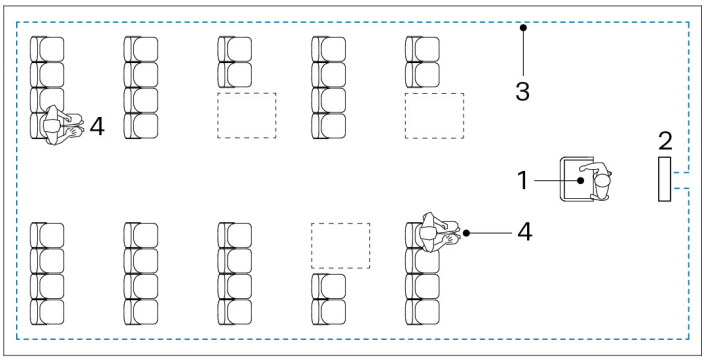
Sound transfer systems deliver sound directly to the listener's ear, allowing people with hearing aid to participate in auditory activities. Sound transfer systems should be provided in public spaces, such as auditoriums, concert halls, theaters, and lecture halls, as well as in settings like ticket booths and service counters to assist communication with staff.

- The most common sound transfer system is an induction loop, which transfers amplified sounds wirelessly to the hearing aid equipped with a telecoil (T-switch), allowing the user to listen to the amplified sound without any background noise.

- An induction loop consists of a loop wire, an induction amplifier, and a sound source. In its simplest form, the loop wire goes around the space, while in larger spaces, the wire makes figure-of-eight-shaped loops, and there can be several loops. The sound source is usually one or more microphones.

- A room with a sound transfer system should have a clear sign (fig. 12.), a coverage area map, and operating instructions.

Fig. 12. International symbol for access for persons with hearing impairment equipped with T-switch.



1 - Microphone
2 - Induction amplifier
3 - Induction loop
4 - Person using a hearing aid

Fig. 13. Example of a lecture hall equipped with an induction loop system. The system transfers amplified sounds to the person using a hearing aid with a telecoil (T-switch).

- Other common sound transfer systems:

- Neck loops consist of a loop of wire placed in a flexible, wearable neckband. They work similarly to traditional induction loops and can connect to compatible hearing aids. With neck loops, the magnetic field does not extend outside the space, so it does not disturb the hearing aid users in the vicinity.

- Portable induction loop systems: These are compact and portable induction loop systems that can be set up in various environments, such as a meeting room, reception desk, or ticket counter.

3.1.2. VISUAL ENVIRONMENT

An accessible visual environment ensures that everyone can safely and comfortably navigate and engage with their surroundings. Making an accessible visual environment involves incorporating design elements and methods such as visual contrast between surfaces, reduced glare, and adequate lighting levels.

ACCESSIBILITY RECOMMENDATIONS

VISUAL CONTRAST AND LIGHTING

Visual contrast and proper lighting can help identify different areas, rooms, or floors and enhance wayfinding when navigating the space. Note! Contrast between surfaces will only be effective if there is sufficient lighting provided. For example, when lighting is poor, colors are harder to distinguish. This is evident when, in low light, we can see objects but not their colors. For that reason, sufficient lighting should always be provided.

- Surfaces: Use high-contrast colors on surfaces like doors, handrails, and others. For example, a light-colored door on a dark frame can help distinguish the door. Handrails can be painted in a contrasting color to the wall for clear navigation cues (fig. 14.).
- Wayfinding: Signs should have high-contrast colors with bold letters to make them easy to read and aid in navigation—for example, a black sign with white letters or a white sign with black letters.
- Hazard avoidance: Using visual contrast can help to avoid hazards. For example, using a contrasting stripe on the edge of a step helps to notice the steps easily and reduce the risk of falling (fig. 15.).

Fig.14. Doors stand out from the wall due to the contrasting colors and the light source placed above the doors.

Fig. 15. Each step has a contrasting stripe along its edge, improving visibility and reducing the risk of tripping or falling.

Tip: To check the effectiveness of the visual contrast between surfaces, it is recommended to use a black-and-white photo of the space. Converting a photo to black-and-white removes the color and allows to focus on the variations in brightness or intensity between different elements. For example, complementary colors (e.g., green and red) that might appear very different in color can look the same in a black-and-white photo.

GLARE

Glare refers to excessive brightness or intense light that can cause visual discomfort and reduce visibility. Glare poses difficulties for people with visual impairments and sensitivity to light. It is important to reduce glare in order to ensure a comfortable and accessible visual experience.

- Materials: Using matte or non-reflective surfaces can reduce glare and improve visibility. Note! Avoid glossy or reflective surfaces like polished floors, glass, or metal, which can cause glare or appear slippery.
- Control of natural light: Use window shades or curtains to control direct sunlight and reduce glare.
- Adjust lighting: Use lighting that can be adjusted in intensity and direction. Task lighting can be used to provide additional lighting in specific areas.

Fig. 16. Strong lights are coming through windows and reflecting off a reflective floor, causing glare and reduced visibility.

LIGHT INTENSITY

Adequate lighting is important for everyone's safe use of buildings. The recommended light intensity levels for different areas of the built environment are as follows:

- Recommended light intensity values for outdoor lighting:

Parking, pick-up, drop-off areas: 75 lx, pathways: 10 lx, rest areas: 30 lx, ramps: 30–50 lx, stairs: 30–50 lx, play areas: 75–100 lx, entrance: 200 lx.

- Recommended light intensity values for indoor lighting:

Entrance hall: 200 lx, reception areas: 500–700 lx, corridors: 200–300 lx, stairs: 300 lx (500 lx at the top and the bottom of the stairs), ramps: 300 lx (500 lx at the top and the bottom of the ramps), toilets: 300 lx, elevators: 300 lx, classrooms and lecture halls: 500 lx, offices: 500 lx, libraries: 300 lx, dining halls and restaurants: 300 lx.

3.1.3. TACTILE PAVING SURFACES

Tactile paving surfaces consist of raised patterns that help people with visual impairments navigate environments safely. Tactile paving is detectable underfoot or by using a white cane. Tactile paving is installed in pedestrian areas such as pathways and crosswalks to provide directional guidance and warning of upcoming hazards and changes in level. Tactile patterns are usually designed in a tile format, with the most common sizes ranging from 300 – 450 mm.

ACCESSIBILITY RECOMMENDATIONS

TYPES: DIRECTIONAL AND WARNING SURFACES

- Directional tactile surface (fig. 17.) consists of a pattern of lines or bars that provide information about the direction of travel and indicate an accessible circulation route. The directional surface is placed parallel to the main direction of travel.

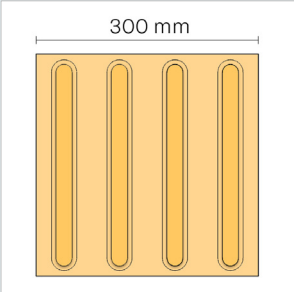


Fig. 17. Directional surface consists of a pattern of lines or bars, where each bar is 20–30 mm wide.

- Warning tactile surface (fig. 18.) consists of a pattern of detectable dots or domes and is oriented perpendicular to the direction of travel. A warning surface is installed at decision-making points, such as crossing points of intersecting pathways and the top and bottom of stairs and ramps.

- The total length of the warning surface should be 600 mm in the direction of travel.

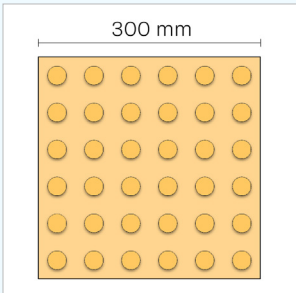


Fig. 18. Warning surface consists of a pattern of detectable dots or domes, where each dot has a diameter of 20–30 mm.

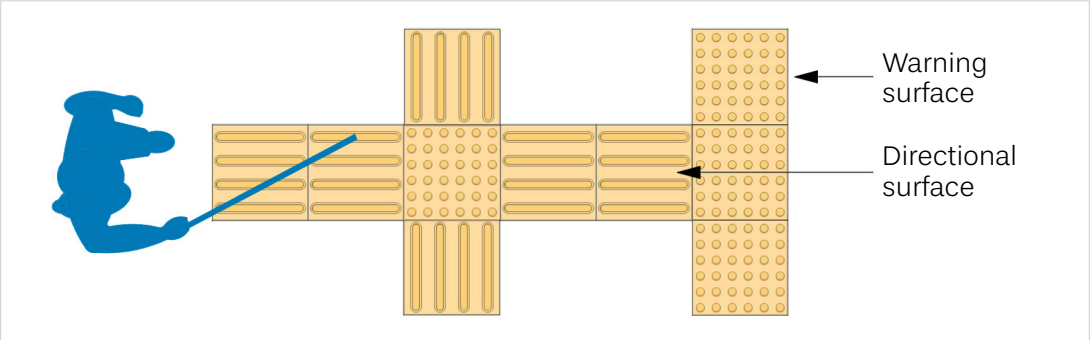


Fig. 19. Example of a four–way intersection. The directional tactile surface indicates the direction, while the warning tactile surface warns of changes in direction and the upcoming hazards.

Fig. 20. Example of a directional surface on a pathway.

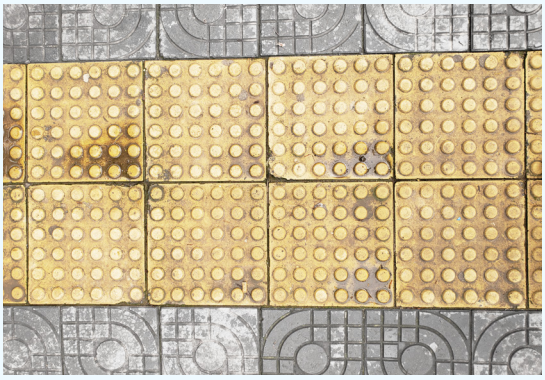


Fig. 21. Example of a warning surface on a pathway.

VISUAL AND TACTILE CONTRAST

- Tactile paving should have a visual contrast with the surrounding ground surface to be easily distinguishable. Common colors used for tactile indicators are yellow or light gray. The color should be consistent and not fade over time.

- Tactile paving should also stand out from the surrounding ground in terms of tactile contrast. The height of the tactile surface should not exceed 5 mm and should have beveled or rounded edges (fig. 22.).

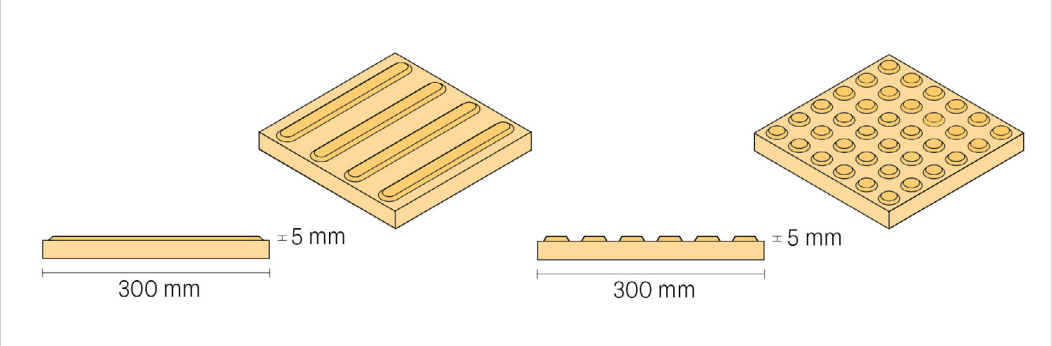


Fig. 22. Recommended heights of the elevated bars on directional surface and dots on warning surfaces.

3.1.4. SIGNAGE

Accessible signage supports communication, provides access to information, and aids in wayfinding. Accessible signage includes elements such as clear contrasting text, tactile signs with raised letters, Braille, audio, and visual signs. Signs should be placed in a logical manner and be uniform and continuous throughout the building.

ACCESSIBILITY RECOMMENDATIONS

LOCATION OF SIGNS

- Directional and information signs should be placed at the entrance of the building's site and at various decision points to indicate the location of accessible pathways, parking spaces, building entrances, and other premises within the site.
- To better understand what is in the area and building, it is recommended to place a map at the building's entrance. The map should show the site's name, address, and key areas. On the map, the accessible pathways should be marked with a dotted line and the International Symbol of Accessibility (fig. 23.), and the map should have a 'You Are Here' point and be positioned in the direction in which the viewer is facing (fig. 24.).
- Directional and informational signs inside the building should be placed continuously at the key points, such as the entrance, reception, and lobby.
- Tactile maps help people with visual impairments to perceive areas and facilities on a site. Tactile maps should be located at the site's entrance in a covered space or inside the building. Tactile maps should have a clear visual contrast between the symbols and the background and must be well-lit. The recommended height of the lower edge of a tactile map is at least 900 mm, and the maximum height of the upper edge is 1900 mm.

Fig. 23. The International Symbol of Accessibility (ISA).

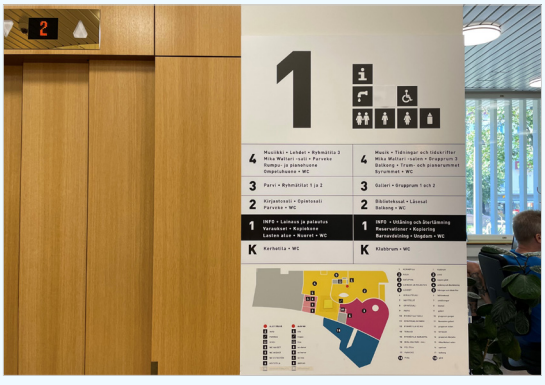


Fig. 24. A map at the building's entrance displays the premises and paths.

HEIGHT AND PLACEMENT OF SIGNS

- Signs on walls or any fixed structures should be placed to be visible to people who are sitting, standing, or walking. The height for signage should be between 1400–1600 mm above the floor.
- Signs should not be placed on the doors as it can be difficult to see the sign when the door is in open position. Instead, the signs should be placed on the wall of the opening side of the door (fig. 25.).
- Indoor overhanging signs must maintain a minimum clearance of 2100 mm to prevent collisions. However, to ensure accessibility for people with visual impairments, additional signs with Braille information should be installed at a height of 1400–1600 mm.
- If a sign is designed to be read at close range or has tactile markings or Braille, there must be no structural obstructions or furniture in front of the sign.

Fig. 25. Clear and contrasting signage is placed on the opening side of the door at the height of 1400–1600 mm.

FONT AND SIZE OF LETTERING

- Signs should use easy-to-read fonts. Sans-serif fonts like Helvetica Medium and Arial are preferred. Uppercase letters should be used for short words and first letters, while longer words and phrases should have a combination of uppercase and lowercase letters.
- The letter size on a sign is determined by its viewing distance:
  - A viewing distance of about one meter requires lettering of 15 mm.
  - A viewing distance of about two meters requires lettering of 25–40 mm.
  - A viewing distance of more than three meters requires lettering of 70–100mm.

VISUAL CONTRAST AND LIGHTING

- Signs must stand out from the surroundings. The text or symbols on the signs should contrast with the sign's background color. Signs should have an even lighting that is free from glare and reflection.
- Signs and digital signs that are lit from inside should have a dark base color and light colors for letters and/or symbols to prevent glare.

- Signs should have a matte, non-glare finish. Glossy or reflective surfaces can cause glare and make it difficult to read signs (fig. 26.).

Fig. 26. Example of a sign with a shiny and reflective surface, which makes it difficult to read the text.

TACTILE MARKINGS AND BRAILLE

- Tactile markings and Braille on signages are important for enhancing accessibility for people with visual impairments.
- Tactile marking and Braille should be placed on signage that provides information such as room numbers, floor levels, accessible toilet signs, elevator buttons, and other essential details.
- Tactile markings on signs should be in uppercase with a height of 15–25 mm, raised by at least 1 mm and spaced wide enough to enable easy distinction.
- Braille should be located at the bottom of the sign and positioned at a height of 1300–1400 mm from the floor.

Fig. 27. An example of an accessible sign which includes clear, contrasting colors, raised tactile elements, and information in Braille at the bottom.

AUDIBLE AND VISUAL SIGNALS

- Audible and visual signals are used to support signs with text. Audible signals help people with visual impairments in wayfinding and orientation. Audible signals should be used in door buzzers and as sound beacons at the entrance.
- Visual signals help people with hearing impairments in wayfinding and orientation. There must be a visual signal when a door is unlocked or if a fire is detected in addition to audible signals.

3.1.5. FURNITURE

Accessible furniture allows everyone, including people with mobility impairments, elderly and children, to use them without difficulty or discomfort. Accessible furniture includes features such as adjustable heights and support. It is important to consider the location of furniture within the space to allow easy and uninterrupted circulation.

ACCESSIBILITY RECOMMENDATIONS

SEATS AND TABLES

- Seats and tables must visually contrast the surrounding environment.
- It is recommended to always provide seats with varying heights (300/450/500–550 mm). For example, many wheelchair users can comfortably move onto a seat that is 500 mm high, while suitable seat height for children and people of short stature is 300 mm.
- Some of the seats should be equipped with both backrests and armrests. Seats should be horizontal and have an open space underneath, i.e., seats should not have a horizontal bar or solid structure below the front edge of the seat, which makes it difficult to get up from the seat.
- In seating areas, there should be adjacent free space reserved for a wheelchair. The wheelchair space must be at least 1400 mm deep and at least 800 mm wide. There needs to be a 900 mm wide passage behind and in front of the wheelchair space.
- The height of a standard table is 700–750 mm. For a person using a wheelchair, a suitable table height is 750–800 mm. There must be a clear space under the table so that a person in a wheelchair can reach the table. The clear width of this space must be at least 800 mm, the height at least 670 mm and the depth 600 mm. For children and people of short stature, a suitable table height is 550 mm, and the clear space underneath needs to be 600 wide, 500 mm high and 500 mm deep. When measuring the clear space, all table structures that reduce this space must be taken into account.

EQUIPMENT, CONTROLS AND SWITCHES

- Equipment such as light switches, alarm buttons, automatic door controls, door handles, and similar elements must be placed within a reachable height of 900–1100 mm from the ground level to ensure easy operation. Wall sockets should be placed between 400–1100 mm from the ground.

3.2. ELEMENTS OF THE BUILT ENVIRONMENT

This section provides accessibility criteria for key elements in the built environment, including outdoor spaces, building entrances, indoor spaces, and circulation zones. This section also presents and analyzes common accessibility challenges and examples from Addis Ababa.

3.2.1. PATHWAYS

Pathways (sidewalks, pedestrian passages, underpasses, and overpasses) can facilitate a safe and accessible movement in outdoor areas. However, there are common issues that hinder their effectiveness, such as uneven surfaces, insufficient width, changes in level, inadequate signage or tactile paving, and hazardous disruptions. The goal is to promote well-defined, unobstructed, even, and spacious pathways that enable all users to move independently and safely.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 28. Uneven pathway. Uneven surfaces and wide gaps on the pathway create risks of falling, tripping, or getting stuck, particularly for people using mobility aids, crutches, and white canes.

Fig. 29. Dangerous interruptions. Holes in the pathway pose a danger for everyone, particularly those with visual impairments. They create a risk of falling, tripping, or getting stuck.

Fig. 30. Misuse of space. This pathway is difficult to navigate due to vendor stalls, obstacles and trees located on the walking route. There is also a lack of visual and tactile cues on the pathway.

