

# National Code of Practice Accessible Rail

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# Scope of Code



## **I Scope of Code**

### **I.1 Statement of commitment**

The rail industry is committed to providing independent access to passenger rail services for people with disabilities so far as is reasonably practicable.

### **I.2 Objectives**

The objective of the Code is to document practical solutions for independent access for people with disabilities to rail premises, infrastructure, rolling stock and communications.

Operators are encouraged to exceed minimum requirements of this Code to enhance accessible outcomes where practicable.

#### **I.2.1 Stations, trains and communications**

The Code applies to:

- those parts of passenger rail stations or premises controlled by the rail operator and / or provider which provide access for the public to a passenger rail service,
- passenger trains, booked and unbooked, and any passenger services and facilities that they contain,
- communication and information that is provided as an essential part of a rail service.

The Code also addresses the interface of these elements of the rail service to provide an accessible rail journey for people with disabilities. It explains the intention of the requirements and where relevant, why they impact on independent access to rail services for people with disabilities.

This Code will also apply to trams / light rail / metros to the maximum extent possible, except that where a specific, different requirement exists under separate cover it will take precedence.

#### **I.2.2 New and existing services / facilities**

The Code clearly delineates requirements for new and existing rail services and facilities. Minimum, mandatory requirements for new facilities apply to stations built from scratch on 'greenfield' sites without existing constraints and to new conveyances. These shall comply with this Code of Practice.

The requirements for existing services and facilities apply to any existing or new premises and infrastructure in existing rail corridors and to existing trains. The operator or provider shall comply with the Code's requirements for new services and facilities to the maximum extent practicable. However, as fully compliant upgrading of existing services and facilities is often not feasible due to legitimate constraints, this Code also provides, where practicable, alternative performance based solutions to maximise accessible outcomes in existing services and facilities.

In response to the requirements for accessible public transport under the DDA, rail operators and providers are progressively upgrading access to existing services and facilities. The requirements of this Code will be implemented as upgrades are delivered.

### 1.2.3 Legislation and industry good practice

Compliance with this Code by Rail Industry participants is intended to demonstrate compliance with obligations under the Commonwealth's Disability Discrimination Act 1992 (DDA) and relevant associated disability standards to the extent that is reasonably practicable.

This Code of Practice does not replace the Disability Standards for Accessible Public Transport (DSAPT). The Code translates the requirements of DSAPT based on the rail industry's experience in building new and upgrading existing premises, infrastructure and rolling stock since 2002.

The Code operates in conjunction with other laws, regulations and codes of practice that apply to rail systems.

The terms "good practice" and "best practice" are defined in Part 12.1 of this Code of Practice.

### 1.2.4 Equivalent access

Equivalent access refers to the provision of alternative means of providing compliance with the objectives of the DDA with an equivalent standard of amenity, availability, comfort, convenience, dignity, price and safety. Where full compliance with relevant access requirements is not practicable in the rail environment, the Code provides alternative performance based solutions as a means of satisfying the requirements by equivalent access. Operators and providers are encouraged to embrace new technologies in formulating equivalent solutions.

### 1.2.5 Unjustifiable hardship

Unjustifiable hardship is a provision of the DDA. This Code of Practice has identified where unjustifiable hardship is likely to occur in bringing rolling stock, infrastructure, premises and associated services to compliance with this Code and has proposed alternate solutions which serve as equivalent access.

This Code will assist operators in demonstrating unjustifiable hardship where applicable.

Where the performance requirements of this Code are not practicably achievable the operator / provider should document and record the basis on which the decision has been made. In the event of a DDA based challenge to a noncompliant solution this documentation will permit an operator or provider to demonstrate that the opportunities for providing equivalent access have all been examined and found impracticable in the particular instance or location.

## 1.2.6 Code terminology

The specifications and provisions found in the Code fall into the categories of 'mandatory', 'discretionary, recommended' and 'discretionary, optional'. Mandatory specifications or provisions are identified by the present tense of the verb (e.g. "provide", "locate", "ensure") or the qualifying term "shall".

Discretionary recommendations are identified by the qualifying term "should" or by a statement that the specification or provision is only recommended. Discretionary optional specifications or provisions are identified by the terms "may", "can" or "might", or by a statement that an option is proposed.