Learn more about accessible pathways ➡

ACCESSIBILITY CRITERIA FOR PATHWAYS

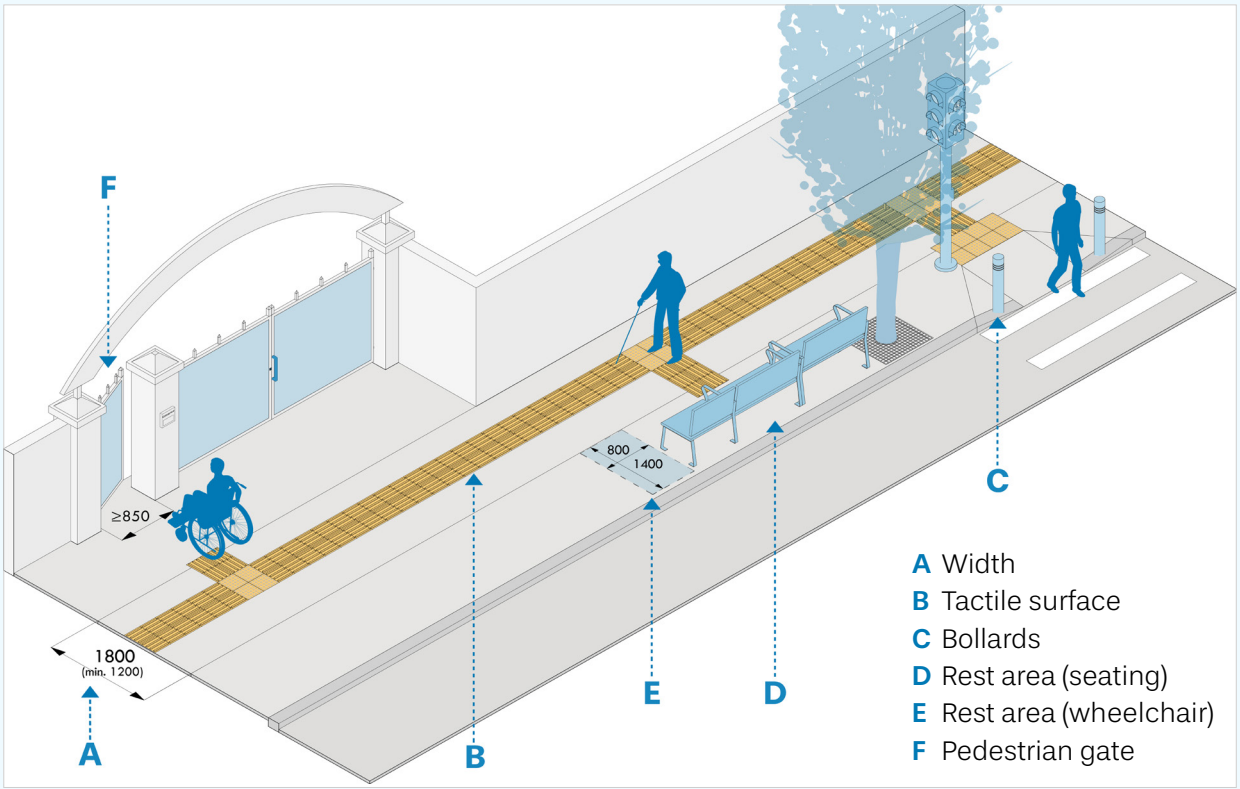


Fig. 31. Illustration of an accessible pathway.

WIDTH AND HEADROOM

- The pathway should have a minimum width of 1200 mm. However, the pathway should be at least 1500 mm wide so that a person in a wheelchair has enough space to turn. If two people using wheelchairs or wheeled mobility aids need to pass each other, a pathway width of 1800 mm is recommended (fig. 31. **A**).
- If the pathway's width is less than 1500 mm, it must have passing and turning areas for wheelchair users of at least 1500 mm x 1500 mm at intervals of no more than 15 m.
- A pathway should have a clear headroom of at least 2200 mm, and any objects, branches, or signs along the pathway should be positioned above this height. These requirements should be considered as part of the regular upkeep of the pathway.

SLOPE AND HEIGHT DIFFERENCE

- The pathway should be flat or have a gentle slope that does not exceed 5%. If the slope of the pathways exceeds 5%, the pathway should be treated as a ramp and be equipped with handrails, landing, and other ramp fittings (see 3.2.4. Ramps).
- Pathways may need a cross-fall (side inclination) to dry more quickly. The cross-fall should be max 2% in each direction. It helps maintain the pathways' usability and safety, particularly during wet or rainy weather conditions.

- Intersecting pathways should be at the same level. If there are steps or changes in level on the pathway, it is necessary to install either a ramp or a fixed lifting device. If the height difference between the pathway and the street is more than 700 mm, it must be protected by a handrail.

SURFACE

- The surfaces of a pathway must be even, hard, durable and non-slippery even when wet. Suitable surface materials for pathways are asphalt and concrete. Uneven surfaces, loose material such as gravel, and wide joints between paving units can all cause problems for people with visual and mobility impairments. A pathway is considered uneven if it has cracks that are more than 20 mm wide or deep.

TACTILE PAVING

- Directional tactile paving surface should be provided to indicate the direction of the pathway. Warning tactile paving surface should alert of changes in surface level or upcoming hazards.

- Tactile paving must be kept clear of any obstructions, such as trees, road holes, street furniture, and other barriers that may hinder smooth movement and navigation (fig. 31. **B**). For more recommendations, see section 3.1.3. Tactile paving surfaces.

OBSTACLES

- To prevent accidents or collisions, the pathways should be kept clear of obstacles such as signs, lampposts, bollards, manholes and other objects within the walking area. Ideally, these objects should be located outside the pathway boundaries. If they cannot be placed outside the boundaries, they should be designed to be easily visible and detectable for people using white canes or sticks.

- Trees with shallow roots can pose a tripping hazard as their roots may break through the surface of the pathway.

- Raised, sunken, or open drainage grates and manholes are hazardous to people who use wheelchairs, wheeled mobility aids, white canes, or crutches. The drainage grates should be flush with the surface of the pathway and feature narrow gaps that run perpendicular to the direction of pedestrian travel.

BOLLARDS

- Bollards are sturdy posts that are often placed on pathways to endure the safety of pedestrians. They act as a physical barrier restricting access to vehicles, preventing unauthorized entry onto the pathway. Bollards must be at least 900 mm high and have a visual contrast with the surrounding background (fig. 31. **C**).

REST AREA

- Rest areas along accessible pathways provide opportunities to take a break, recharge, and comfortably navigate the pathway. Rest areas should be located outside the pathway so that there is no street furniture that could pose a risk of collision or getting stuck.
- Rest areas should be provided at regular intervals. The recommended distance between rest areas is a maximum of 50 meters. The surface of the rest area must level with the pathway to ensure that it can be accessed by mobility aids.
- Rest area seating should vary in height, with options at 300 mm, 450 mm, and 500–550 mm. The rest area table must be accessible to wheelchair users and allow for free space underneath, with dimensions of 800 mm in width, 670 mm in height, and 600 mm in depth (fig. 31. **D**).
- There should also be adjacent free space reserved for a wheelchair. The wheelchair space must be at least 1400 mm deep and at least 800 mm wide. There needs to be a 900 mm wide passage behind and in front of the wheelchair space so that people can pass the space (fig. 31. **E**).

PEDESTRIAN GATES

- Gates should have a visual contrast with the background. The gate must have a clear opening width of 850 mm or more. Additionally, the clear space on the opening side should measure 400 mm or more, and there should be a landing area in front and behind the gate that is 1500 mm x 1500 mm in size (fig. 31. **F**). Gates meet the same accessibility criteria as doors. For more information, see section 3.2.8. Doors.

LIGHTING

- There must be no dark blind spots in the pathways. Lamp posts must be evenly spaced on the same side of the pathway and either outside or above the pathway.
- The recommended light intensity is at least 10 lx for pathways and 30–50 lx for intersections, gates, stairs, and ramps.

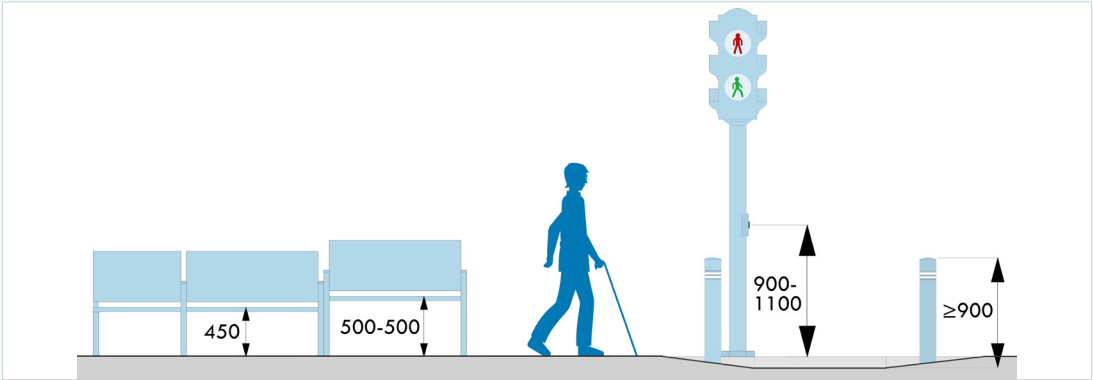


Fig. 32. Accessible heights of seating, bollards and traffic control buttons.

3.2.2. PEDESTRIAN CROSSINGS

Pedestrian crossings, also known as crosswalks, are provided to facilitate a safe street crossing at both heavy and low-car traffic locations. Accessible pedestrian crossing should have elements such as traffic signals, curb ramps, tactile paving surfaces, clear contrast markings and an unobstructed traffic island.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 33. Unsafe crossing. This crossing lacks a traffic island and curb ramps, posing a safety risk for pedestrians, particularly for people with mobility and visual impairments.

Fig. 34. No curb ramps. The high curb makes transferring between the sidewalk and the street difficult. A curb ramp must be provided to make the crossing safe and accessible.

Fig. 35. Unclear road markings. The road markings of this pedestrian crossing are faded and nearly invisible, posing safety risks for pedestrians and drivers alike. There is also a lack of an accessible traffic island and curb ramps.

Learn more about accessible pedestrian crossings →

ACCESSIBILITY CRITERIA FOR PEDESTRIAN CROSSINGS

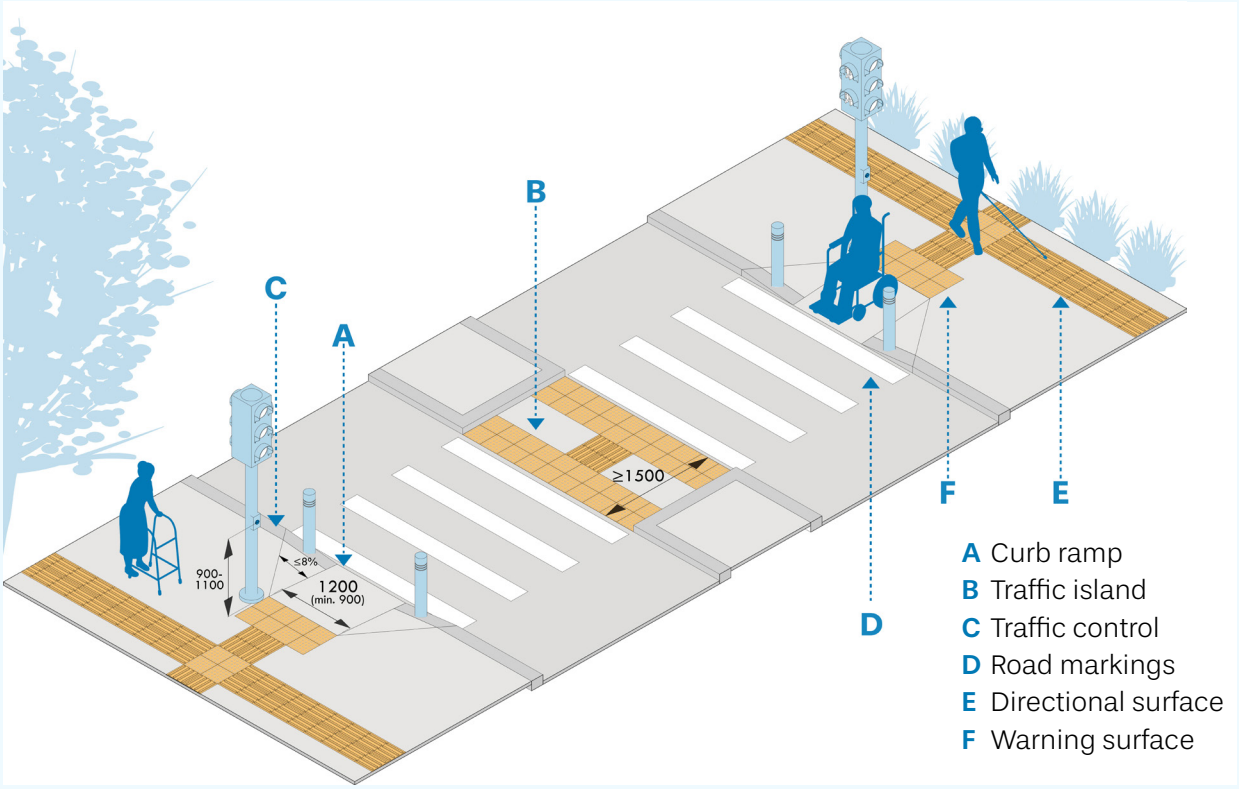


Fig. 36. Illustration of an accessible pedestrian crossing.

LOCATION

- Pedestrian crossings should be located in areas with frequent pedestrian traffic, such as intersections, school zones, and bus stops.
- Pedestrian crossing should be placed adjacent to an accessible pathway. Pathways leading to pedestrian crossings should be well-maintained, obstacle-free, with a smooth and even surface, ensuring there are no tripping hazards.
- Pedestrian crossings should be wide enough to accommodate all pedestrians, including people using mobility aids and guide dogs.

LEVEL DIFFERENCE

- Curb ramps should be used wherever there is a difference in level between the pathway and the road to provide smooth transitions for people using mobility aids.
- The minimum width of a curb ramp should be 900 mm, excluding the sloping sides. The recommended width is 1200 mm. The slope of a curb ramp should not exceed 8% (fig. 36. **A**).
- In some cases, the road surface at pedestrian crossings can be elevated to the same level as the pathway, so that there is no need to overcome differences in height when crossing the street.

TRAFFIC ISLAND

- Traffic island should be provided on wider roads, providing a safe space for pedestrians to stop midway while crossing multi-lane streets (fig. 36. **B**). The minimum size of a traffic island should be at least 1500 mm in width and 1500 mm in depth.

- Tactile warning surface should be placed at the start and end of a traffic island to guide pedestrians with visual impairment.

TRAFFIC CONTROL SIGNALS

- Pedestrian crossings should be equipped with traffic control signals. Push buttons or other controls for activating pedestrian signals should be placed at a height between 900–1100 mm from the ground (fig. 36. **C**).

SURFACE

- The surface of the pedestrian crossing should be well-drained and non-slippery to prevent slips and falls, especially during wet weather conditions.

- To avoid accidents or collisions, it is important to ensure that the crossing area (including the curbs, curb ramps, the designated street section for crossing, and the traffic island) remains free from any obstacles such as construction joints, manholes, open drainage, or any other objects that can cause hazards.

ROAD MARKINGS

- Pedestrian crossings should have clear and well-maintained road markings. It is important to use high-contrasting colors, such as white stripes on a dark surface to improve visibility and guidance for pedestrians (fig. 36. **D**).

TACTILE SURFACE

- Directional tactile paving surface should be used to lead users to pedestrian crossings and to push buttons (if there are any) (fig. 36. **E**). Warning tactile paving surface should be installed at the edges of the curb ramps, traffic islands, or other areas within the pedestrian crossing that require warning (fig. 36. **F**). For more recommendations, see section 3.1.3. Tactile paving surfaces.

AUDIO AND VISUAL SIGNALS

- Pedestrian crossings should be equipped with audio and visual pedestrian signals to assist people with visual or hearing impairments. Audio signals should indicate when it is safe to cross with beeps or voice instructions, while visual signals should have clear symbols and timers.

3.2.3. PARKING, PICK-UP AND DROP-OFF AREAS

Parking refers to on-site outdoor and underground accessible parking spaces. Accessible parking should be located close to the accessible entrance of the building and be provided with adequate space to accommodate different mobility aid users. In addition to accessible parking spaces, pick-up and drop-off areas should be located near an accessible entrance of the building and be designed with features like curb cuts, clear signage, and seating.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 37. Improper parking location. The car is parked on the pedestrian pathway, causing difficulties for pedestrians to access the building and obstructing the flow of pedestrian traffic.

Fig. 38. Lack of defined parking. This parking area does not have clearly marked parking spaces. To ensure accessibility, it is necessary to use proper dimensions, lines, and signage.

Fig. 39. Inaccessible parking. There is no curb ramp between the sidewalk and parking; the sidewalk is too narrow (<1200 mm) for wheeled mobility aid users; traffic cones block access to parking, and there is no vertical signpost.

Learn more about accessible parking →

ACCESSIBILITY CRITERIA FOR PARKING, PICK-UP AND DROP-OFF AREAS

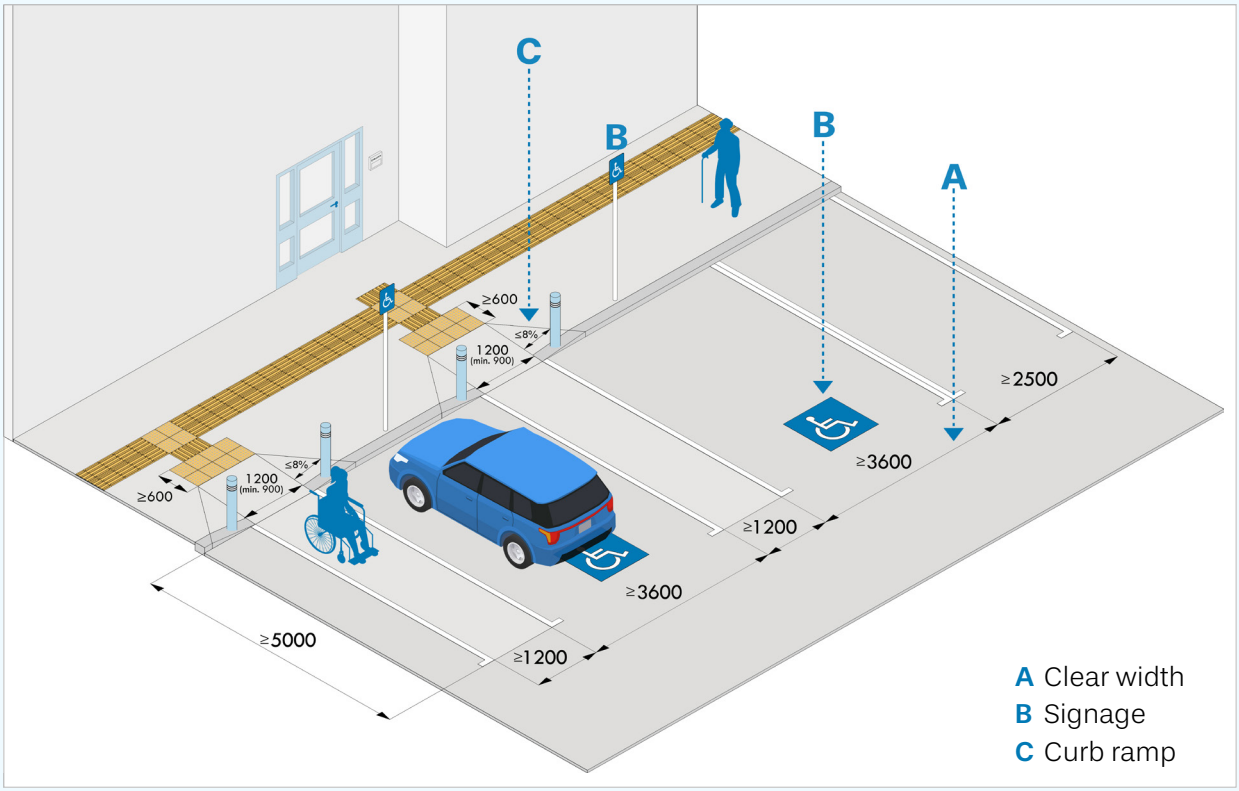


Fig. 40. Illustration of an accessible parking.

LOCATION AND NUMBER OF PARKING SPACES

- Accessible parking spaces should be located as close as possible to an accessible entrance. The recommended distance from the parking to the accessible entrance should not exceed 10 meters.

- It is recommended that the parking facilities have two accessible parking spaces for every 50 parking spaces. For smaller parking facilities at least one accessible parking space should be provided.

DIMENSIONS

- The minimum width of accessible parking must be at least 3600 mm and the length at least 5000 mm for a regular-sized car. With this size, it is possible for a person to move from the car to a wheelchair placed next to the car (fig. 40. **A**).

SIGNAGE

- Accessible parking spaces must be marked with the International Symbol of Accessibility. The sign must be placed on a vertical signpost and on the surface of the parking space with a contrasting color (fig. 40. **B**).

CURB

- If there is a curb between the parking and a pathway, a curb ramp should be provided. The minimum width of a curb ramp should be 900 mm, excluding the sloping sides. The recommended width is 1200 mm. The slope of a curb ramp should not exceed 8% (fig. 40. **C**).

- If no curb exists to separate the parking area from the accessible pathway, it is necessary to install a warning tactile surface with a width of 600 mm to serve as a separation. For guidelines on the appropriate tactile paving, refer to section 3.1.3. Tactile paving surfaces.

SURFACE

- The surface of accessible parking spaces must be hard and non-slippery even when wet. Parking spaces must be located on level ground, as moving from a wheelchair to a car or vice versa on a sloped surface is difficult.

PICK-UP AND DROP-OFF AREAS

- Pick-up and drop-off zones are designated areas within a facility or a public space where passengers can be picked up or dropped off by vehicles such as taxis, buses, or private cars. There must be a clear signage indicating the designated pick-up or drop-off area.

- The distance between the pick-up and drop-off area and the accessible entrance of the building should not exceed 10 meters.

- Curb ramps should be provided to allow smooth transitions between the pick-up and drop-off areas and the adjacent pathways.

- It is recommended to have a protected shelter or canopy over a pick-up and drop-off area, along with seating arrangements that are protected from elements such as the sun or heavy rain. It is recommended to have seats that vary in height, with options at 300 mm, 450 mm, and 500–550 mm. For more recommendations on seating, see section 3.1.5. Furniture.

BICYCLE PARKING

- Bicycle parking areas must be located outside the accessible pathways so that they do not decrease the intended size/width of the pathway. Bicycle parking areas should be marked with signs and have a contrasting color to pathways.

LIGHTING

- The parking, pick-up and drop-off areas, and bicycle parking must be evenly lit. The recommended light intensity is 75 lx.

3.2.4. RAMPS

A ramp is a sloping walkway which runs from one horizontal landing to another horizontal landing. Ramps ensure accessibility for all users, especially for people using mobility aids, parents with strollers, and people pushing trolleys and carts. For ramps to be properly designed, the slope of the ramp should be carefully considered, as excessively steep or lengthy ramps can pose difficulties for users. In addition, ramps should be wide enough to facilitate safe and comfortable movement, and landings must be present to allow for maneuvering and rest.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 41. Lack of maintenance. The surface of this ramp is irregular with holes and bumps, making it challenging to use with wheeled mobility aids.

Fig. 42. Improper design. The ramp is blocked by a high curb; there are stairs positioned in the middle of the ramp; an ATM is placed on the ramp and the ramp itself is too steep. As a result, people with mobility aids are not able to use the ramp or access the area.

Fig. 43. Dangerous ramp. The slope of this ramp is excessively steep (>8%). The lack of handrails on either side of the ramp poses a significant safety risk for users.

Learn more about accessible ramps →

ACCESSIBILITY CRITERIA FOR RAMPS

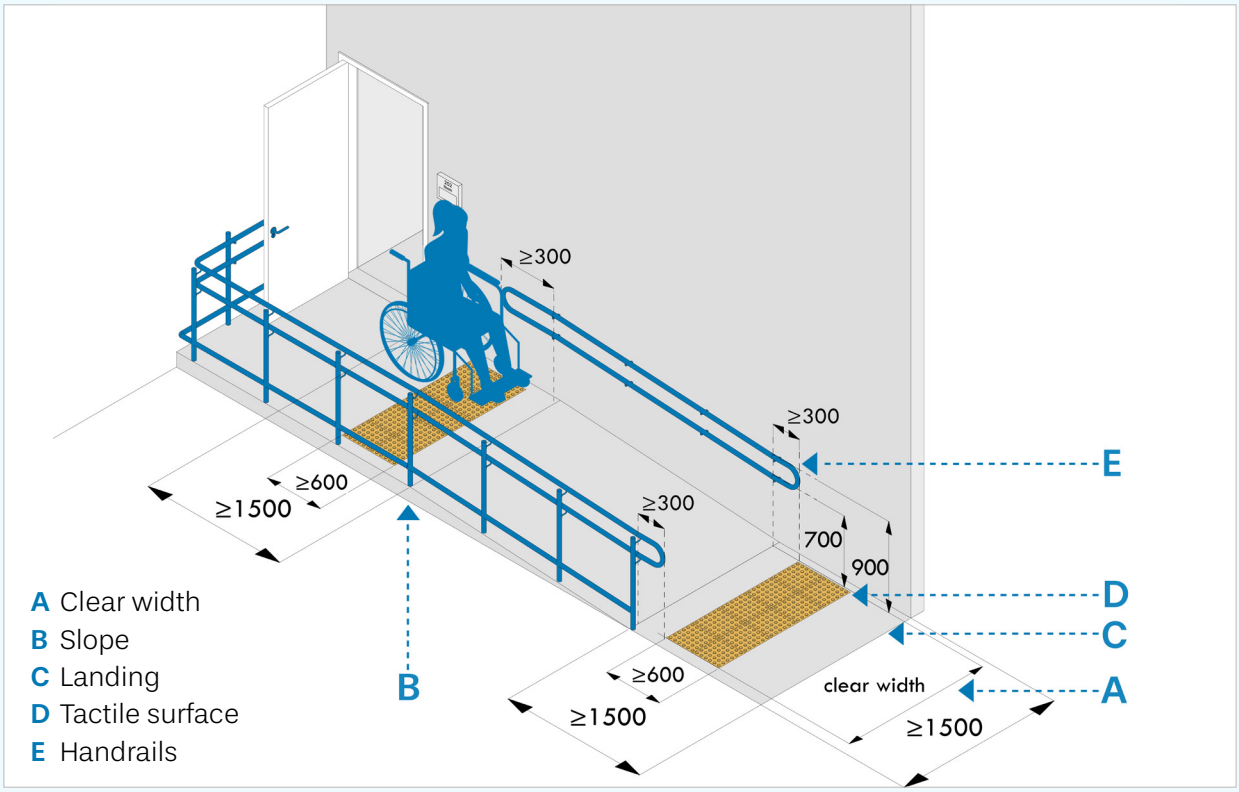


Fig. 44. Illustration of an accessible ramp.

TYPES OF RAMPS

- The most common type is a straight ramp with a straight slope. Other types include L-shaped ramps with a 90-degree turn and U-shaped ramps with a 180-degree turn.
- L-shaped or U-shaped ramps must have an intermediate landing during the turning point, and the minimum clear space for this landing should be at least 1500 mm x 1500 mm.
- Curved or circular ramps should be avoided as it can be challenging to maneuver a wheelchair on them. Moreover, these ramps can obstruct visibility, creating safety risks for both users and others in the vicinity.

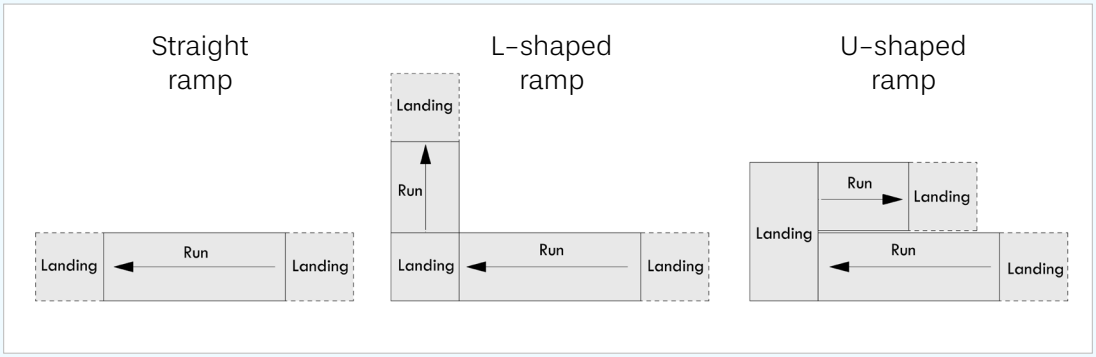


Fig. 45. Types of ramps.

WIDTH AND EDGES

- The minimum clear width (measured between the handrails) of a ramp should be 1000 mm. The recommended width is 1500 mm (fig. 44. **A**).
- If the clear width of the ramp is less than 1500 mm, the landing should anyway be 1500 mm x 1500 mm.
- If the ramp is not connected to any fixed structure (such as a wall or a handrail with a lower rail) it should have a protective edge at least 50 mm high (fig. 46.). The protective edge prevents wheelchairs and wheeled mobility aids from slipping off the ramp, and it helps people with visual impairments to stay on the ramp.

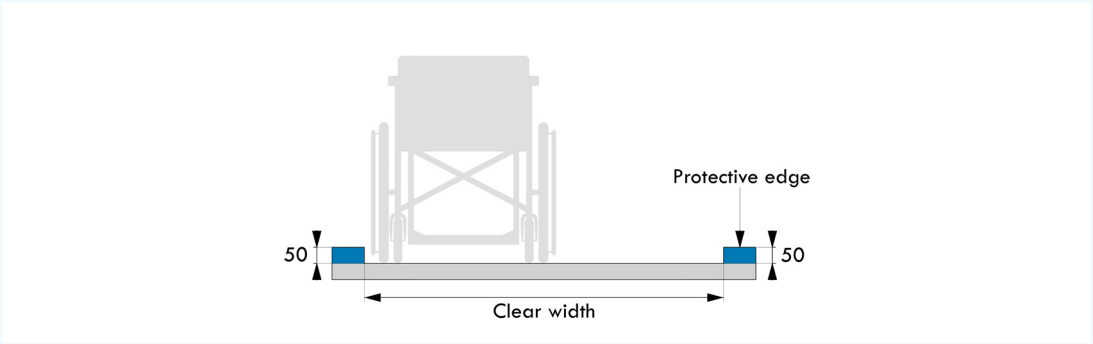


Fig. 46. Protective edge on the sides of the ramp.

SLOPE

- Ramps must have a gentle slope. The recommended slope of the ramp is 5% (1:20), (fig. 44. **B**) and the maximum slope should not exceed 8% (1:12.5).
- In outdoor areas, ramps may need a cross-fall (side inclination) to dry more quickly. The cross-fall for ramps and landings is max 2% in each direction. It helps maintain the ramp's usability and safety, particularly during wet or rainy weather conditions.

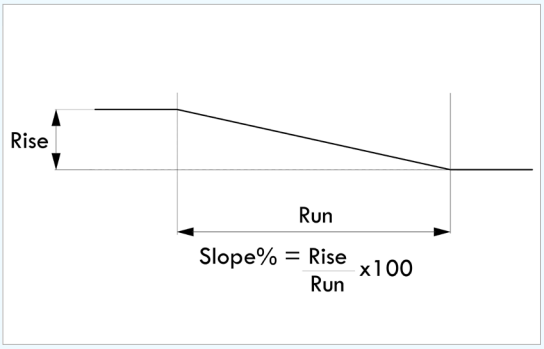


Fig. 47. The slope can be calculated by dividing the rise by the horizontal run and multiplying the quotient by 100.

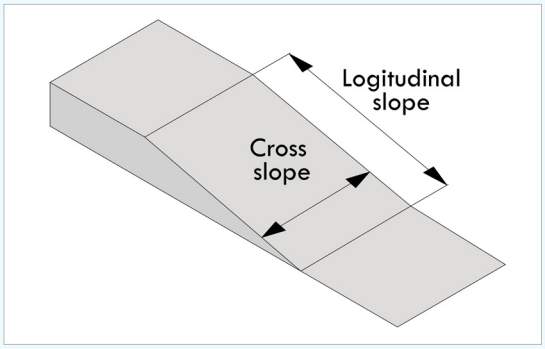


Fig. 48. Logitudal and cross slope.

LANDINGS OF RAMPS

- There should be a clear and unobstructed landing area at least 1500 x 1500 mm in size at the top and bottom of the ramp. The landing should be free of obstacles, swinging gates and doors (fig. 44. **C**).
- Long ramps should have intermediate landing after every 6 meters that allows people to turn around, rest when going up and reduce their speed while going down. Intermediate landings should also be provided at every change of direction. The intermediate landing must have a clear space of at least 1500 x 1500 mm.
- Tactile warning surface must be present on the landings at the top and bottom of the ramp. Warning surfaces should have a minimum length of 600 mm and be placed in the direction of travel, while covering the whole width of the ramp (fig. 44. **D**). For more recommendations, see section 3.1.3. Tactile paving surfaces.

HANDRAILS

- Ramps should have double-height handrails on both sides. The upper handrail should be at 900 mm and the lower one at 700 mm from the floor (fig. 44. **E**).
- Handrails should continue uninterrupted around any intermediate landing and extend at least 300 mm beyond the end of the ramp at both the top and bottom (fig. 44. **E**).
- Handrails should contrast with the background surface. Handrails should be smooth and allow firm and easy grip. The recommended shape for a handrail is round with a diameter of 25–40 mm.
- The handrail's ends must be designed to avoid the risk of clothing being caught; sharp edges should be avoided.
- In cases where the handrail is fixed to a wall, the brackets should be positioned from below to allow the hand to slide without obstruction. A handrail attached to a wall or other fixed structure must be at least 45 mm away from the wall.
- If the width of a ramp exceeds 2700 mm, a central handrail should be installed to ensure an unobstructed width of 1500 mm on at least one side of the central handrail.

SURFACE

- The surface of the ramp should be even, hard, and non-slippery even when wet. There should be no unevenness or thresholds at the top, bottom, or intermediate landings of the ramp.

LIGHTING

- The ramp should be evenly lit and not produce any glare. The light intensity on outdoor ramps is recommended to be 30–50 lx.

3.2.5. STAIRS

Stairs are an essential feature of most buildings and outdoor spaces, providing convenient access to different levels and areas. Ensuring the safety and usability of stairs involves taking into account various factors such as the type of stairs, appropriate dimensions for risers and goings, stair width, landings, and handrails.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 49. Improper design. These stairs have uneven steps; there is a lack of handrails on both sides, and no visual contrast, posing a safety hazard for people with balance, mobility, and visual impairments.

Fig. 50. Open space under the stairs. To prevent collisions or accidents, the open space under the stairs must either be closed off or have a permanent guard or protective barrier installed.

Fig. 51. Steep staircase with open risers. Open risers should be avoided as the empty space under the steps may increase the risk of tripping and injuries. Moreover, these stairs are too steep, and there is a lack of an intermediate landing, (recommended after every 10–15 risers).

Learn more about accessibility and stairs →

ACCESSIBILITY CRITERIA FOR STAIRS

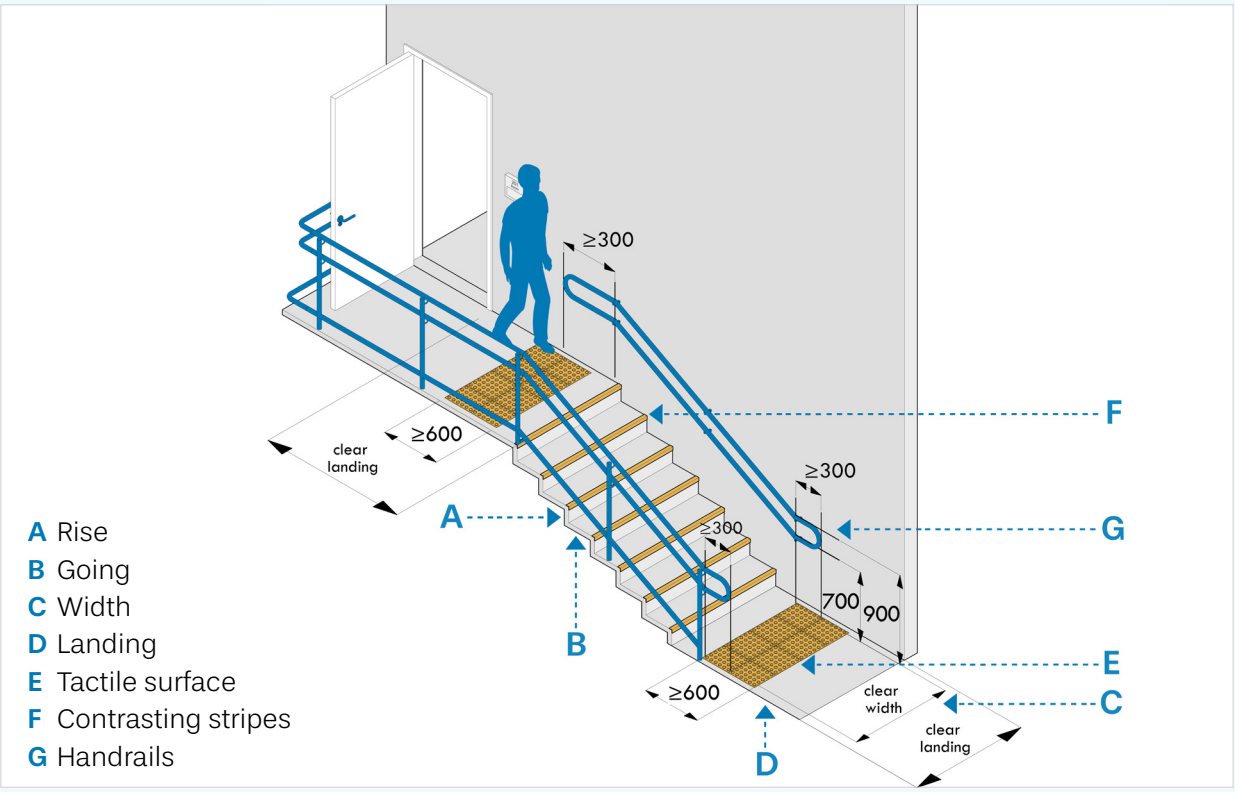


Fig. 52. Illustration of stairs.

TYPES OF STAIRS

- Straight stairs are the simplest, safest and most common type of stairs, consisting of a straight flight of steps from one level to another.
- L-shaped stairs consist of two straight flights connected at a landing, while U-shaped stairs have two flights with a 180-degree turn at a landing.
- Curved or spiral staircases should be avoided. The narrow treads on the inside of a spiral staircase can increase the risk of falling.