**Table 1.2.6.** Qualifying verbs, terms and statements found in this Code of Practice.

<b>Mandatory</b>	<b>Discretionary, recommended</b>	<b>Discretionary, optional</b>
Present tense of the verb (e.g. "provide", "locate", "ensure") "shall"	"should"	"may"
	Statement that the specification or provision is only recommended.	"can"
		"might"
		Statement that that an option is an option or proposed.

Where reference is made to trains, railcars and or rolling-stock, the same requirements will apply to the maximum extent possible to trams and light rail, unless stated otherwise.

Definitions of terms and acronyms used in this Code of Practice are found in Part 12 of the Code of Practice.

# Regulatory Framework



## **2 Regulatory framework**

This Code of Practice functions within and complements a regulatory framework that encompasses disability discrimination legislation and standards, transport safety legislation and standards, occupational health and safety legislation and standards, environmental legislations and standards and other relevant rail standards and codes of practice published by the Rail Industry Safety and Standards Board (RISSB).

### **2.1 Disability Discrimination Act (DDA)**

The DDA seeks to eliminate discrimination, 'as far as possible', against people with disabilities in relation to the provision of goods and services. Public transport is a service covered by the DDA.

### **2.2 Rail / transport safety regulations**

This Code and its requirements shall defer to any rail or transport safety regulations. Adherence to this Code is not a ground for exemption from other statutory requirements. The DDA states:

This Part does not render unlawful anything done by a person in direct compliance with a prescribed law.

Safety regulations shall therefore be met but in a manner that allows best compliance with DDA.

### **2.3 Occupational health and safety**

The requirements and recommendations of this Code of Practice shall be interpreted in the context of all relevant occupational health and safety requirements. This includes maintaining a safe workplace for staff. Operators shall ensure that appropriate methods of providing direct assistance are included in training.

# Principles of accessibility



## 3 Principles of accessibility

### 3.1 Disability

#### 3.1.1 Types and range of disabilities

The Australian Bureau of Statistics has found that approximately 20% of all Australians had some form of disability. The rate of disability is very similar in both males (19.8%) and females (20.1%). People with disabilities are not a homogenous group. Disabilities may be physical, intellectual, psychiatric, emotional or sensory in nature. These disabilities may be temporary or permanent. An individual may have two or more unrelated disabilities, for example sensory impairment and physical impairment.

The DDA defines disability in Part 1, Section 4.

Disabilities covered by the DDA include physical, intellectual, psychiatric, emotional and sensory impairment.

The *Disability Discrimination Act 1992* covers a range of disabilities, including the following:

- (a) partial or total loss of sight,
- (b) partial or total loss of hearing,
- (c) partial or total loss of speech,
- (d) disfigurements or deformities,
- (e) difficulties in walking (including partial or total loss of use of legs),
- (f) difficulties in fully using arms (including gripping),
- (g) learning and orientation difficulties,
- (h) sensitivity to chemicals causing malfunction of a person's body,
- (i) chronic diseases, illnesses or other medical conditions,
- (j) emotional or behavioural conditions.

Some of these categories contain discrete subgroups. For example 'loss of hearing' includes both people who were born totally deaf and also those who are born partially deaf or who lose hearing later in life. The two groups are completely discrete, often referred to as 'deaf' and 'hearing impaired' respectively to differentiate their different communication requirements. People who are hearing impaired may have English as a first or second language, thus benefiting from audio assistance, text alternatives etc that deliver a spoken communication in an alternate medium. Deaf people use a sign language as their first language and often struggle with English text that has complex grammar or which uses jargonistic terms. Deaf people do however find Plain English and visual cues such as symbols and pictograms on signs very useful.



### 3.1.2 Awareness of access requirements

Access requirements for people with certain disabilities are frequently common to several other categories of people with disabilities. For example:

- Disability awareness and customer service training for rail staff will benefit all passengers who have disabilities.
- Accessible information enables confident travel planning for passengers who have disabilities.
- Consistent, intuitive layout of premises, platforms and carriages assists orientation for people with vision impairments, people with learning and orientation difficulties and people with intellectual disabilities.
- Minimising travel distances between station entry points, essential facilities and carriage boarding points benefits people with mobility impairments, people with vision impairments and people who easily fatigue.
- Well-formatted, correctly located signs incorporating symbols and tactile components assist in way-finding and facility identification by people with vision impairments and people who are deaf.
- A well-lit environment with minimal glare assists people with vision impairments to navigate and also helps people with hearing impairments to lip-read.
- Audio information benefits people with vision impairment, print disabilities and intellectual disabilities.