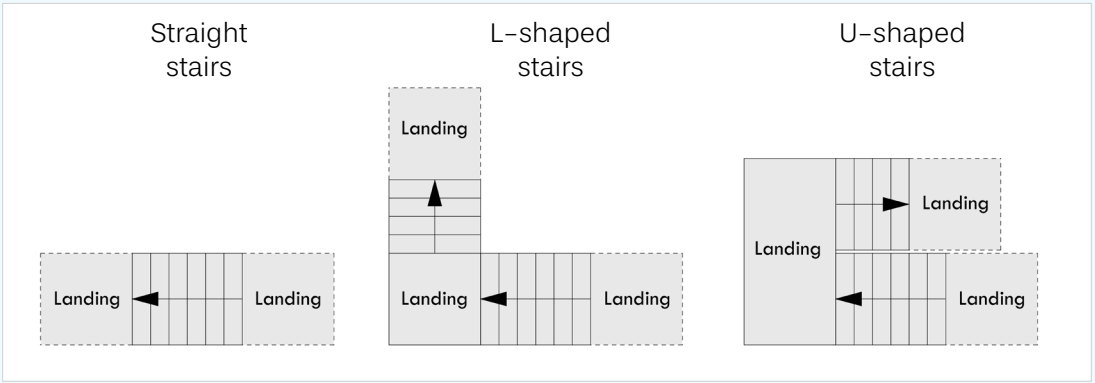


Fig. 53. Types of stairs.

RISE AND GOING

- The maximum rise (height) of a step should be 160 mm and the minimum going (depth) 300 mm (fig. 52. **A, B**).
- Stairs must have regular and uniform steps, and the dimensions of risers and goings must be consistent. This ensures a steady step rhythm and helps to prevent hazards.
- Open risers should be avoided as the empty space under the steps can increase the risk of tripping.
- Sharp edges and protruding nosing at the edge of the step should be avoided to eliminate a tripping hazard. If nosing is necessary, it should be flush, rounded, and not protruding more than 25 mm (fig. 54.).

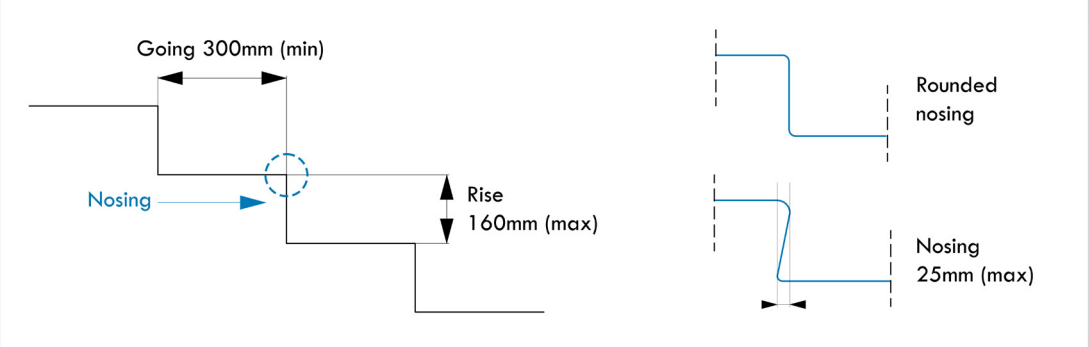


Fig. 54. Rise and going of a step. Nosing at the edge of a step should be avoided, but if necessary, the nosing should have a rounded profile, and not protrude more than 25mm.

WIDTH OF STAIRS AND LANDING

- The minimum width of stairs should be 1200 mm. The minimum width measured between handrails should be 1000 mm (fig. 52. **C**).
- There should be a clear and unobstructed landing area at the top and bottom of the stairs. The landing should be free of obstacles, swinging gates and doors (fig. 52. **D**).
- An intermediate landing should be provided after every 10–15 risers. This allows people to rest and safely navigate the stairs, reducing the risk of accidents or injury. The depth of the intermediate landing must be at least 800 mm.
- The bottom and the top of the stairs should have a tactile warning surface (fig. 52. **E**). The length of the warning surface should be at least 600 mm in the direction of travel, and it should cover the full width of the stairs. For more recommendations, see section 3.1.3. Tactile paving surfaces.
- The front edges of the steps must have a contrasting-colored warning stripe that stands out from the surface of the steps (fig. 52. **F**).

SURFACE

- The surface of the steps must be even, hard, and non-slippery even when wet. Stairs must be clear of any loose sand or gravel.

SPACE UNDER THE STAIRS

- If there is an open space under the stairs, it is recommended to close it off or add a guard, rails, or tactile surface to prevent collisions or accidents.

HANDRAILS

- Stairs must have double-height handrails on both sides, the upper one at 900 mm and the lower one at 700 mm from the floor. Handrails should continue uninterrupted around any landing and extend at least 300 mm beyond the end of the stairs (fig. 52. **G**).
- If the width of stairs exceeds 2700 mm, a central handrail should be installed ensuring an unobstructed width of 1500 mm on at least one side of the central handrail.
- Handrails should contrast with the background surface. Handrails should be smooth and allow firm and easy grip. The recommended shape for a handrail is round with a diameter of 25–40 mm.
- The handrail's ends must be designed to avoid the risk of clothing being caught; sharp edges should be avoided. In cases where the handrail is fixed to a wall, the brackets should be positioned from below to allow the hand to slide without obstruction. A handrail attached to a wall or other fixed structure must be at least 45 mm away from the wall (fig. 55.).

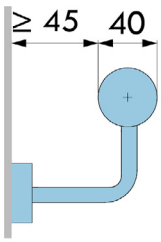


Fig. 55. Round handrail shape with a diameter of 40 mm (recommended 25–40 mm). The distance from a fixed structure is 45mm.

LIGHTING

- The staircase must be evenly lit and glare-free. If the lighting for the stairs works with a motion detector, it must respond to movement at different heights. The light intensity indoors is recommended to be at least 300 lx on the flight of stairs and 500 lx at the top and the bottom of the stairs. The light intensity outdoors is recommended to be between 30–50 lx.

3.2.6. ENTRANCES

Accessible entrances allow everyone to enter and exit buildings and their sites safely and independently. Without accessible entrances, people with disabilities, the elderly, parents with strollers, and others may face significant barriers when trying to access buildings and services. When designing entrances, it is important to consider accessibility features such as ramps, stairs, signage, sufficient width of doors and simple entrance systems.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 56. Inaccessible entrance. This entrance is too narrow (<900 mm) to access with wheeled mobility aids; the path leading up to the entrance has an uneven surface; there is also a lack of visual and tactile cues.

Fig. 57. Unsafe entrance. This entrance is used by both vehicles and pedestrians, creating safety risks for pedestrians. For improved accessibility, a separate entrance should be created only for pedestrians.

Fig. 58. Inaccessible entrance. This entrance is not suitable for people using mobility aids, and the exposed drainage system along the pathway poses a danger for people with visual impairments.

Learn more about accessible entrances →

ACCESSIBILITY CRITERIA FOR ENTRANCES

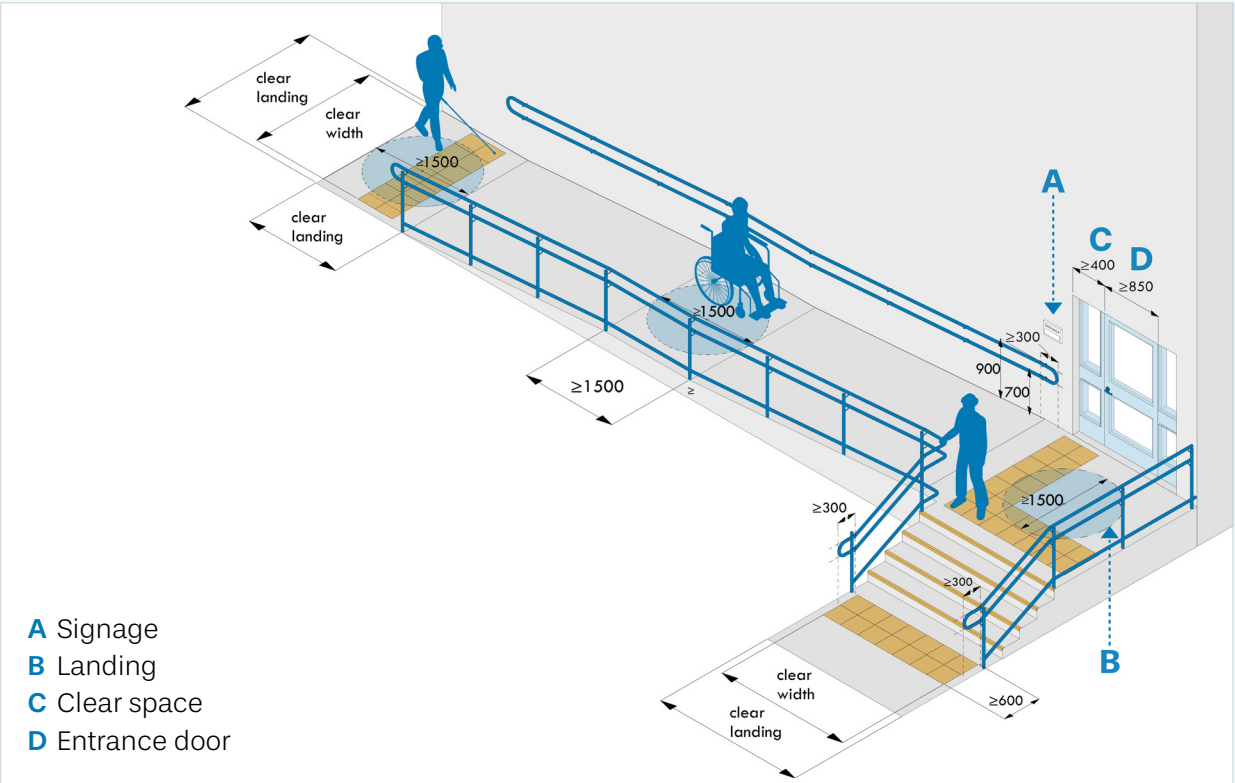


Fig. 59. Illustration of an accessible entrance equipped with a ramp and stairs.

LOCATION OF ENTRANCES

- Accessible building entrance should be connected to accessible pathway, parking areas, pick-up and drop-off areas.
- If a building has several entrances, it is recommended to make all entrances accessible. If not possible, at least one entrance should be accessible. In multi-story buildings, the accessible entrance should directly lead to an accessible elevator.
- Accessible entrance door/gate should stand out and contrast with the surroundings. A sign (e.g., the name of the building) should be placed on the opening side of the entrance door/gate (fig. 59. **A**).
- The entrance should have a sufficient lighting level, with a recommended light intensity between 50–200 lx, depending on the level of outdoor lighting in the surrounding area.

LANDING IN FRONT OF THE ENTRANCE

- There must be a level landing in front of the entrance door/gate, along with a clear space on the opening side. This landing and clear space allow people with mobility aids to reach the door/gate and open it comfortably.
- The unobstructed landing in front of the entrance door/gate should have a minimum size of 1500 mm x 1500 mm (Fig. 59. **B**).

- The clear space on the opening side of the entrance door/gate must be at least 400 mm wide. This allows people using mobility aids to open the door/gate comfortably. This clear space is needed for both entering and exiting (Fig. 59. **C**).
- The landing should be kept clear from any obstructions such as seating, ATM machines, guard houses, decorative plants, and others.
- Surface of the landing should be even, hard, and non-slippery even when wet.
- It is recommended to have a covered entrance landing (e.g. canopy roof) to protect it from weather conditions such as rain and direct sunlight.
- Doormats should be avoided. However, if they are used, it is important to ensure that the upper surface of the mat is aligned with the floor finish and securely fitted.

LEVEL DIFFERENCE AT THE ENTRANCE

- Preferably, there should be no level difference at the entrance. However, if a level difference exists, it is recommended to provide both ramp and staircase options to accommodate people with different mobility needs. For more recommendations on ramps and stairs, see section 3.2.4. Ramps and 3.2.5. Stairs.

ENTRANCE DOORS / GATES

- The minimum clear width of an entrance door/gate should be 850 mm (Fig. 59. **D**).
- Door/gate fixtures should be designed to be easy to grab, operate, and require minimal force. Lever-style handles are often preferred over doorknobs.
- There must be no level difference or threshold at the doors unless they are necessary because of issues such as noise or moisture conditions. If a raised threshold or level change is necessary, it should not exceed the height of 20 mm. Thresholds should have beveled or sloped edges to allow easy crossing by wheeled mobility aids.
- Entrance doors/gates follow the same accessibility criteria as doors. For more recommendations, see section 3.2.7. Doors.

ENTRANCE SYSTEMS

- All entry systems should be designed and placed to allow easy approach and use. Doorbells, code locks, and access control should be at the height of 900–1100 mm from the floor. They should be at least 400 mm far from other fixed structures (e.g., walls).
- All entry systems should be located on the opening side of the door so there is no risk of collision when the door opens.
- Access control devices should have visual and audio signals.

3.2.7. DOORS

When designing accessible doors, what needs to be considered is clear visibility of the doors, sufficient width and height, minimal effort to operate, and door fixtures that are easy to use. These factors allow users to navigate circulation routes and access spaces with less physical effort.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 60. No visual contrast. The dark brown doors blend in with the brown walls around them. The lack of contrast can be particularly challenging for people with visual impairments to differentiate between the door and the surrounding surface.

Fig. 61. Signage placement. Signs should not be placed on the door itself but on the wall of the opening side of the door to ensure that the sign remains clear and visible, even if the door is open.

Fig. 62. Narrow doors, high threshold. These doors are inaccessible due to their narrow width (<850 mm), high threshold (>20mm), and no sufficient visual contrast between the doors and the surrounding surface.

Learn more about accessible doors →

ACCESSIBILITY CRITERIA FOR DOORS

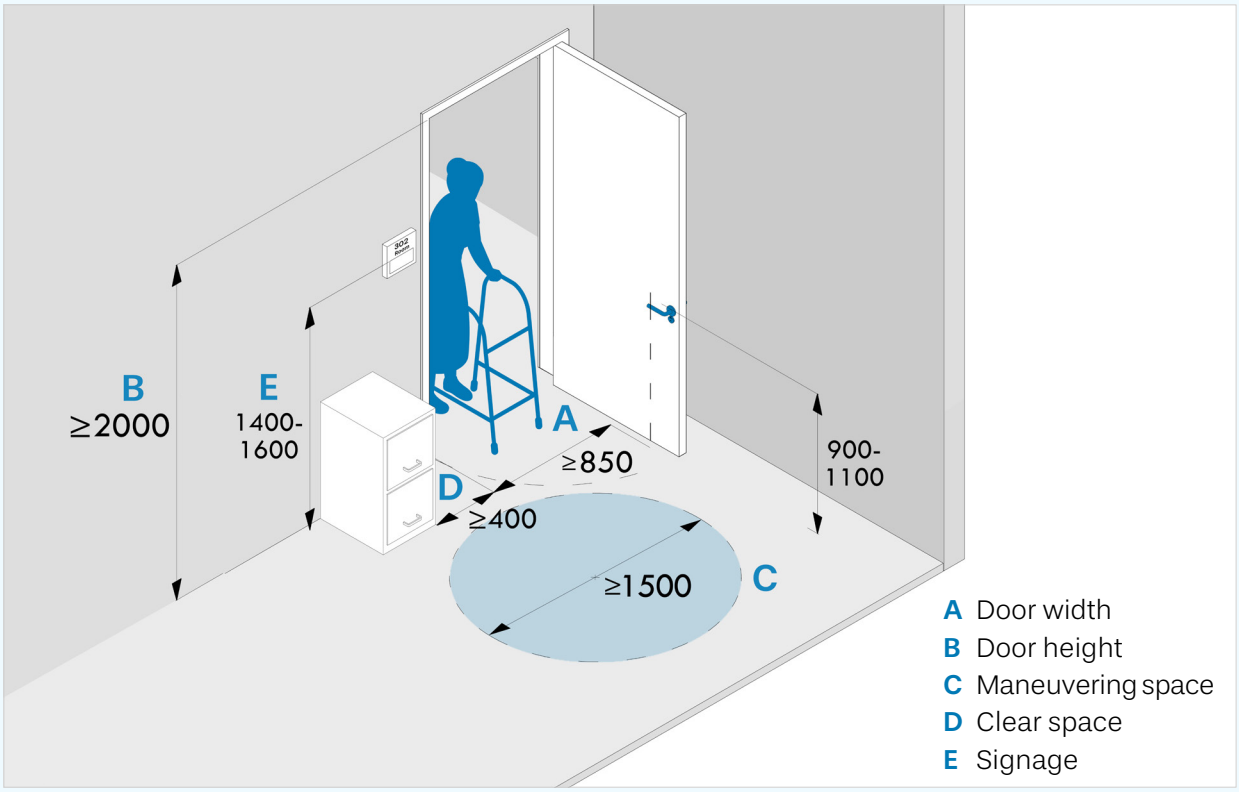


Fig. 63. Illustration of accessible doors.

WIDTH AND HEIGHT OF DOORS

- The clear width of doors should be at least 800 mm; 850 mm or more is recommended (fig. 63. **A**). For building entrances and accessible toilets, the width should be at least 850 mm. The clear height of the door opening should be at least 2000 mm (fig. 63. **B**).

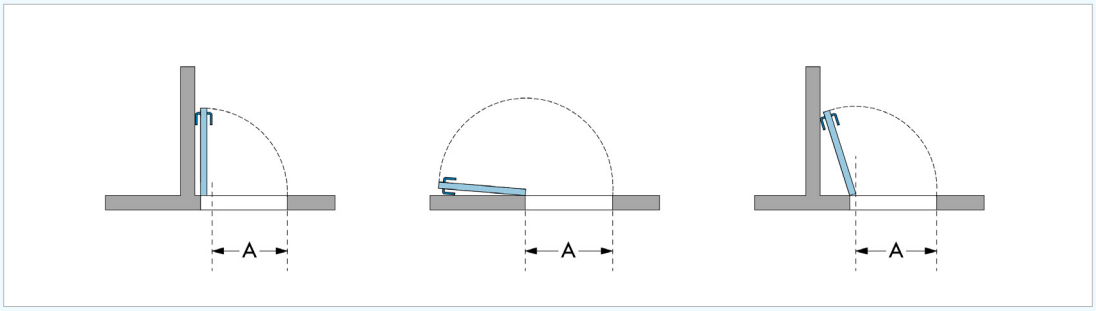


Fig. 64. Clear width of a door (A) refers to the width of the door when it is open, minus the frame, the thickness of the door leaf, and any handles that may narrow the clear width. For double-leaf doors, at least one leaf should have the minimum clear width.

MANEUVERING SPACE IN FRONT OF DOORS

- There should be a clear maneuvering space of 1500 x 1500 mm on both sides of the door (fig. 63. **C**). In addition, there there should be a minimum of 400 mm wide clear unfurnished space on the opening side of the door. This allows people using mobility aids to open the door comfortably. The clear space is needed for both entering and leaving the space (fig. 63. **D**).

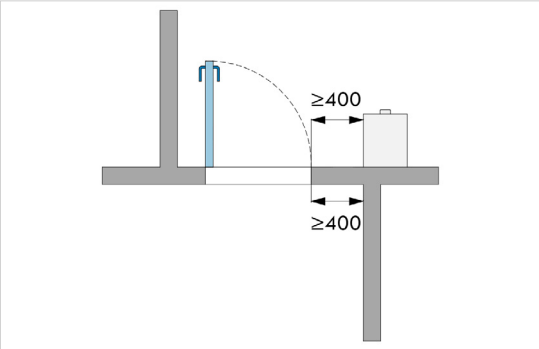


Fig. 65. 400 mm wide clear unfurnished space on the opening side of the door.

THRESHOLDS

- There must be no level difference or threshold at the doors unless they are necessary because of issues such as noise or moisture conditions. If a raised threshold or level change is necessary, it must not exceed the height of 20 mm, and a visual contrast with the adjacent floor is needed. Thresholds should have beveled or sloped edges to allow easy crossing by wheeled mobility aids (fig. 66.).

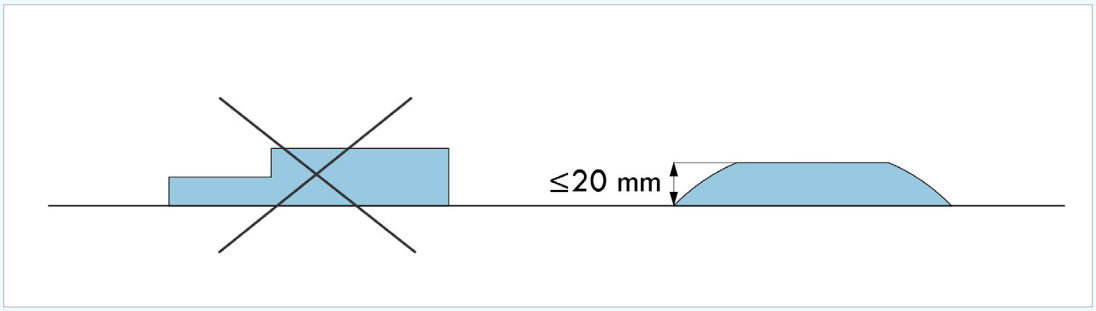


Fig. 66. The profile of the threshold should not be square as it is difficult to cross with wheeled mobility aids. Instead, thresholds should have beveled or sloped edges.

SIGNAGE

- In public buildings, doors should have signs that indicate the function and the room number. Signs should be positioned on the wall of the opening side of the door rather than directly on the door itself. This ensures that the sign remains clear and visible, even if the door is open. Signs should be placed 1400–1600 mm above the floor (fig. 63. **E**).

- Signs must stand out from the background. The text or symbols on the signs should contrast with the sign's color. The sign should also include the information in raised tactile and Braille.

MANUAL DOORS

- Door buttons and handles for manually operated swinging and sliding doors should be mounted 900–1100 mm from the ground/floor and at least 400 mm away from the corner or other fixed structure.

- The door should be possible to open with one hand with a force of ≤10N.
- Door handles should be visually distinguishable from the door and be designed to be easily gripped with one hand. Lever-type handles, vertical pull handles, or push plates are easy to use and grab with one hand without the need to twist the wrist. Round doorknobs should be avoided as they are difficult to operate and require much strength to use.

AUTOMATIC DOORS

- The push button of automatic doors should stand out from the background. The button should be mounted at a height of 900–1100 mm and at a distance of at least 400 mm from a corner or other fixed structure. The push button must be located on the opening side of the door marked with the wheelchair symbol. It must also be designed so that it can be pressed with an elbow (fig. 67.).
- An automatic operated door must be fitted with a safety sensor to ensure that it does not open or close when someone is going through the door. It is recommended that the opening area is marked on the floor. The door must stay open for at least 25 seconds. The automatic doors should have sensors that react to people of different heights.
- If there is a revolving door, there must always be an alternative, e.g., a swinging door that opens with a push button and can also be opened manually. If the revolving door is used to exit a building during an emergency, there must be an emergency release system with clearly marked instructions.

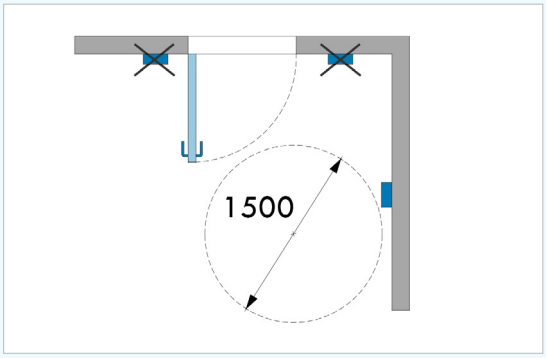


Fig. 67. The push button for opening an electrically operated door must be located on the opening side of the door so that when the door is opened, it does not hit the person using the button.

GLASS DOORS

- Glass doors should have safety markings, such as horizontal stripes or contrasting markings. It is recommended that there are at least two strips/markings, at heights of 1000 mm and 1400–1600 mm, on each door.
- A frame or a kick plate at the bottom of the glass door makes it easier to perceive the door. Kick plates can also protect the door from damage caused by wheelchair foot-rests. The kick plate should be 300–400 mm high, measured from the lower edge of the door leaf. The kick plate should cover the full width of the door or gate.

3.2.8. RECEPTION AREAS

The reception area in public buildings is often the first point of contact for visitors. It is recommended that the reception area is located near the main entrance and offers clear directions to different facilities within the building. The reception counter should be accessible to all, accommodating people of varying heights, wheelchair users, and people with hearing and visual impairments.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 68. Inaccessible waiting area. This waiting area is not accesible for wheeled mobility aid users due to insufficient maneuvering space. (less than 1500 x 1500 mm) Moreover, the table top is too high for wheelchair access (recommended height is 750–800 mm).

Fig. 69. Inaccessible counters. Reception counters are provided at two different heights – for standing and sitting positions; however, there is a lack of knee space underneath the counters, preventing use by wheelchair users. The plants by the counter hinder the accessibility even more. It is also recommended to avoid use of bold floor patterns.

Learn more about accessibile reception areas →

ACCESSIBILITY CRITERIA FOR RECEPTION AREAS

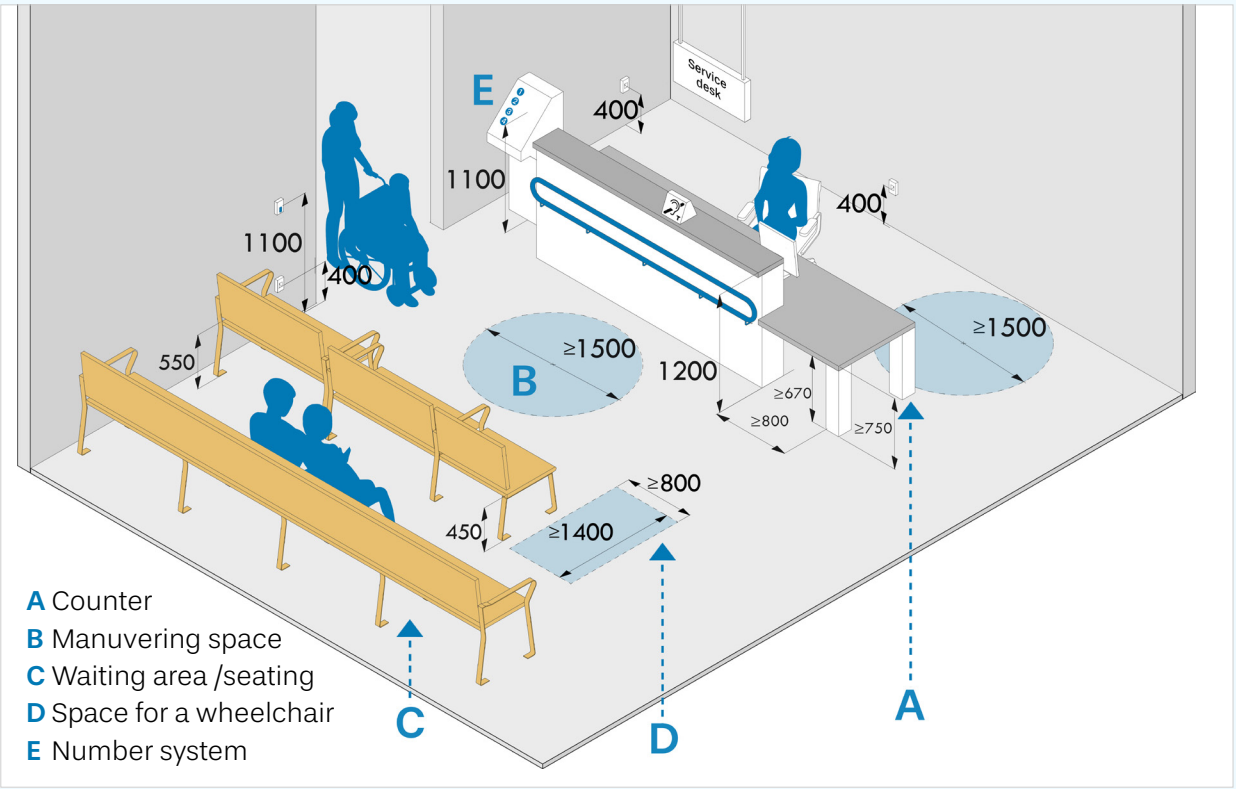


Fig. 70. Illustration of an accessible reception area.

LOCATION OF RECEPTION AREA

- Reception area should be located close to the accessible entrance and be clearly visible from the entrance. If the route to the reception area is not clearly visible from the entrance, appropriate signage should be provided.

- The floor of the reception area must be even, hard, and non-slippery even when wet. Any patterns or stripes on the floor that create the illusion of uneven levels should be avoided.

RECEPTION COUNTERS

- The reception counter should have table tops at two heights: the counter for standing customers should be between 1100–1200 mm, while the counter for wheelchair users and people of short stature should be between 750–800 mm (fig. 70. **A**). The space under the counter must be 670 mm high, at least 800 mm wide, and 600 mm deep.

- There should be seating with different heights, armrests and backrests. The recommended height for the seating is 300 mm, 450 mm and 500–550 mm. Reception counter should also have a handrail and a cane stand.

- The reception counter should be easily distinguishable from its surroundings by the use of contrasting colors. To ensure adequate space for movement, there should be an area of at least 1500 x 1500 mm in front of the reception counter (fig. 70. **B**).

LIGHTING

- The reception counter must be well-lit. The recommended light intensity is 500–750 lx.
- There must be no glare from the light sources behind the counter or reflections on the glass walls (if any) that would make it difficult to see the customer service representative, thus making, e.g., lip reading difficult. If needed, a spotlight can be placed on the counter.

WAITING AREA

- The waiting area should be kept free from obstructions, ensuring that there are clear pathways for people using mobility aids. The waiting area should have a clear turning space of 1500 mm x 1500 mm (fig. 70. **B**).
- Where seating is arranged in rows, there should be clear space of at least 900 mm in front of the row to allow people to pass along a row to a seating position. The seats in the waiting area must stand out from the background (fig. 70. **C**).
- In waiting area, there should be adjacent free space reserved for people using a wheelchair. The wheelchair space must be at least 1400 mm deep and at least 800 mm wide. There needs to be a 900 mm wide passage behind and in front of the wheelchair space so that people can pass the space (fig. 70. **D**).

ACOUSTIC ENVIRONMENT

- The reception area must be located in an area with as little noise and echo as possible.
- It is recommended that the reception counter is equipped with an induction loop and a related sign. The induction loop can also be portable so that it can be moved to where it is needed, however, a permanently installed loop is more reliable.

NUMBER SYSTEMS

- The take-a-number dispenser must be accessible to people who use mobility aids. The dispenser should be mounted 900–1100 mm from the floor (fig. 70. **E**). The buttons on the device must contrast with the background and the related instructions must also be in Braille. The number on the ticket must contrast with the background. The numbers viewed at a distance of about one metre must be at least 15 mm big. The device must give an audible notification of the customer's number in the queue.
- The numbers on the screen must be made of solid lines. The screen must be located at a height of 1400–1600 mm from the floor, and it must be accessible to users so they can see it up close. There must be no reflections on the screen from the sun or lighting sources. In addition to the screen, the number to be served and the number of the counter must be announced aloud.

3.2.9. ELEVATORS

Elevators provide easy and convenient vertical circulation in multi-story buildings. Elevators should be located near the main entrance and provide access to all floors. To ensure that elevators are safe and user-friendly, they should have adequate maneuvering space in front and provide clear signs, along with tactile information and Braille, and audio announcements.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 71. Poor visibility. The operating buttons and numbers are nearly invisible due to a lack of contrast with the background. This can be particularly challenging for people with visual impairments.

Fig. 72. Operating buttons difficult to reach. Vertically placed operating buttons are difficult to reach, especially for children, people of short stature and wheelchair users. It is recommended to place operating buttons in a horizontal row at a height of 900–1100 mm.

Fig. 73. Reflective elevator door. This elevator door has a highly reflective surface, which poses a significant challenge in distinguishing it from the door frame and the adjacent surroundings.

Learn more about accessibile elevators →

ACCESSIBILITY CRITERIA FOR ELEVATORS

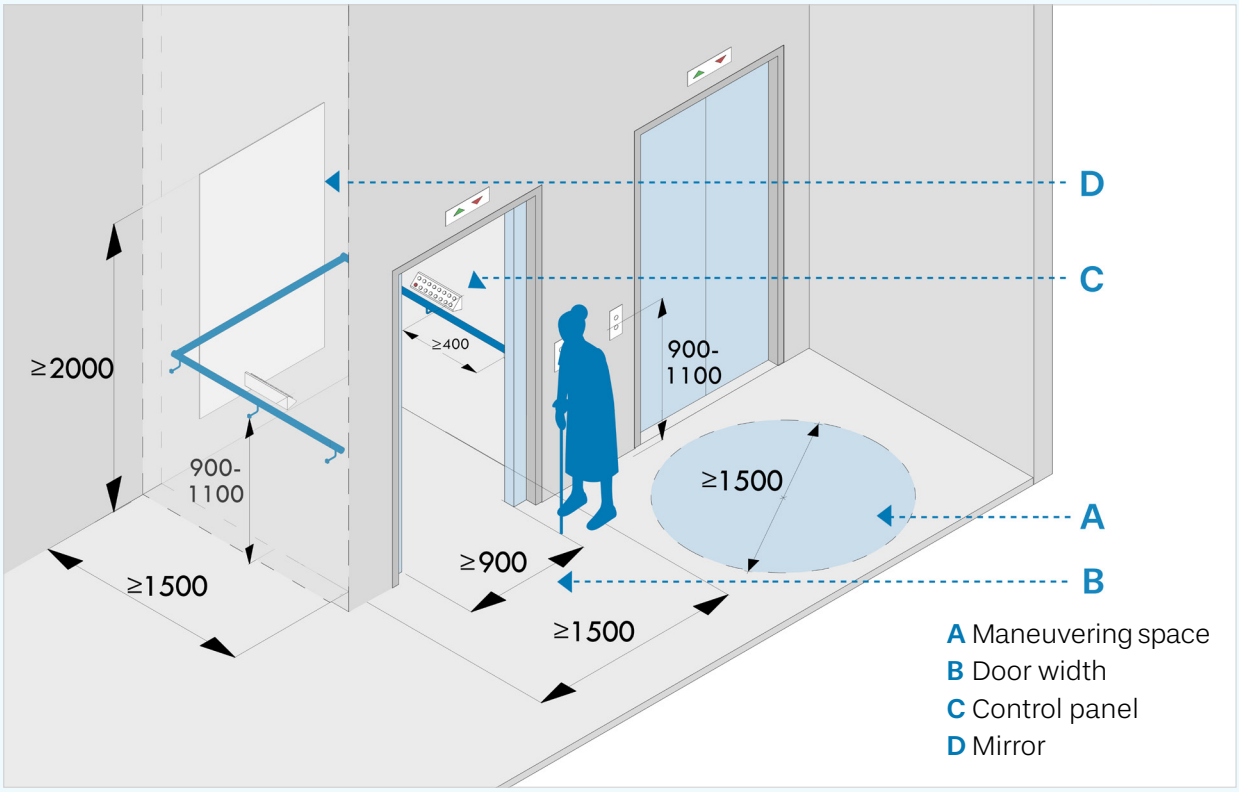


Fig. 74. Illustration of an accessible elevator.

ACCESS AND LOCATION

- All elevators should be safe and easy to use and their location should be clearly marked. Elevators should be located near the accessible entrance and provide access to all floors.
- There must be a clear maneuvering space of at least 1500 mm x 1500 mm in front of the elevator on every floor to allow safe entry and exit (fig. 74. **A**). The surface of the elevator floor should be even with the floor's surface outside the elevator.
- The arrival of the elevator is indicated by an arrow that lights up and an audible signal. For people with visual impairment, the most effective system is based on voice announcements. It informs them about the elevator's direction (going up or down) and notifies when it reaches the selected floor.

ELEVATOR DOOR

- Elevator doors should have a clear opening width of at least 900 mm (fig. 74. **B**).
- Elevator doors should stand out from from the surrounding surface.
- If the elevator has glass doors, there should be safety markings, such as horizontal stripes or contrasting markings. It is recommended that there are at least two strips/markings, at heights of 1000 mm and 1400–1600 mm, on each door.

ELEVATOR DIMENSIONS

- The minimum size of the elevator must be 1100 mm wide and 1400 mm deep. However, with these minimum dimensions, it is not possible to turn with a wheelchair in the elevator. The size of this elevator only allows a person using a wheelchair to enter forwards and exit backwards.

- For a person using a wheelchair to be able to turn in the elevator, the size of the elevator must be at least 1500 mm x 1500 mm. Handrails and benches should not reduce the clear width or depth of the elevator.

CONTROL PANEL AND OPERATING BUTTONS

- The operating buttons must be located in a low, horizontal row at the height of 900–1100 mm from the floor and positioned at least 400 mm away from the corners of the elevator. The operating buttons are easier to use if the control panel protrudes from the wall at a 45-degree angle (fig. 74. **C**).

- The numbers on the buttons must be embossed and must contrast with the background for easy identification for people with visual impairments. The button for the exit floor must be of a different color, e.g., green, and must protrude more than the other buttons. Elevator buttons should contain information in Braille.

- The emergency button should be different from the other buttons, e.g. red. It should be easy to activate the emergency button with limited strength. Confirming that an alarm has been received must be provided by an auditable (voice connections) and a visual signal.

- Fonts that are easy to read must be used on signs inside the elevator. The elevator must have a display indicating the arrival at the floor, and the number must be easy to perceive. There must be a sign that indicates which floors can be reached by the elevator.

FIXTURES

- The elevator must have a handrail placed at a height of 900 mm from the floor. It is also recommended that the elevator has a folding seat that is 500 mm high and 300–400 mm deep.

- There should be a mirror mounted on the back wall of the elevator. The lower edge of the mirror should be 300–900 mm from the floor and the upper edge at least 2000 mm (fig. 74. **D**).

LIGHTING

- Lights inside the elevator must not cause glare by reflecting on glossy surfaces or a mirror. Light intensity both inside and outside the elevator should be 300 lx. For more recommendations on lighting, see 3.1.2. Visual environments.

3.2.10. HALLWAYS

Accessible hallways facilitate easy orientation, with simple and well-planned layouts and clear signage that help people navigate the building. Hallways should accommodate sufficient space and width for maneuvering and circulation for all users, including people using wheeled mobility aids and guide dogs.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 75. Insufficient lighting. This hallway has poor lighting, resulting in a dim environment that can cause navigation and way-finding challenges for the users.

Fig. 76. Strong floor pattern. Strong floor patterns should be avoided as they can create an illusion of uneven levels and can appear confusing and misleading to the users.

Fig. 77. Lack of protective elements. This outdoor hallway lacks protective elements on its right side, creating a potential falling risk. It is recommended to install a handrail or other protective element to ensure safety.