People who have partial or total loss of sight benefit from:

- effective way-finding cues,
- clearly defined access path margins (often referred to as 'shorelines'),
- information in alternate formats,
- well-formatted signs with tactile components,
- audio announcements of service related information,
- continuous stair and ramp handrails,
- warning and directional tactile ground surface indicators (TGSIs).

For people who have colour deficient vision (colour blindness) avoid using the colours of a ripening tomato - green, olive-green, orange, yellow, pink, and red on signs, objects, printed materials etc that require luminance / colour contrast.

People who are deaf and communicate through Auslan or another sign language benefit from:

- well-formatted signs,
- clear, comprehensible symbols,
- grammatically uncomplicated text.

People who are hearing impaired but rely on speech benefit from:

- clear public address system announcements,
- audio augmentation or text alternative of service related PA system announcements,
- strong illumination with minimal glare.

People who have partial or total loss of speech benefit from:

- training that enhances staff's communication skills,
- texting alternatives at intercom facilities.

People who have disfigurements or deformities benefit from staff training in giving respectful, sensitive assistance.

People who have difficulties in walking (including partial or total loss of use of legs) benefit from:

- continuous access paths between entrances, essential facilities and boarding points without step or ledge,
- rest points on longer access paths,
- gentle access path gradients,
- sufficient width of access paths to allow passage of mobility aids,
- accessible seating and allocated mobility aid spaces,
- controls at accessible heights,
- sufficient manoeuvring space to allow turns at essential points on access paths and within facilities.

People who have difficulties in fully using their arms or gripping objects benefit from:

- easily operated controls,
- single handed operation of controls,
- securely holding grabrails and handrails,
- conveniently manipulated tickets or fare payment cards,
- controls at accessible heights,
- clear circulation space around facilities and objects.

People who have learning and orientation difficulties benefit from:

- well-formatted signs with clear, comprehensible symbols and uncomplicated text,
- uncomplicated format of timetables,
- written information in Plain English.

People who have sensitivity to chemicals benefit from:

- a clean environment,
- information on the emissions likely to be encountered in a rail passenger environment,
- catering for dietary requirements,
- effective medical emergency procedures.

People who have chronic diseases, illnesses or other medical conditions benefit from:

- rest points on longer access paths,
- effective medical emergency procedures.

People who have emotional or behavioural conditions benefit from:

- respectful, sensitive assistance,
- calming colours in busy environments,
- clear, concise information.

## 3.2 Elements of access design

### 3.2.1 Continuity of access

To successfully complete a journey the successive, accessible elements should blend seamlessly into each other.

A passenger shall have access to essential information about their journey.

Information may include:

- timetables,
- network maps,
- general accessibility of the station and train,
- availability of toilets,
- fares, and
- booking procedure.

To access the rail service the passenger shall be able to:

- enter the station,
- access the core elements of the station,
- purchase a ticket (where required),
- board the train,
- access an available allocated space or seat,
- have access to the same journey information as other passengers,
- alight from the train, and
- leave the station.

This Code of Practice endeavours to provide people with disabilities with the services to travel with confidence on a rail journey. The fear that a step might fail may be sufficient disincentive to prevent a journey, so that lack of confidence in the system may also be a barrier to access. Equivalent access, direct assistance and staff procedures may form part of the transport service and maintaining these is just as critical as the hard infrastructure and rolling stock.

### 3.2.2 Provision of an access path

Provision of an access path to and within rail services enables independent access by people with disabilities, older people and people with young children and luggage to the rail service.

An **access path** is a path that enables independent travel for all passengers within public transport premises, infrastructure or conveyances. An access path may include a compliant walkway, ramp or lift, but does not include a step, stairs or revolving door.

An **access path** on a rail conveyance is a path from the external passenger doorway to the allocated wheelchair space, priority seats and other essential facilities accessible to passengers with mobility aids.

An **access path** on an existing railway station is a clear and unobstructed path from a nominated boundary point to a preferred accessible boarding point on each platform and to all essential accessible facilities.

An access path within new rail premises and infrastructure shall comply to the maximum extent practicable with this Code (as determined by structural, safety or technical constraints.)

On existing stations, or stations rebuilt / upgraded within an existing rail corridor, at least one access path leading to all essential facilities shall be accessible. Essential facilities include boarding points, ticketing, information facilities and toilets where provided.