Learn more about accessible hallways →

ACCESSIBILITY CRITERIA FOR HALLWAYS

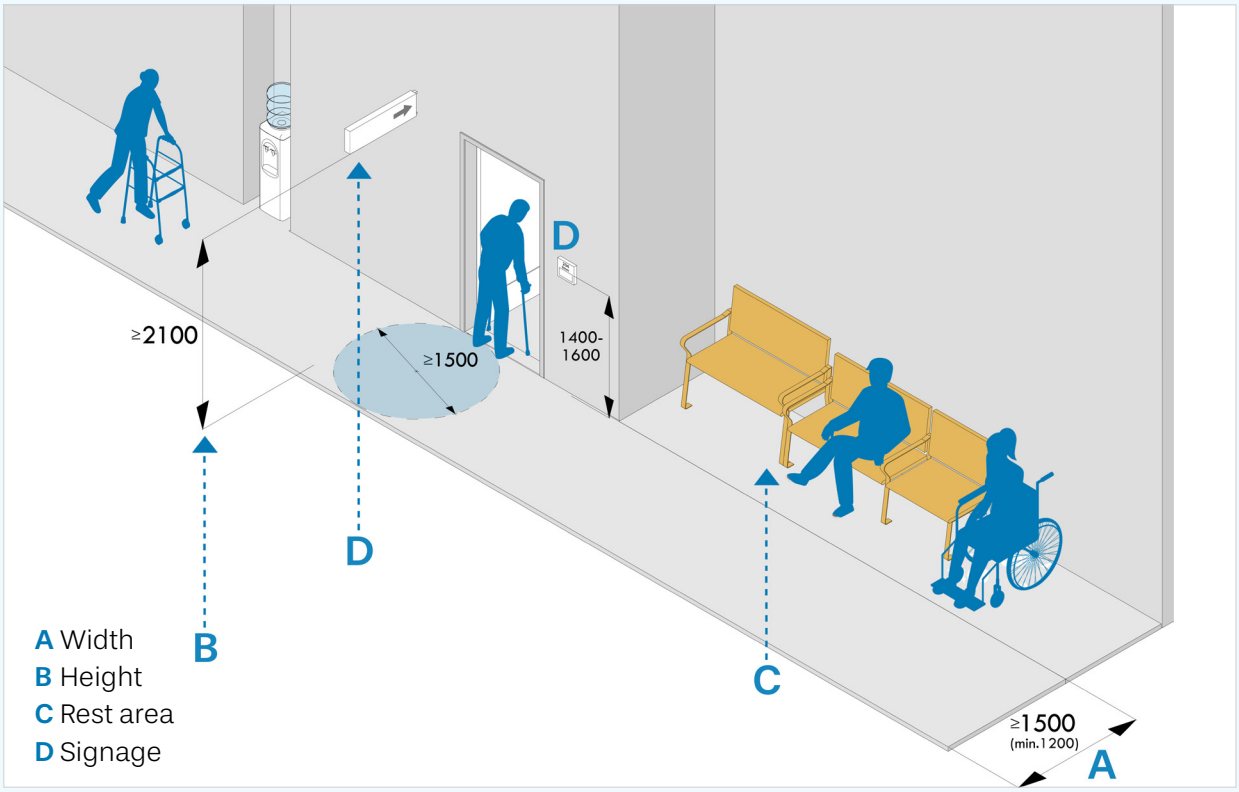


Fig. 78. Accessible hallway.

CLEAR WIDTH AND HEIGHT OF HALLWAYS

- The minimum clear width of a hallway should be 1200 mm; 1500 mm or more is recommended (fig. 78. **A**).
- If the clear width of a hallway is less than 1500 mm, it must have a turning space of 1500 mm x 1500 mm at least every 15 meters. Note! The clear width of a hallway should be measured without any fixtures such as pillars, floor-mounted seats, or other fixed furniture.
- Hallways must have a minimum clear height of 2100 mm to ensure unrestricted vertical movement and accommodate people of varying heights (fig. 78. **B**).
- Hallways must be kept free from any obstructions protruding from the top or sides, as they can hinder movement and pose collision risks. This is particularly important for people with visual impairments who rely on white canes to detect objects at floor level.

REST AREAS

- Long hallways must have rest areas (fig. 78. **C**). They should be located on the side of the hallways. Some seats should have backrests, armrests, and an open lower part. The seating should contrast with the background. There should also be adjacent free space reserved for people using a wheelchair. For more recommendations on seating and wheelchair space, see 3.1.5. Furniture.

SURFACE

- Using sound-absorbing materials, such as acoustic panels or soft wall coverings, can help reduce reverberation and control noise levels. Hard surfaces should be avoided as they can cause sound reverberation and high levels of background noise and pose communication challenges.
- The floor surface of the hallway must be hard, level, glare-free and non-slippery, even when wet. Soft carpets should be avoided as it can be challenging to move on them with wheeled mobility aids.
- There must be no stripes or strong patterns on the hallway floor that could be perceived as being different levels. The floor must contrast visually with the walls.
- Transparent or glazed glass walls along hallways must have horizontal stripes or contrasting markings. It is recommended that there are at least two strips/markings at heights of 1000 mm and 1400–1600 mm.
- Hallways must be equipped with consistant and clear signs to help people orient in the building. Overhanging signs should maintain a minimum clearance of 2100 mm to prevent collisions (fig. 78. **D**). For more recommendations, see 3.1.4. Signage.

HANDRAILS

- It is recommended that hallways have handrails, especially in health care buildings. The top of the handrail should be positioned 900 mm from the floor. It is recommended that there is also a handrail at a height of 700 mm.
- Where handrails are provided, they should be designed to be easy to grip, be well contrasted with the adjacent wall, and be as continuous as possible. For more information on handrails, see 3.2.5. Stairs.

LIGHTING

- The light intensity in hallways must be in the range of 200–300 lx.
- The hallway must be evenly lit and glare-free. Glare is often caused by bright sunlight coming through windows or glass doors, incorrectly directed lighting or reflections on glossy floor or wall surfaces.
- The distance from the center of the light switch to the floor should be in the range of 900–1100 mm, and to a corner or a fixed structure, at least 400 mm. The light switch must contrast with the wall.
- If the lighting operates with a motion detector, the motion detector should responds to movement at different heights.

3.2.11. ACCESSIBLE TOILETS AND WASH AREAS

Accessible toilets are one of the key elements of creating an inclusive and accessible environment. Accessible toilets must have an unobstructed route leading to them, clear signage, an accessible entrance door and sufficient space to ensure comfortable movement for people using mobility aids. Accessible toilets must be well-equipped to cater to the needs of all users, who may require assistance or use them independently. In public places, it is important to locate accessible toilets in gender-neutral settings to accommodate users who may have assistants of a different gender than their own.

IDENTIFYING COMMON ACCESSIBILITY CHALLENGES

Fig. 79. Inaccessible toilet. Despite adding a ramp, the toilet remains inaccessible due to a lack of landing, narrow doors, high threshold and insufficient maneuvering space inside.

Fig. 81. Inaccessible wash area. No legroom, no color contrast and a large drainage system in front of the wash areas makes this wash area fully inaccessible.

Fig. 80. Insufficient space. Despite being marked as 'Accessible,' this toilet has no sufficient maneuvering space; it lacks appropriate grab rails and accessible hand washing facilities.

Fig. 82. Misuse of space. The path to the accessible toilet is blocked by obstructing objects, making it impossible for people with mobility aids to access it.

ACCESSIBILITY CRITERIA FOR TOILETS

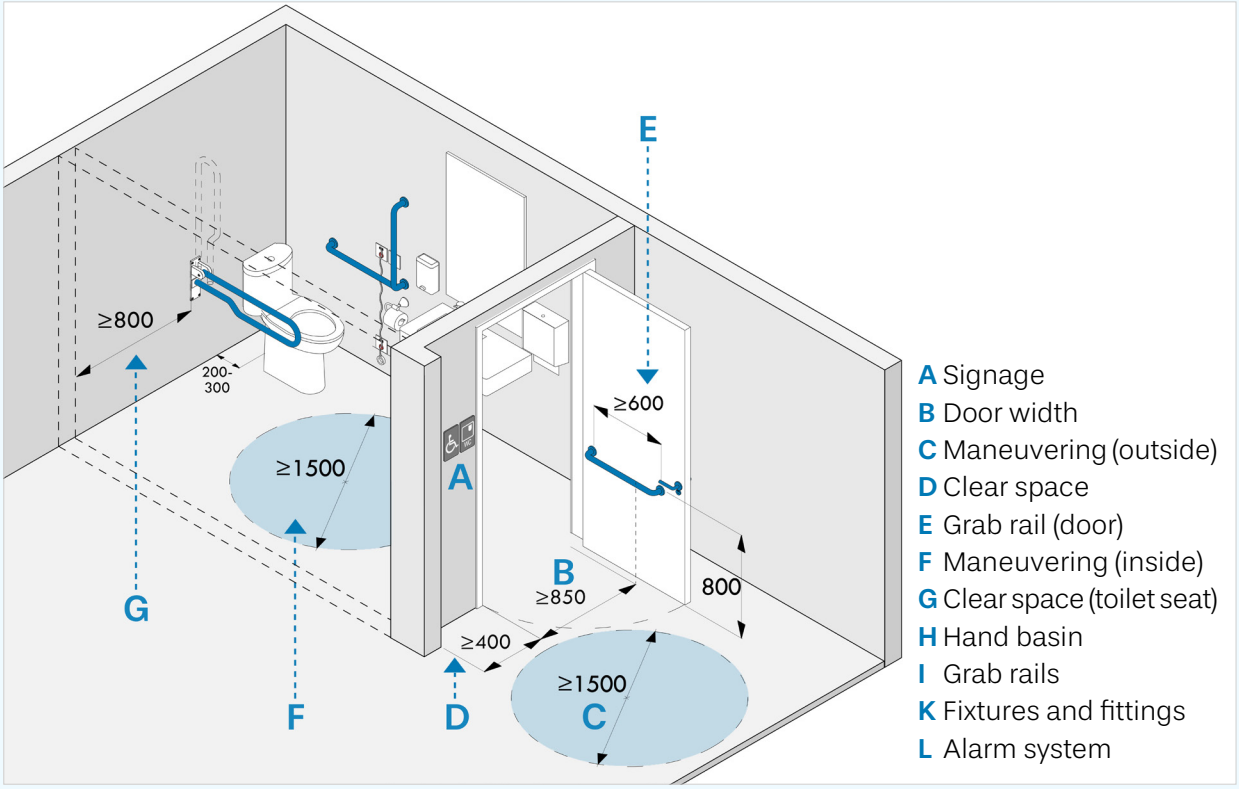


Fig. 83. Illustration of an accessible toilet.

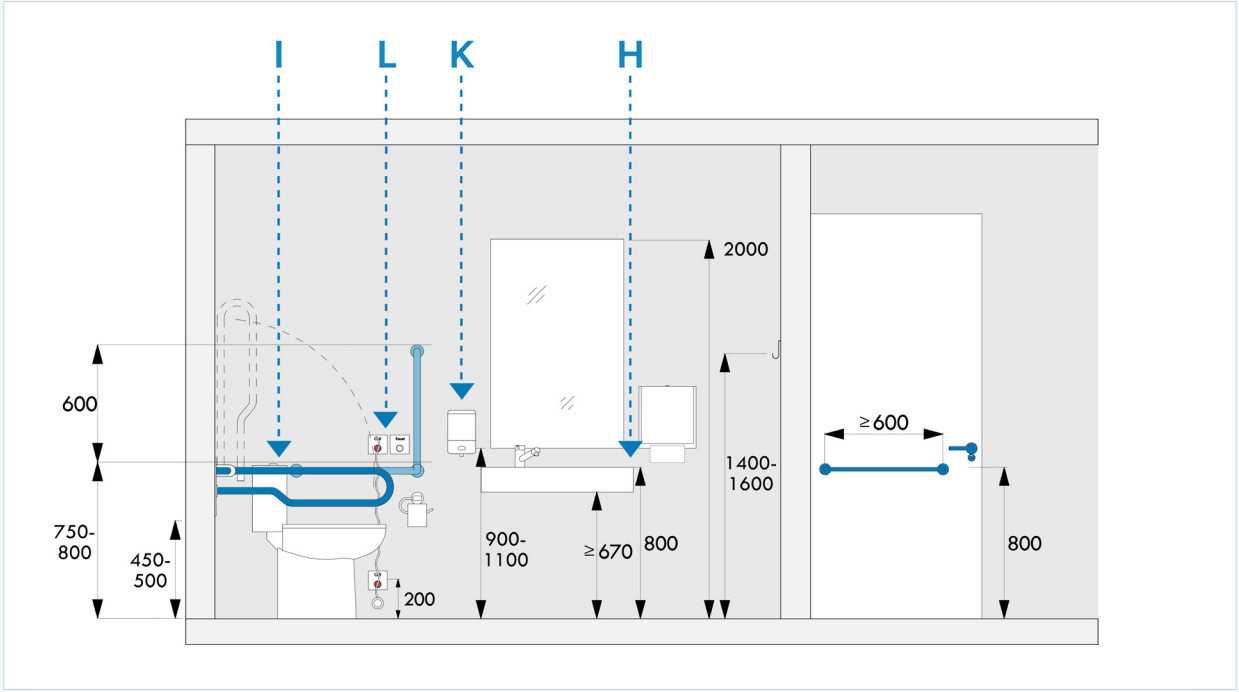


Fig. 84. Accessible heights of the toilet seat, hand basin, grab rails, fixtures and fittings.

NOTE! When designing or planning an accessible toilet, it is recommended to consult with an accessibility expert to ensure the most suitable solution for the given space and context. Solutions will depend on various factors, including budget considerations, the specific needs of the users, and the layout of the toilet.

LOCATION OF ACCESSIBLE TOILETS

Indoors

- Accessible toilet must have direct and easy access from the key areas of the building, such as lobby, hallways, reception areas, and other similar spaces.

Outdoors

- Outdoor toilets should be situated in close proximity to the buildings they serve. The pathway to the outdoor toilet should be at least 1200 mm wide with an even, hard, and non-slippery surface even when wet.

- If the outdoor toilet is located above the ground, there should be a ramp with a maximum slope of 8%, handrails on both sides, raised support edge, and a level landing at the top and bottom of the ramp. An alternative solution to avoid ramps or stairs would be to gently raise the ground leading to the accessible outdoor toilet.

Outdoor wash area

- Outdoor wash areas should be located in easily visible locations and placed in close proximity to the building it serves. Outdoor wash areas must be located nearby outdoor toilets to ensure convenient and direct access.

- There should be sufficient maneuvering space around the outdoor hand wash basins (at least 1500 mm x 1500 mm) to provide enough space for users to approach the basins, move around, and turn comfortably.

SIGNAGE

- The locations of all accessible toilets in the building must be marked on guide maps and informational signs.

- Accessible toilets must be marked with clear signage and an International Symbol of Accessibility. The sign should be placed on the wall adjacent to the opening side of the door at a height of 1400–1600 mm (fig. 84. **A**).

- People transfer from the wheelchair to the toilet seat from either the left, the right side, or the front. If the toilet seat cannot be accessed from both sides, the sign at the toilet door should indicate which side of the toilet seat has a clear space (at least 800 mm) for wheelchair access or assistance.

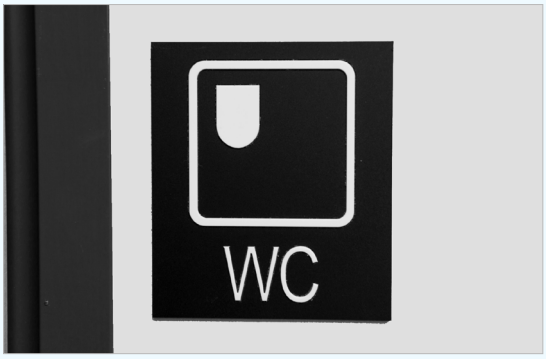


Fig. 85. Example of an accessible toilet sign which indicates the clear space on the right side of the toilet seat. If the seat can only be accessed from one side, there must be another mirror-image accessible toilet nearby.

DOORS

- The door must open outwards. The clear width of the door to the accessible toilet must be at least 850 mm (fig. 84. **B**), and the maneuvering space to turn outside the door should be at least 1500 mm x 1500 mm (fig. 84. **C**). The toilet door should visually contrast with the surrounding wall and floor surface.
- There should be a minimum of 400 mm wide unfurnished space on the opening side of the toilet door. The clear space is needed for both entering and leaving the space (fig. 84. **D**).
- There should be a horizontal rail on the inside of the door. The rail must be at least 600 mm long and mounted at a height of 800 mm from the floor (fig. 84. **E**). For more recommendations, see 3.2.7. Doors.
- There must be no threshold or other level differences. If there is a threshold, its height must not exceed 20 mm. The threshold must be beveled or sloped.
- The door lock must be easy to lock and unlock with just one hand. It must be possible to unlock the door from outside so the user can be assisted if necessary.

MANEUVERING SPACE

- A clear space of at least 1500 mm x 1500 mm should be provided within the toilet. The space should be obstacle-free space up to a height of 2 meters (fig. 84. **F**).

TOILET SEATS

- There should be a clear space of at least 800 mm on one or both sides of the toilet seat for wheelchair access or assistance (fig. 84. **G**). If the seat can only be accessed from one side, there must be another mirror-image accessible toilet nearby.
- The toilet seat should be placed 200–300 mm from the rear wall to provide enough space for wheelchair users to approach it without being obstructed by a drop-down rail.
- The height of a toilet seat suitable for wheelchair users is 450–500 mm. The height of a toilet seat for children is 300–350 mm.
- Squat toilets should be avoided as they can be difficult to use. If they are used, it is recommended to equip squat toilets with either a movable or fixed toilet chair and provide grab rails on both sides.

HAND BASINS

- The height of a hand basin should be 800 mm measured from the floor finish to the top edge of the hand basin (fig. 84. **H**).

- The recommended hand basin depth is 450–600 mm. There should be a clear space under the hand basin for knee and feet support. The recommended clear space is at least 800 mm wide, 670 mm high, and 600 mm deep. There must be no structures under the hand basin in the clear space that reduce its size, such as water or sewer pipes or a drain trap.

- The lower edge of a mirror placed above the hand basin should be 800–900 mm from the floor, depending on the height of the hand basin. The upper edge of the mirror should be at least 2000 mm from the floor.

- Faucets should allow for easy operation, which can include the use of single-lever mixing-type faucets that can be easily operated with one hand or elbow. Automatic faucets or those with push buttons are recommended alternatives.

- The soap and hand towel dispensers should be positioned to allow easy access from a wheelchair and with only one hand.

FLOORS AND WALLS

- The toilet floor must be even, hard and non-slippery even when wet. Floor tiles must have a non-slippery surface designed for damp spaces. Raised relief ceramic tiles are not suitable as the water that accumulates on them poses a risk of slipping.

- The walls and floors should have a matte finish to prevent glare.

GRAB RAILS

- Both sides of the toilet seat should be equipped with a grab rail (either a drop-down or fixed to the wall) to support people while sitting down and getting up (fig. 84. **I**). Grab rails should be easy to operate and be positioned about 300–350 mm from the center of the toilet.

- The recommended height for grab rails is 750–800 mm, depending on the height of the toilet seat (preferably 200–300 mm above the toilet seat). The recommended diameter of grab rails is 30–40 mm.

- The drop-down rail should extend past the front edge of the toilet seat. When folded up, the drop-down rail should not reduce the space required to move onto the toilet seat.