Where practicable, the nominated accessible point of entry / exit on existing stations shall be the principal entrance or the one most accessible to the surrounding pedestrian and transport modes.

# Planning the rail journey



## 4 Planning the rail journey

### 4.1 Rights and responsibilities

Consistent with the obligations of the DDA, this Code assumes certain rights and responsibilities for operators, providers and passengers. Rail operators shall clearly communicate these rights and responsibilities to the travelling public. Operators and providers will use their best endeavours to respect and promote the dignity and independence of all passengers.

The passenger has a responsibility to understand and abide by their responsibilities when travelling on public transport. Additionally, passengers will accept:

- The constraints that are part of the safe and effective operation of public transport services.
- That there are limits on what may be practicable for providers and operators to supply in some circumstances.

#### 4.1.1 Rail operator and / or provider

##### Fares

All passengers shall be prepared to pay fares, so a rail operator has the right to charge fares from all passengers with disabilities, their assistants and carers. At the discretion of the operator, concessions for passengers with disabilities and / or their assistants and carers may be allowed. For example in many States the Companion Card, permitting free travel for a cardholder's companion, is honoured by rail operators.

Fares are not payable for trained, accredited, assistance dogs. Accreditation is not available in all States and Territories, operators may seek appropriate evidence of a dog's training in these States and Territories. The handler of an assistance dog shall have a valid ticket or pass when travelling.

Operators may upon request provide an accessible alternative arrangement for a passenger who, as a result of their disability, has difficulty with standard fare payment systems.

##### Carers, assistants and assistance dogs

Passengers with disabilities may need to be accompanied by a carer, assistant or trained and accredited assistance dog in order to complete a rail journey. Operators may request evidence of accreditation. Accreditation is not available in all States and Territories, operators may seek appropriate evidence of a dog's training in these States and Territories. For more information on assistance dogs, refer to Part 4.2.4.

##### Independent use of the rail network

Non-discriminatory access to rail services may require reasonable adjustment to methods of service delivery by operators and providers. This Code of Practice articulates non-discriminatory means of service delivery.

Operators and providers will ensure that information about rail services:

- is readily available,
- is presented in a Plain English format, and
- may be provided by direct assistance to individuals.

In adjusting methods of service delivery and providing information in accessible, Plain English formats, operators and providers have the right to assume that passengers travelling independently can:

- understand information given in spoken or written Plain English, tactile or diagrammatic form,
- use a mass transit system,
- competently select their destinations, modes and times of travel, and,
- communicate their destinations where necessary.

### **Tolerance of motion**

Rail travel necessarily involves motion such as acceleration, deceleration, cornering and pitching. Operators assume that passengers and their mobility aids (refer 4.2) are capable of tolerating such motion. Operators may determine the physical orientation of passengers within their conveyances.

### **Environmental sensitivity**

Travelling by public transport may involve exposure to:

- noise,
- gases,
- electromagnetic radiation from motors or power-lines, and
- other substances, such as dust and smoke.

While operators and / or providers shall carefully consider the selection and maintenance of materials and equipment to minimise this exposure, it is assumed that people travelling on rail services are able to tolerate such emissions within the limits set by relevant environmental and occupational health and safety regulations.

### **Disability / medical aids**

Passengers sometimes need disability aids such as breathing apparatus (refer 4.2.5), body supports, glasses and hearing aids. Operators shall transport any disability aid that the passenger normally requires for his or her wellbeing or mobility that meets the size, performance and safety requirements of the rail service.

Operators are not responsible for the supply, disassembly or assembly, operation or repair of aids. Operators should inform passengers that the passengers shall provide clear written instructions if requesting staff to assist in handling these disability aids at the time of booking.

### **Mobility aids**

Operators may require passengers to:

- apply the brakes on their mobility aids while on trains and waiting on platforms,
- travel at no more than a walking pace on stations and rail property, and
- be competent in the use of their mobility aid.

Operators will assume that mobility aids meet the performance criteria of Part 4.2 and that:

- mobility aid users who travel independently are able to apply the aid's brakes, and
- wheelchairs and similar mobility aids comply with relevant safety requirements.

Operators have the right to refuse travel on a rail conveyance to a mobility aid/s that do not meet the performance criteria of Part 4.2 and which are considered unstable and/or unsafe for use on a conveyance.

Operators may also refuse service to people who put themselves or others at risk by the handling of their mobility aid and who refuse to follow reasonable instructions regarding the positioning or handling of their mobility aid.

### **Assistance**

Operators and providers shall endeavour to assist passengers who identify their needs, however operators are not responsible for the manual handling, personal or medical care of passengers (e.g. lifting / carrying of passenger / equipment, toileting, feeding, medications).

On booked services, passengers with disabilities shall be invited to identify their needs when making bookings.

## Safety

This Code of Practice does not address matters of safety that are dealt with by Commonwealth, State or Territory Governments. However, where practicable, operators and providers will endeavour to meet the requirements of safety regulations in a manner that is as non discriminatory as it is reasonably practicable.

## Education

Operators' and/or providers' relevant staff should be trained to interact in a way that avoids discrimination.

### 4.1.2 Passenger

Passengers with disabilities have the following responsibilities:

- accept the constraints that are part of the safe and effective operation of public transport services,
- accept that there are limits on what may be practicable for providers and operators to supply in some circumstances.

### Public transport travel competencies

Passengers with disabilities shall be able to:

- understand information given in spoken, electronic, written, tactile or diagrammatic form,
- capably use a passenger rail system,
- select their destinations, modes and times of travel, and
- communicate their destinations where necessary,

or travel with a friend or carer who can assist meet these competencies.

Passengers with disabilities who are unfamiliar with public transport are encouraged to participate in familiarisation programs where provided and practicable.

## Health and safety

Passengers shall:

- identify the needs that derive from their disabilities to the operator or provider,
- make private arrangements for the services of carers, assistants and assistance dogs if required, and
- have determined that they are able to tolerate the emissions encountered in the rail environment.

Passengers with disabilities are responsible for their own personal care and health (e.g. feeding, toileting, medication) while travelling by rail. If passengers require individual assistance (e.g. lifting / carrying and way finding), they shall travel with a carer / companion who is able to provide this support.

## Mobility / disability aids

Passengers travelling with mobility and/or disability aids shall:

- ensure that their mobility aids meet the requirements of Part 4.2, and
- ensure their mobility aids are able to safely and comfortably tolerate the forces involved with acceleration, deceleration, cornering and pitching.

Passengers are responsible for:

- the supply, assembly, disassembly, operation and repair of their disability / mobility aids in rail conveyances, premises and infrastructure,
- safe manoeuvring and operation of their own mobility aids, and
- storage of their mobility aids prior to and after travel on public transport services.



## 4.2 Mobility /disability aids

### 4.2.1 Manoeuvrability

Mobility aids shall be of a size, mass and performance that permit their use in rail infrastructure, premises and carriages. Manoeuvrability of mobility aids is not necessarily dependant on their length and width. Wheelchairs are much more manoeuvrable than scooters of the same dimensions. This is a function of wheelchairs' far shorter wheelbases and their capacity to skid-steer or pivot on their drive wheels. Passage along the access paths of rail carriages, infrastructure and premises will depend on the performance and safety capabilities of the mobility aid rather than strictly on its size.

Operators shall inform the users of rail services of the size, manoeuvrability and performance requirements for mobility aids. Information shall be provided in standard media (refer 4.3.1) and as part of the booking process.

The following manoeuvrability requirements apply to mobility aids travelling in modified or new conveyances, premises and infrastructure:

- Mobility aid footprints, including fittings attached to the aid, shall be no greater than 800 mm wide and 1300 mm long.
- Mobility aids shall be able to pass through gaps of 760 mm width in some existing conveyances, infrastructure or premises.
- The passenger shall be able to turn their mobility aid in a space 2070 mm long (in the direction of travel) and 1540 mm wide.

Limitations of space and other technical, structural and configuration constraints in the rail environment may limit the accessibility of mobility aids meeting the above size and manoeuvrability on existing rail premises, infrastructure and conveyances

#### 4.2.2 Wheelchairs

Wheelchairs or other wheeled aids used by passengers on a rail service shall:

- have effective braking systems,
- have safe anchorage points for restraints,
- be stable under normal conveyance forces of acceleration, deceleration, cornering and pitching.
- not be powered by internal or external combustion,
- have batteries that are adequately secured and contained, with gel or solid state preferred, and
- operate safely in internal and external environments under varying ambient and operating conditions.

The combined mass on the boarding ramp of the passenger, the mobility aid, and any person required to assist them to board shall not exceed the maximum load of 300kgs.