- Vertical grab rails can be installed on the sides of the hand basin and also on sides of the toilet seat. Vertical grab rails should be at least 600 mm in length and should be set with their midpoint 1100 mm above floor level.

- Grab rails attached to a wall or other fixed structure should be easy to grip and be securely fixed (45 mm away from the wall or fixed structure).

- Grab rails must contrast with the floor and wall surfaces.

OTHER FIXTURES AND FITTINGS

- The toilet paper holder must be placed in front of the seat at an angle in such a way that they are easy to reach. The toilet paper holder can also be mounted to the drop-down grab rail.
- The height of fixtures and fittings, such as soap dispensers and hand towel dispensers, and others should be 900–1100 mm (fig. 84. **K**). This measurement is taken from the floor finish to the operable part of the fixture or accessory.
- If there is a full-lenght mirror, it should be positioned with its lower edge 200–300 mm from the floor and its upper edge at least 2000 mm from the floor.
- Toilets should have coat hooks at different heights. The standard height of coat hooks is 1400–1600 mm. Suitable height of coat hooks for wheelchair users, people of short stature and children is 1000–1200 mm.

LIGHTING

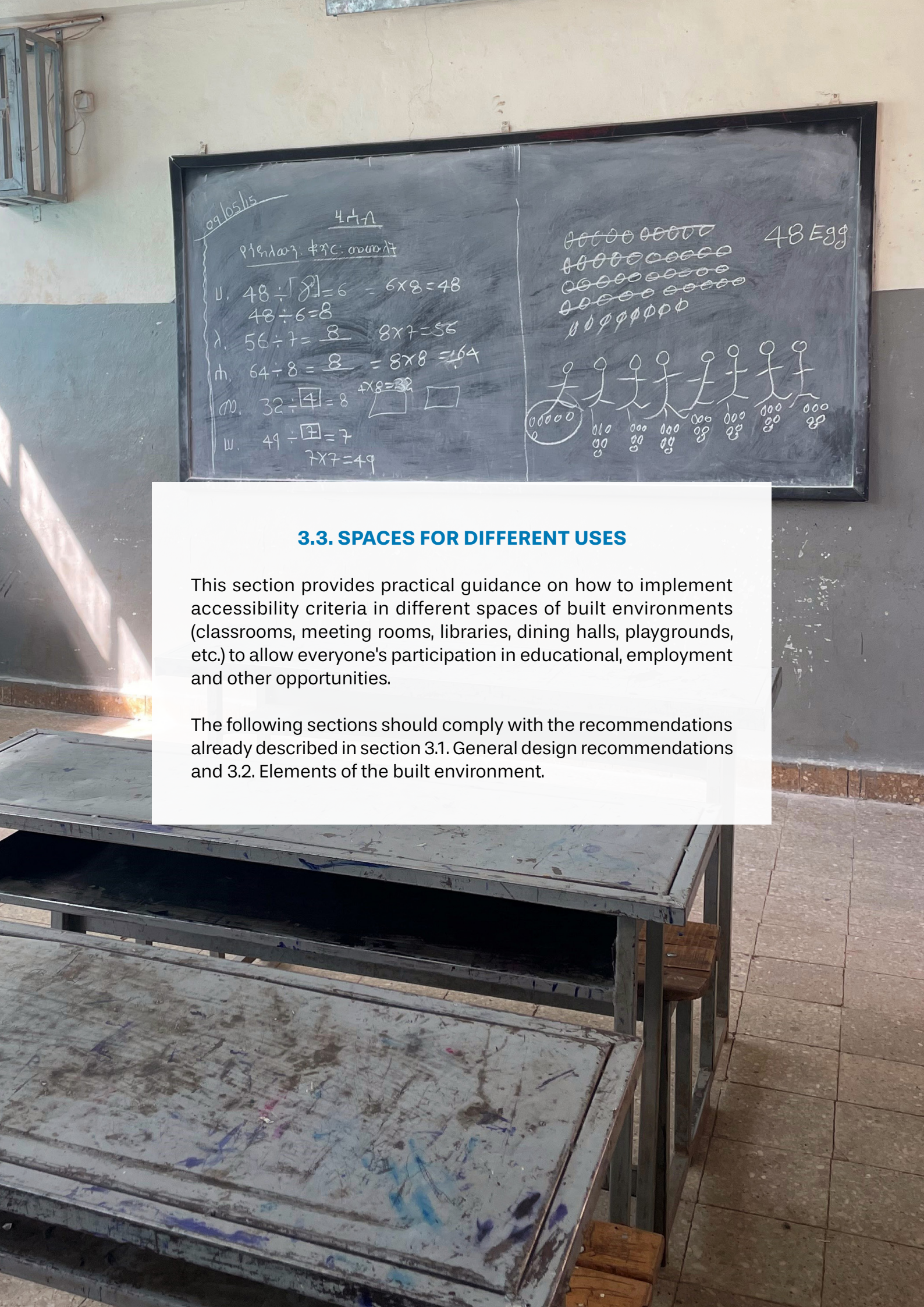
- The lighting should be uniform and free of shadows, direct glare or reflections from reflective surfaces. The recommended light intensity in the toilet is 200–300 lx.
- Motion detector lights are recommended in public toilets, but they should be sensitive and responsive to movement at varying heights.

ALARM SYSTEM

- To ensure safety, an emergency cord should be available in the toilet, along with an alarm button located about 200 mm above the floor and attached to a cord running around the toilet. The button and cord must be easy to see and visually contrast from the background wall.
- Audible and visual signals must ensure the alarm has been received. The alarm may be connected, for example, to a reception or security. There must be an alarm reset button located inside the toilet at the height of 900–1100 mm so that any fault alarms can be acknowledged (fig. 84. **L**).

BABY CHANGING FACILITIES

- It is recommended that the baby changing facilities be located in a separate space from the accessible toilet. This way, the facilities can be furnished and equipped in such a way that best meets the needs of the respective users.
- If the baby changing table is located in the accessible toilet, it should not reduce the required 1500 mm x 1500 mm clear space for movement. The baby changing table should have a height of 750–850 mm from the floor, with sufficient clear space underneath.



3.3. SPACES FOR DIFFERENT USES

This section provides practical guidance on how to implement accessibility criteria in different spaces of built environments (classrooms, meeting rooms, libraries, dining halls, playgrounds, etc.) to allow everyone's participation in educational, employment and other opportunities.

The following sections should comply with the recommendations already described in section 3.1. General design recommendations and 3.2. Elements of the built environment.

3.3.1. CLASSROOMS / MEETING ROOMS / LECTURE HALLS

ACCESSIBILITY CRITERIA

ACCESS AND CIRCULATION

- The routes to classrooms, meeting rooms and lecture halls must be accessible. The entrance should be accessible, with ramps or elevators provided where needed, along with clear signage indicating room functions.
- The entrance door should be easy to open, with lever-type handles that can be operated with one hand. There should be a maneuvering space of at least 1500 mm x 1500 mm in front of the entrance door.
- There should be enough space to move around comfortably within the room. The routes inside the room must be at least 1200 mm wide, and there must be a space of at least 1500 mm x 1500 mm for turning around.
- If there are any level differences within the room, there must be a ramp that meets the accessibility requirements, see section 3.2.4. Ramps

FURNITURE

- It is recommended that the furniture in classrooms, meeting rooms and lecture halls be movable and the height of tables and desks be adjustable. If height-adjustable furniture is not available, it is recommended to provide furniture with different height options. Seats should have varying heights (300/450/500-550 mm). The furniture should stand out and visually contrast the surrounding environment.
- There should be a free space for a wheelchair. It must be at least 1400 mm deep and at least 800 mm wide. There needs to be a 900 mm wide passage behind and in front of the wheelchair space so that people can pass the space. For more recommendations on wheelchair space and furniture, see section 3.1.5. Furniture.

LECTURE HALL

- Lecture hall refers to a space that hosts a large number of students or audience members for lectures or presentations. If there is a lecturer's platform or stage, there should be an accessible route to the platform. The routes must be at least 1200 mm wide, and there must be a space of at least 1500 mm x 1500 mm for turning around. If there is a height difference to the platform or stage, options like ramps, stair lifts, or hoists should be provided.

- If there are stairs in the lecture hall, they must have handrails, and the edges of the steps must have contrasting stripes. The rise of the steps must not exceed 160 mm and the going must be at least 300 mm. For more recommendations on stairs, see 3.2.5. Stairs.

- In the lecture halls, it is recommended to have two wheelchair spaces for the first 60 seats, then one wheelchair space for every additional 60 seats. In rooms for more than 250 people with fixed seats, it needs to be possible to convert some fixed seats into additional spaces suitable for wheelchair users.

ACOUSTIC ENVIRONMENT

- The sound in the classrooms, meeting rooms and lecture halls should be at a comfortable level with no background noise. Sound-absorbing materials should be used to minimize noise and improve sound quality. Soft materials (e.g., wood, carpets, fabrics, and acoustic boards) absorb sound and reduce background noise levels and reverberation in the space.

- It is recommended to use a sound transfer system with an induction loop or a similar sound transfer system. For more recommendations, see section 3.1.1. Acoustic environment.

LIGHTING

- Light switches should be placed 900–1100 mm from the floor (measured from the center of the light switch to the floor) and to a corner or a fixed structure at least 400 mm. The light switches must contrast with the wall.

- Classrooms, meeting rooms and lecture halls should be well-lit. The intensity of the general lighting must be at least 300 lx and adjustable, while the light intensity in work areas must be at least 500 lx. All light sources must be directed so that they do not cause glare. For more recommendations, see section 3.1.2. Visual environment.

STORAGE LOCKERS, CABINETS AND COAT RACKS

- If storage lockers are present, they should be placed at different heights. The locks on the lockers should be placed 900–1100 mm from the floor and have an opening mechanism that can be used with one hand. There must not be any fixed benches in front of the lockers. The numbers on the lockers and cabinets should be sufficiently large and stand out clearly from the background.

- The coat racks and hooks should be at different heights. The recommended heights for coat racks and hooks are 1100–1200 mm and 1400–1600 mm. To ensure that wheelchair users can easily reach coat racks and hooks, it is important to avoid placing shoe racks underneath them.

3.3.2. LIBRARIES

ACCESSIBILITY CRITERIA

ACCESS AND CIRCULATION

- The route to the library must be accessible. The entrance should be accessible with ramps or elevators provided where needed, along with clear signage for way-finding.
- The aisles and walkways within the library should have a minimum width of 1200 mm and have a space of at least 1500 mm x 1500 mm for turning around.

SERVICE / LOAN DESKS

- The service/loan desk should be marked with a clear sign and stand out from the background. The service/loan desk should be accessible at both standing height (1100-1200 mm) and seat height (750-800 mm). The desk must be equipped with an induction loop and a related sign.
- Public-use computers and book borrowing/return facilities must be wheelchair-accessible, and instructions for use should be clear for people with hearing and visual impairments.

FURNITURE

- Library resources, such as books, audiobooks, and large-print books, should be located in an accessible area. Book shelves should have a height ranging from 400-1100 mm.
- Wall sockets should be placed near tables, approximately 400-1100 mm from the floor and at least 400 mm from the corner of the room.
- The desks should provide a clear area underneath, with a height of 670 mm, depth of 600 mm, and width of 800 mm. Height-adjustable desks and computer desks are more practical for use. There should be seats of different heights (300/450/500-550 mm). Some seats should have armrests and backrests.

LIGHTING

- The lighting must be even and glare-free throughout the space. A minimum of 200 lx is recommended for general lighting and 500 lx for service/loan desks and work areas.

3.3.3. DINING HALLS / CAFES / RESTAURANTS

ACCESSIBILITY CRITERIA

ACCESS AND CIRCULATION

- The route and entrace to the dining hall, cafe or a restaurant must be accessible and have a clear signage for way-finding.
- The routes within the dining area should have a minimum width of 1200 mm and have a space of at least 1500 mm x 1500 mm for turning around.

CHECKOUT COUNTER / CASHIER

- The checkout counter should stand out from the surrounding environments. Menus and price lists should be easy-to-see and contrast with the background. The letters should be at least 15 mm high if they are read from a distance of about one meter.
- There should be a handrail mounted on the edge of the counter to support people with reduced mobility to make their purchases.
- It is recommended that the checkout point is equipped with an induction loop and a related sign. For more recommendations, see section 3.1.1. Acoustic environment.

SELF-SERVICE / BUFFET COUNTER

- Buffets are commonly found in large dining areas, for example, in schools and universities. Buffet and self-service counters should be designed so that the products can be easily reached. Buffets should have a tray slide that allows trays to be smoothly moved along the counter to the checkout area. The tray slide should be around 800–900 mm high and have open space underneath.

FURNITURE

- The furniture should stand out and contrast the surrounding background. It is recommended to provide seating options at varying heights (300/450/500-550). It is recommended that chairs have felt pads under the legs to prevent them from making a loud noise when they are moved. Refer to section 3.1.5. for sizes and heights of furniture.
- There should be sockets near the tables (e.g., for charging power wheelchairs and using a ventilator).

ACOUSTICS AND LIGHTING

- There should be minimal background noise in the dining area. Upholstered furniture can be used to help to absorb sound in dining areas. Additionally, sound-absorbing materials can be used on the walls, ceiling and floor. Note! Avoid using thick and soft carpets as they ca make it difficult to move around with wheeled mobility aids.
- If there is a background music playing, it should be as quiet as possible. If necessary, the space should also have a quiet area where the music cannot be heard. For more recommendations on acoustic environment, see section 3.1.1. Acoustic environment.
- The space must be evenly lit and glare-free. The suitable light intensity is 300 lx. For more recommendations on lighting, see section 3.1.2. Visual environment.

3.3.4. PLAYGROUNDS

ACCESSIBILITY CRITERIA

LOCATION AND CIRCULATION

- Accessible playgrounds allow everyone to play and learn in a safe and welcoming environment. It is important to remember that ensuring accessibility of the playground benefits the entire community – children, parents, caregivers, and others.
- Playgrounds should be located in a safe area easily adjacent to an accessible pathway (minimum width 1200 mm) and away from any hazards, such as heavy traffic, water bodies, steep slopes, etc.
- The playground area should be separated from other areas of the property with a clearly marked fence that visually contrasts the surrounding environment. Note! The fence cannot be made of posts with a rope or chain in between as this will cause a risk of collision or tripping for people with visual impairment.
- The clear width of the gate needs to be at least 850 mm and it should be easy to open with one hand.
- The locking mechanism on the gate should be placed 900–1100 mm from the ground, with a higher placement of 1200 mm in kindergartens for the safety of young children.

- There should be sufficient space between the playground equipment to accommodate people using mobility aids. The pathways within the playground should have a minimum width of 1200 mm and have no thresholds.
- There should be an accessible wash station and at least one accessible toilet in close proximity to the playground.
- The plants at the playground must be non-toxic, and their allergenic properties must be considered when selecting them.

PLAYGROUND SURFACE AND EQUIPMENT

- Playground surfaces (around and under the equipment) should be smooth, level, and safe for children using mobility aids. The surface should have a soft and shock-absorbing material (e.g., rubber) to minimize injury in case of falls.
- Playground equipment should be accessible; this includes, for example, a raised sandbox for wheelchair access, slides with gentle slopes and equipped with handrails on both sides, platform swings, sensory play equipment, spinners with backrests, and others.

REST AREAS

- Shaded areas and seating should be available for children and adults to take breaks and rest comfortably.
- In the rest area, seating with varying heights should be provided (300/450/500–550). For children, the suitable seat height is 300 mm, and the table height is 550 mm. The clear space under the table suitable for children who use a wheelchair is 500 mm high, 600 mm wide and 500 mm deep. For more recommendations, see section 3.1.5. Furniture.

SIGNAGE

- There should be signage that indicates the location and entrance of the playground. For more recommendations, see section 3.1.4. Signage.

LIGHTING

- It is important to have natural light while also providing an area for users to seek shelter from excessive sunlight.
- Playgrounds must be evenly lit and glare-free, especially during the evening, to ensure safety and security. Suitable light intensity for outdoor play areas is 75–100 lx. For more recommendations on lighting, see section 3.1.2. Visual environment.

4

CONDUCTING AN ACCESSIBILITY AUDIT

This handbook uses the FPD's audit method, which has been adapted by DDI to fit the local context. This audit tool is intended for assessing accessibility in non-residential premises and their outdoor spaces. In this section, we explore the entire process of conducting an accessibility audit, including its purpose, the steps involved in preparing for and carrying out the audit, and lastly, creating an accessibility audit report.

4.1. PURPOSE OF AN AUDIT

The purpose of an accessibility audit is to evaluate how accessible a building and its outdoor areas are. An audit provides information on the areas where the accessibility criteria are being met and where they are not.

An accessibility audit provides information that can be used to plan repairs and alterations to a site. The information gathered in the audit is used as a basis for proposals for measures in areas that are not accessible so that they can be made more suitable for all users.

4.1.1. WHEN TO AUDIT?

It is recommended to conduct an audit in the early stages of the renovation planning process. An audit will help you draw up plans for all repairs and projects involving a change in the intended use of a building. However, an accessibility audit can also be conducted even if there are no plans to renovate a building. An audit can bring attention to areas in which accessibility could be improved without any significant repairs. An audit also provides information on measures to improve accessibility that can be carried out in connection with service and maintenance work. For example, the lighting of premises can be improved when lightbulbs are changed if an audit has found the lighting to be insufficiently bright.

4.1.2. WHAT TO AUDIT?

The scope of the audit is determined by the client's requirements. This handbook provides information for auditing buildings and their outdoor areas which include – pathways, pedestrian crossings, parking, pick-up and drop-off areas, ramps, stairs, entrances, doors, reception areas, elevators, hallways, and accessible toilets. Technical systems in buildings and related spaces are not included in the audit.

The audit can also be accompanied by a separate user survey, user interviews or an accessibility tour with users. However, this handbook does not cover methods for collecting user data or the analysis and reporting of data collected using these methods.

4.1.3. WHO SHOULD AUDIT?

The person conducting the accessibility audit must be an expert who is either trained in or familiar with accessibility. The auditor's responsibilities consist of planning the execution of the audit based on preliminary data, measuring the site's accessibility, analyzing the findings, and creating a report. The auditor fills out audit templates on-site and takes photographs to collect data, which is then compared with accessibility criteria. Then, the auditor prepares an audit report, detailing the site's current accessibility status, identifies barriers, and recommends measures to improve accessibility. Lastly, the auditor presents the report to the client.

4.2. PREPARING FOR AN AUDIT

Before carrying out an audit, the auditor collects preliminary site data, drawings that support the audit and also gets familiar with audit templates and the equipment needed for an accessibility audit.

4.2.1. PRELIMINARY SITE INFORMATION

The client provides the auditor with the available preliminary data from the site to help the auditor estimate the time and resources required to complete the job. The auditor should be aware of the purpose of the audit, i.e., whether the plan is to carry out a renovation project or other repairs or whether the intended use of the site is changing.

The audit is agreed to be carried out at a time when all the spaces to be audited can be accessed. There must be a contact person on the site with whom the auditor can agree on practical issues, such as accessing and going around the site. The client takes care to inform the users of the site about the audit.

WHAT PRELIMINARY INFORMATION TO COLLECT?

QUESTIONS TO CONSIDER BEFORE CARRYING OUT AN AUDIT:
Discuss these questions with the client (owner of the site/building or the responsible person).