Wheelchair users shall be able to fit the knee clearance specifications of 5.2.1, 5.2.6, and 7.4.2 to access tables, counters, worktops, wash basins or the like while sitting in their wheelchair.

Wheelchairs are to be in addition to normal baggage allowances. However, operators are not required to carry wheelchairs as priority / additional baggage in the luggage compartment of booked services if:

- An allocated space for wheelchairs is provided in the seating / sleeping compartment.
- All allocated spaces in the seating / sleeping compartment are already booked on the required service.

Any aid carried in the luggage compartment shall comply with the operator's size and/or weight limitations for passenger baggage.

A passenger who needs assistance to stow or retrieve a wheelchair or other aid may be asked to board or alight the service before or after other passengers.

#### 4.2.3 Motorized scooters

Motorised scooters are electrically powered mobility aids. Scooters are required to meet the same safety, size and manoeuvrability requirements as wheelchairs for travel on rail services and facilities (refer 4.2.1 and 4.2.2).

The dimensions of access paths, doors and lifts as well as corridor configurations often restrict scooter access. Scooter users shall inform the operator that they have a motorised scooter so that they may be informed of any relevant service restrictions. Passengers with scooters meeting the requirements of this Code can book an allocated wheelchair space on booked services. There is no requirement for operators to carry scooters in the luggage compartment. Few scooters have restraint attachment points due to their design. Scooters without appropriate attachment points are unable to travel in conveyances where an operator requires that mobility aids be restrained in allocated spaces.

On booked services, where dining or similar areas are provided, allocated spaces and accessible tables may not be available in existing or modified carriages. For existing carriages not modified to provide this level of accessibility, direct assistance will be provided including the delivery of meals to the passenger's seat or sleeping berth if required.

#### 4.2.4 Assistance dogs

Operators and/or providers may refuse access to rail services and facilities to an animal that is not an assistance dog. An assistance dog is a dog that is specifically trained, by an accredited organisation, to alleviate the effects of a person's disability while the person is using a rail service. Examples include guide or hearing dogs.

Assistance dogs shall be under the direct control of the person with the disability, or (if required) their carer / dog trainer, at all times and wear a recognised form of identification as a trained assistance dog. The handler shall have verifiable evidence that the dog is trained by an organisation accredited as a trainer of assistance dogs for people with disabilities on public transport. The handler is solely responsible for the conduct, care, feeding, hygiene and toileting of their dog.

Assistance dogs are able to accompany the passenger at all times. Operators will locate assistance dogs with the passenger with whom they are travelling. Where practicable, this will be in assigned accessible seating on booked services (refer 5.2.2 and 7.2.1). Where practicable on booked services, the passenger is seated so that the assistance dog does not encroach into a passageway. However, on booked services, passengers with assistance dogs use standard seating in dining and similar areas.

#### 4.2.5 Gas cylinders

Medically prescribed gas cylinders and breathing apparatus are considered disability / medical aids. These types of cylinders are the only type that operators are obliged to accept on a rail service. Gas cylinders shall weigh no more than 5 kg when full (small B or C type), and have their own travel pack or trolley with restraining devices, as large or unsecured bottles may be hazardous to staff and other passengers, may not fit through doorways and tight points, or be too large for allocated spaces.

Constraints that are part of providing safe and effective rail services may limit the types of breathing apparatus that can be taken aboard carriages, within premises or on infrastructure.

##### **Gas cylinders on booked services**

At booking, passengers shall notify their need to travel with disability / medical aids such as breathing apparatus and gas cylinders. Passengers who identify the need for disability / medical aids as a prerequisite for their journey must be able to show evidence of that need if required. Carers / assistants are responsible for the supply, assembly, disassembly, operation and repair of their breathing apparatus or gas cylinders at all times.

Operators of booked services must:

- on passenger disclosure of the need to travel with oxygen inquire whether a gas cylinder or breathing equipment is suitable and safe for rail travel, and
- advise of any acceptable alternative options if after discussion a gas cylinder or breathing apparatus is considered unsuitable for safe travel.

Breathing apparatus and gas cylinders are to be in addition to normal baggage allowances. If practicable, breathing equipment and gas cylinders are to be treated in the same way as cabin or accompanied baggage. Breathing equipment and gas cylinders that will be transported in the luggage compartment shall comply with the operator's size limitations for passenger luggage.