- When is the audit to be carried out?
- Should the audit include user interviews or questionnaires?
- Are there any restrictions to accessing any areas of the site?
- What preliminary data from the site is the auditor provided with?
- Who are the client's contact persons on the site?
- Have the site users and maintenance staff been informed about the accessibility audit?
- How can the auditor access the spaces to be audited?
- Is photography allowed on the site during the audit?
- Is it sufficient to conduct the audit in daylight, or is it necessary to evaluate the site also in evening lighting?
- What is the expected timeline for delivering the audit report to the client?
- When is the planned date for presenting the audit report to the client?
- The right to use the report, e.g., can it be presented as a reference to other persons?
- Travel and other expenses.

THE PRELIMINARY SITE DATA INCLUDES:
Collect this information before conducting the audit.

- Location and address of the site or building.
- Contact details of the client and the contact person.
- The intended use and current condition of the site during the audit, whether it is in use or empty.
- The construction year, past repairs, and planned repairs that may impact accessibility.
- Site plan and outdoor area plan (if available).
- Building floor plans, sectional drawings, and facades (if available).
- Any other drawings and descriptions of the site relevant to the audit.
- If accessibility audits have been conducted previously, it is important to inquire about any available reports.
- Any additional relevant documents, such as results from user surveys.

4.2.2. DRAWINGS TO SUPPORT THE AUDIT

Drawings of the site to be audited are important for both planning and carrying out the audit. The drawings are used for marking and highlighting the site observations, routes, measurements, and marking locations in which the photographs are taken during the audit.

The client or the owner of the building usually has the drawings of the building in their archives. City and municipal building inspection authorities might have drawings related to planning permission. It is very important to check whether the building holds true to the drawings and/or if any changes have been made.

It is recommended to use drawings such as a site plan, which indicates the plot's size, the building's location, and other surrounding features. It is advisable to use a plan of the outdoor area (scale 1:200 or 1:250) as the basis for the accessibility audit of the outdoor areas, if available. The site plan shows the features of the outdoor areas in more detail.

Other plans include floor plans, sectional drawings, and facades. The floor plans of the building can be used both in preparation for the audit and the audit itself. It helps to identify the positions of all facilities. The floor plan can be used to pre-plan the progress of the audit so that all spaces can be assessed. It can be used to track progress on site and to add notes of the observations made. The sectional drawings give an idea of the differences in elevation in the building and their positions. The drawings of the façades provide information about entrances, exterior doors, balconies, and windows.

NOTE! In case there are no plans or drawings for the site or building available, DDI recommends using map services like Google Maps or similar. The map of the site serves as a helpful tool by providing an overview of the site, its position, and the surrounding area. It is highly recommended to visit the site prior to the audit to ascertain the various spaces and areas present within the building and site. These spaces can then be categorized and listed according to their locations, such as the floor on which they are situated.

EXAMPLE: When conducting an audit of Woreda-05 Youth Personality Enrichment Center, DDI used a map to mark the main areas within the site and classify them based on their locations. Because the building plans were unavailable, DDI auditors inspected the building, creating a list of all spaces based on their locations. This method helps to create a systematic and organized approach for carrying out an audit.

Fig. 85.

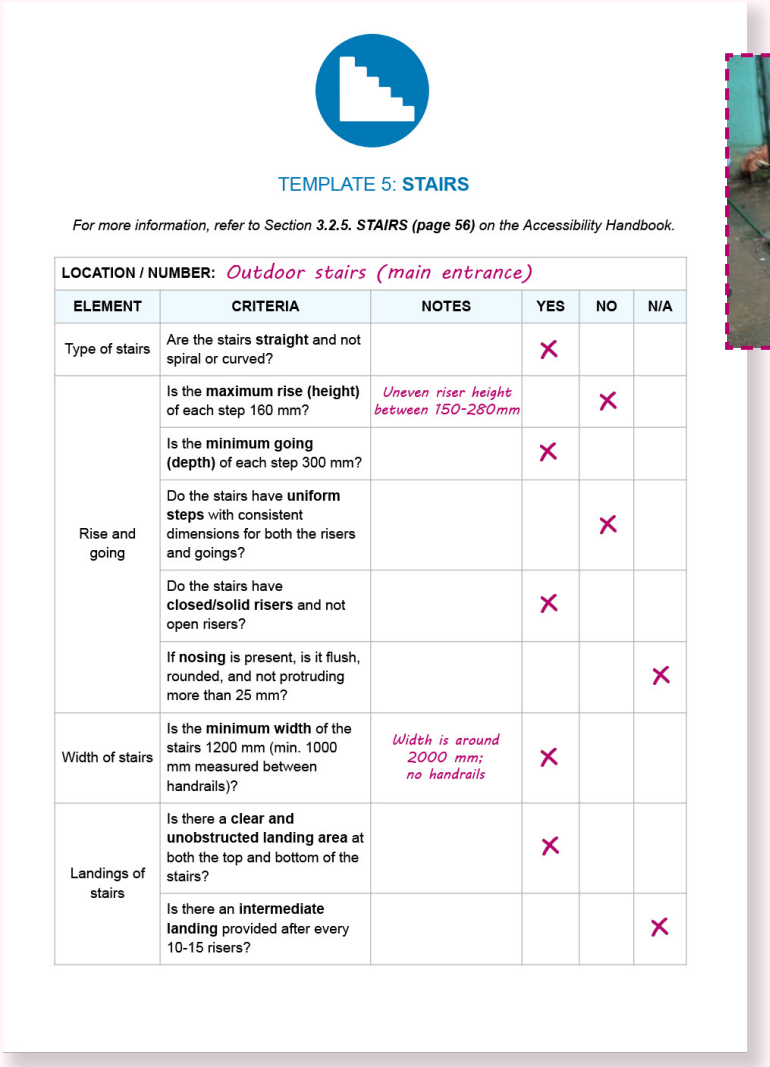
1. Main entrance
2. Pedestrian entrance
3. Outdoor Restroom
4. Playground
5. Main building
   - 5.1. Ground floor
     - 5.1.1. Play area
     - 5.1.2. Shower
     - 5.1.3. Gym
     - 5.1.4. Gym shower
   - 5.2. First floor
     - 5.2.1. Verandas
     - 5.2.2. Coference room
     - 5.2.3. Clinic
     - 5.2.4. Toilet
     - 5.2.5. Store
     - 5.2.6. Café
   - 5.3. Second floor
     - 5.3.1. Library
     - 5.3.2. Toilet
     - 5.3.3. Office
     - 5.3.4. ICT room
   - 5.4. Third floor
     - 5.4.1. Conference hall

4.2.3. AUDIT TEMPLATES

The auditor uses audit templates to collect information about a site and building. Link to audit templates for different building elements and spaces can be found at the end of this handbook Appendices | Attachements (page 105).

The auditor selects the templates that apply to the facilities in question. The audit templates can be filled out with a pen on a printed audit template, or they can be filled out electronically on a tablet or a laptop. The idea is to use a separate template for each issue: if there are several sets of stairs outside the building, a separate form is filled in for each set. The results of the measurements and whether the criterion is met (Y=yes) or not (N=no) are marked on the template. Some of the criteria may not apply to the space to be audited (N/A=not applicable), for example, the questions concerning the height of the handrail are not applicable when the handrail is missing. When writing the report, it is easy to check which elements fulfill the criteria and which do not only by checking how the Y-row or the N-row has been ticked.

EXAMPLE: An accessibility expert fills out an audit template, indicating whether specific accessibility criteria are met, not met, or not applicable.



TEMPLATE 5: **STAIRS**

*For more information, refer to Section **3.2.5. STAIRS (page 56)** on the Accessibility Handbook.*

LOCATION / NUMBER: *Outdoor stairs (main entrance)*

ELEMENT	CRITERIA	NOTES	YES	NO	N/A
Type of stairs	Are the stairs **straight** and not spiral or curved?		X		
Rise and going	Is the **maximum rise (height)** of each step 160 mm?	*Uneven riser height between 150-280mm*		X	
	Is the **minimum going (depth)** of each step 300 mm?		X		
	Do the stairs have **uniform steps** with consistent dimensions for both the risers and goings?			X	
	Do the stairs have **closed/solid risers** and not open risers?		X		
	If **nosing** is present, is it flush, rounded, and not protruding more than 25 mm?				X
Width of stairs	Is the **minimum width** of the stairs 1200 mm (min. 1000 mm measured between handrails)?	*Width is around 2000 mm; no handrails*	X		
Landings of stairs	Is there a **clear and unobstructed landing area** at both the top and bottom of the stairs?		X		
	Is there an **intermediate landing** provided after every 10-15 risers?				X

Fig. 86.

Link to audit templates for different building elements and spaces can be found at the end of this handbook: Attachements (page 105).

4.2.4. MEASURING TOOLS AND EQUIPMENT

To conduct effective accessibility audits, accessibility experts use various tools to measure accessibility. These tools aid in measuring compliance with relevant accessibility criteria, identifying barriers, and suggesting appropriate modifications.

Tape measure / digital meter

A tape measure is the auditor's basic tool for collecting dimensional data about a site. The recommended tape measure length is five meters. The required measurements are, for example, the width of doors and the height of thresholds. A digital meter is practical for measuring long distances.

Fig. 87., 88. Tape measure and digital meter.

Camera

Photographs complement the information collected on site. The photographs are added to the report to illustrate the observations made. Auditing tip: Use black-and-white photographs to assess whether the level of color contrast is adequate and to illustrate how clearly the elements in the environment can be distinguished. The color contrast is adequate if the different colors can be clearly distinguished in a black-and-white image.

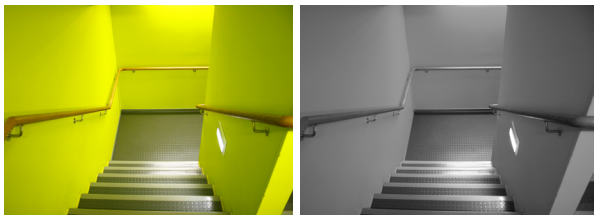


Fig. 89., 90. Black-and-white photograph helps to distinguish if there is sufficient amount of contrast in the environment. Fig. 90. indicates the lack of contrast in the space.

Inclinometer (or clinometer)

An inclinometer measures the slope angle of ramps and passageways. A digital inclinometer gives the reading in percent and degrees. Auditing tip: If an inclinometer is not available (fig. 91), the slope of a ramp can be calculated by dividing the rise by the horizontal run and multiplying the quotient by 100, which gives the percent slope (see 3.2.4. Ramps).

Fig. 91. Inclinometer.

Spring balance or digital spring balance

A spring balance or a digital spring balance measures the force required to open doors. They provide measurements in kilograms or newtons. The measurement is performed by attaching the device's hook to a door handle and pulling perpendicularly away from the door. The result noted in the template is the highest reading given by the measuring device.

Fig. 92., 93. Spring balance and digital spring balance.

Lux meter, i.e. light meter

The amount of light in a space is measured with a lux meter, which gives the illuminance value in lux (lx). Illuminance is a measure that describes the amount of luminous flux falling on a surface of a specific size.

Auditing tip: To determine the light intensity, it is a good practice to take measurements when no natural light comes through the windows. The measurement is performed by holding the meter horizontally at a height of about 900 mm from the floor. During an accessibility audit, light intensity is measured from a single point, such as a reception counter. However, in large spaces, it is recommended that the light intensity be measured from several different points. When filling the audit template, the average readings, as well as the minimum and maximum values should be recorded.

Fig. 94. Lux meter.

Induction loop tester

This device tests induction loops to determine their functionality and range of coverage.

Auditing tip: The auditor uses the headphones to ensure that the right sound comes through the loop. An auditor who uses a hearing aid can test the loop with their hearing aid. The test checks that the induction loop operates in the area marked on the coverage map. The audit report must indicate whether the test was performed using a tester or a hearing aid. The report also indicates if the sound transfer system could not be tested during the audit.

Fig. 95. Induction loop tester.

Decibel meter (sound level meter)

This device measures the level of sound or noise in the space.

Auditing tip: A suitable measuring height is 1200–1500 mm from the floor. In large spaces, the measurements can be taken from several points, and the average of the results is then recorded. If there is a great variance in the measurements taken at different points in the space, this should be mentioned in the report. For example, ventilation can cause background noise at one point in the room.

Fig. 96. Decibel meter.

4.3. CARRYING OUT AN AUDIT

When the audit plan is prepared and the necessary information and equipment are collected, the audit can be carried out. The spaces and features to be audited are assessed using the accessibility audit templates. Measurements are taken during the audit; for example, the width of pathways, the slope of ramps, the intensity of lighting, or the force required to open doors are measured.

4.3.1. PRACTICAL TIPS DURING AN AUDIT

On the day of the audit, ensure to arrive at the site at the agreed-upon time with the client. Allow the client to provide the necessary information and clarify any queries. Remind all participants the objectives and rules of the audit, while confirming that everyone has the required equipment for conducting the audit.

It is recommended to perform the audit in pairs. One person is taking the measurements, and the other is writing them down in the audit template. The auditor's responsibility is to ensure that every line in the templates is filled out and all necessary measurements are taken.

The auditor should take many pictures and mark them on drawings or maps (if drawings are unavailable) to remember where they were taken. It is recommended that the pictures be taken both from a standing eye height and a sitting (wheelchair user's or children's) eye height. This is needed, for example, to check the reflections from the signs.

Fig. 97. and fig. 98. Two accessibility auditors: one is responsible for taking measurements at the site, while the other records these measurements and observations in the audit templates.

4.3.2. AUDITING THE SELECTED PLACE

The auditor should observe the site and building entirely and logically, paying attention to details and understanding specific features – how does one arrive at the building from the parking lot or walk from the border of the building site? Is the building and the main entrance easy to perceive? How about the signage? The same process should be done indoors.

WHERE AND HOW TO BEGIN THE AUDIT?

DDI's practice and experience have indicated that the most effective approach is to divide the area into three key parts and conduct the audit in the following manner:

Step 1: Reaching the site
This section includes auditing the travel routes to reach the site (pathways, crosswalks, parking areas, and drop–off/pick–up zones).

Step 2: Entering and moving around the site:
This part focuses on auditing the site entrances for both pedestrians and vehicles. The auditor also audits the circulation within the site, for example, the pathways, outdoor stairs, ramps, and signage.

Step 3: Entering and moving around the building:
This section includes the entry points used to access the building/s. It also includes auditing the spaces and elements within the building (doors, reception areas, elevators, hallways, and others).

4.4. AUDIT REPORT AND FURTHER STEPS

When the site visit is finished and all the necessary information (measurements and photos) has been gathered, it is time to prepare an audit report that outlines the barriers discovered, compares the findings to relevant accessibility criteria, and provides potential further steps.

4.4.1. AUDIT RESULTS

The auditor prepares a written report that details the accessibility status of each area on the site. If any hazards are identified during the audit, they must be promptly reported to the client, who holds the responsibility for addressing any issues. The audit report should be concise and straightforward, encompassing both positive aspects and areas that require improvement.

The following information should be included in the report:

- Name and the address of the site in question.
- Date and time of the audit.
- Contact information of the client and the person in charge or the contact person.
- Number of buildings – if more than one.
- Scope of the audit (e.g. which part of the building – if not the whole).
- Year when the building(s) were built.
- Renovations that have been carried out – if any.
- Which drawings and other documents were available.
- Results of interviews and questionnaires – if carried out.
- A summary of the audit findings of each space and/or element audited.
- Recommendations for improving accessibility.

HOW TO WRITE THE AUDIT REPORT?

The data gathered during the audit is compared to accessibility criteria to identify problems that require actions. It is important to highlight dangerous solutions and barriers. You should also point out what is urgent and what can be done later. Categorize the required actions based on their level of harm and urgency using the following criteria:

- **Priority 1 (Immediate action needed):** Identify and mark issues that pose a potential safety risk to the building users and require an immediate action (e.g., risk of falling, colliding, tripping).
- **Priority 2 (Action needed):** Identify and mark issues with high importance for improving accessibility in the building (e.g., insufficient door width, lack of tactile markings, insufficient light intensity).
- **Priority 3 (Non-urgent action):** Provide recommendations for enhancing accessibility that fall under the non-urgent category. These suggestions are considered beneficial and align with good practice guidelines for improving access for all.

Once the priority level is determined, it is important to determine the necessary modifications required to improve the accessibility. These modifications can be classified based on the degree of difficulty in removing barriers:

- **A) Change of routines**, such as stopping the practice of locking accessible toilet doors.
- **B) Better maintenance**, such as installing grab rails or replacing a light bulb.
- **C) Need for planning and investments**, such as creating an accessible entrance or installing an elevator.

EXAMPLE: Description of a door in the audit report.

Fig. 99.

Follow these steps:
1) Write the name of the space/element and describe its existing situation.
2) Suggest what needs to change in the current condition to make the space accessible.
3) Describe how the existing condition is classified based on the above-mentioned 'priority' method.

Description: 1) Name: Double leaf door. Description: The total width of the door is 1440 mm and the opening part of the door is 830 mm. There is a clear space on the opening side of the door. The door handle can be easily operated with one hand. There is no threshold at the door. The door does not have sufficient contrast with the surrounding wall, signs are difficult to read and the text is small. **2)** For improved accessibility, the contrast between the door and the wall should be improved. Clear signs with easy-to-read fonts and symbols should be provided. **3)** The current situation does not pose a safety risk for users but could be improved to increase accessibility for all (Priority 3, B).

4.4.2. FURTHER ASSESSMENTS

The audit report also indicates if there is a need for further assessments and measurements. Further assessments can be related to issues such as more accurate measurements, for example, measuring things like light and sound intensity more accurately or at different times. The further assessment section can also indicate any facilities or areas that could not be evaluated during the initial audit for some reason.

4.4.3. PRESENTING AND USING THE REPORT

The audit report is presented to the client. The purpose of the presentation is to allow the client to ask the auditor more detailed questions. The auditor can clarify things by giving examples of good and functional solutions implemented on other sites. The report can be used in preparing a maintenance plan, repairs and alterations. The results of an accessibility audit can be used to inform people about the accessibility of a facility or area.

4.4.4. ACTION PLAN AND MONITORING

Accessibility report does not include cost estimates or design plans, but the client can request them separately if needed. In such cases, the auditor, along with the architect/engineer, can propose a timeline, cost estimate and solutions for the accessibility improvements, and provide this information to the client. If the client decides to proceed with the accessibility improvements, the auditor should conduct a follow-up visit after a few weeks to monitor the progress of the accessibility implementations.

FURTHER READING RECOMMENDATIONS AND ACCESSIBILITY GUIDES

1. Disability Partnership Finland. Inclusive WASH Activities in the Global South.

2. Humanity & Inclusion (2014).
Conduct an accessibility audit in low- and middle-income countries.

3. ISO – International Organization for Standardization. 2021.
Building construction — Accessibility and usability of the built environment.

4. Light of the world. I am EmployAble.

5. The Finnish Association of People with Physical Disabilities. 2019.
Esteettömyyskartoitusopas / Guide to Conducting an Accessibility Audit (in Finnish).

6. Uganda National Action on Physical Disability (UNAPD). 2010. Accessibility Standards.

7. UNICEF. 2022. Toolkit on Accessibility (Sections A–G).

8. United Nations. 2003.
Accessibility for the Disabled. A Design Manual for a Barrier Free Environment.

9. United Nations. 2016. Toolkit on Disability for Africa. Accessibility.

ACCESSIBILITY LEGISLATION

1. Ministry of Urban Development and Construction. (Ethiopia). 2011.
Building Regulation.

2. Federal Democratic Republic of Ethiopia. 2009.
Building Proclamation.

3. Ministry of Environment (Finland). 2017.
Government Decree on Accessibility of Buildings.

ATTACHMENTS

To access and download the Accessibility Handbook, audit templates, and a sample audit report, scan the QR code or click on it to be directed to the online shared folder.

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