Operators are not required to carry breathing apparatus and gas cylinders as priority / additional baggage in the luggage compartment of booked services if:

- An allocated space for breathing apparatus and gas cylinders is provided in the seating / sleeping compartment.
- All allocated spaces in the seating / sleeping compartment are already booked on the required service.

## **4.3 Unbooked services**

### **4.3.1 Service information**

Where service information is provided it shall be available to people with disabilities. The range of formats may include but not be limited to websites, telephone / TTY / SMS, direct assistance and customer service locations. Face-to-face customer service can be helpful in supplying information in accessible formats that meet the requirements of people with disabilities in planning their rail journeys.

Provision of accessible service information assumes that all passengers have a minimum level of literacy, basic communication skills with an ability to communicate their destination if required. All written information will be in Plain English. This Code of Practice does not cover non-essential information, such as advertising or community information.

#### **Timetables and network maps**

Standard hardcopy timetables may be difficult for people with vision and cognitive impairments to use. Hence, alternative access to timetables and network map information should be available.

#### **Service disruptions**

Where practicable, notification of service disruptions shall also be made available for passengers with disabilities in a range of ways that may include, email, announcements, face-to-face, signage or other formats. Where practicable, service disruption information should be given to passengers with disabilities concurrently to other passengers. Staff may provide service information if other formats are not available.

#### **Station and train facilities**

Accurate information on the accessibility of facilities at the departure station, on rail cars and at the arrival station is an integral part of journey planning. Additional information on how to reach the departure station or move on from the arrival station may be available, but this is not always possible as other modes of transport are often provided by different organisations.

#### **Toilet facilities at stations and on trains**

Information regarding stations and trains with accessible toilets shall be available from rail operators and / or providers.

#### **Internet**

Operators shall provide service information on the internet. Internet sites and pages should permit accessible interface with assistive software such as screen reader or screen magnifier programs and should not use PDF as the sole format. Web Content Accessibility Guideline 2.0 defines accepted accessibility for web pages.

Internet sites may have a "Contact Us" facility that allows members of the public to post queries on-line. These queries may come from passengers who rely on the internet, such as people with speech disabilities, therefore operators and/or providers of train services should respond in a timely fashion.

## Print

People who have vision impairments or cognitive disabilities demonstrate a wide range in their capacity to determine shape and colour. No single solution will suit all users, however the following characteristics make hardcopy printed material easier to read:

- large point size,
- strong colour contrast between text and background,
- adequate spacing between lines (i.e. leading),
- left justification with ragged right margin
- simple, sans serif font styles with adequate space between letters,
- sentence case,
- avoiding large amounts of styling such as italics,
- large margins,
- well-spaced formatting with clear headings,
- good quality, matt paper in order to optimise the clarity of the letters and numerals,
- simple grammar and Plain English expression.

If provided, large print format type size should be at least 18 point sans serif characters. Not all documents can successfully make the transition from standard to large print format. Regular timetables of A3 or larger size become too large and complex to comprehend if a minimum point size of 18 is used, therefore direct passengers to internet sites or to customer service areas for information.

## Audio format

Service information in an audio format may be available upon request.

## Other alternatives

Emerging technologies regularly introduce new media. As these media reach commercial stage they may be considered for incorporation into service information frameworks.

## Staff assistance

Staff levels vary from station to station and on different trains. Passengers with disabilities should contact the operator and/or provider of the rail service to ask if the assistance they require is available.

## 4.4 Booked services

### 4.4.1 Accessible services

#### Service levels

For rail travel, service level is defined as the choice of either 'Seating' or 'Sleeping berth' accommodation aboard a booked service. Booked services such as long distance passenger trains may have a number of product variants within these two service levels.

Where both Sleeper and Seating accommodation is offered on a new train, operators shall provide allocated spaces and access to essential accessible facilities in each of these two service levels. The availability of accessible travel options may be limited on existing trains and will vary from operator to operator. Passengers need to check at the time of booking as to whether the train configuration and service meets their needs.

#### Fares

All passengers shall be prepared to pay fares. This does not prevent concessions being offered. People with disabilities who have difficulty with standard payment systems should be allowed an alternative means of payment. Operators should inform passengers with disabilities of their fare systems, and any concessions offered, through their normal information services (refer 4.4.2).

### 4.4.2 Service information

Service information may be provided for people with disabilities in various formats including websites, telephone / TTY / SMS and customer service localities. Face-to-face customer service can be helpful in supplying information in accessible formats that meet the requirements of people with disabilities in planning their rail journeys.

Service information for people with disabilities should form part of the mainstream information service and be obtainable from normal service information and customer service localities. Infrequently requested formats may be provided from key outlets only, provided that this is done promptly. A single information source for all passengers ensures currency and availability of service information for people with disabilities equal to that of other service information products. Provide accessible alternative information in multiple formats as no single accessible alternative format meets the requirements of all people with disabilities.

Provision of accessible information assumes that all passengers have a minimum level of literacy, Plain English language skills and an ability to communicate in some manner or format as per unbooked services (refer 4.3.1). For detail on information formats, refer to 4.3.1. This Code of Practice does not cover non-essential information, such as advertising or community information.

On notification of the need for accessible travel the following information shall be available to assist in planning a journey:

- departure and arrival stations and any stops during the journey,
- transfers to other transport modes where applicable,
- boarding and luggage limitations and procedures,
- seating and allocated spaces,
- rail cars,
- dining and entertainment areas,
- sleeping berths and sanitary compartments,
- any other information that directly relates to the accessibility of the booked service.

Information shall be provided on request on the following:

- itineraries,
- service-alteration notifications,
- menus,
- the level of staff assistance available to people who have disabilities,
- any other essential information that directly relates to customer service on the booked service.

and may be provided on the following:

- entertainment programs,
- any other information relating to customer service.

#### 4.4.3 Booking / ticketing

Booking / ticketing systems shall be accessible. Information relating to booking / ticketing should be in the formats described in 4.4.2.

Booking / ticketing methods for people with disabilities will vary between operators but may include one or more of the following:

- telephone,
- Operator Call Centre, direct booking offices or service counters,
- 3<sup>rd</sup> party agencies (licensed travel agents),
- Internet.

If returning phone calls to callers who are deaf or who have speech impairments, the National Relay Service acts as a voice / TTY (text telephone) interface. It can be reached on 13 3677.

Passengers with disabilities requiring assistance or accessible facilities such as priority seats and allocated space for mobility / disability aids shall notify the operator of their requirements when they book their travel. Operators should ensure that the booking procedure is structured to elicit this information from the passenger. Inquiring as to any special travel needs is sufficient to achieve this.

Operators of booked services may request reasonable advance notice of a requirement for accessible travel. As a general rule, operators may require a minimum of 48 hours advance notice to enable them to assign a priority seat or allocated space or make arrangements necessary to accommodate other needs.

For existing services, if a passenger identifies a particular requirement in making a booking, the operator should inform the passenger of any relevant service options or equivalent access options available.

If passengers with disabilities identify difficulties with standard fare payment systems, offer a form of payment that meets equivalent access principles.

Operators may provide information relating to connecting transport options to and from departure and destination stations. These will generally be airport, local taxis, buses or rail services. However this information will not always be readily available or specific to the particular needs of people with disabilities. Passengers with disabilities should familiarise themselves with the accessibility of connecting public transport options relevant to their needs when planning their travel.

#### 4.4.4 Belongings

Operators shall transport any portable disability aid, conforming to the performance and types described in 4.2, that a passenger carries on board and normally requires for his or her wellbeing or mobility. Disability aids are to be in addition to normal baggage allowances, so that the carriage of a disability aid does not diminish a passenger's entitlement to normal baggage allowance. Further, an operator should not charge for carrying a disability aid unless regulations set fees for luggage handling or for the time taken to load luggage.

If practicable, disability aids are to be treated in the same way as cabin or accompanied baggage. For example, passengers could expect to bring compliant mobility aids or other small aids into their sleeping compartments. At the operator's discretion a passenger's disability aid may be stowed in a compartment away from the passenger. The aid may be carried as priority baggage. Refer to 4.2.2 for circumstances regarding carriage of wheelchairs.

#### 4.4.5 Staff assistance

Passengers with disabilities shall be advised of the extent and limitations of assistance that can be offered by staff.

Operators shall communicate the nature and level of assistance that can be provided to passengers with disabilities in the areas of:

- general customer service,
- lifting, carrying and manoeuvring wheelchairs or other mobility aids (refer 2.3),
- rights / responsibilities of operators and passengers (refer 4.1),
- disability aids, mobility aids and assistance dogs (refer 4.2),
- service information (refer 4.3.1),
- boarding (refer 6.3),
- assistance with controls (refer 7.2.3),
- communication of destination (refer 7.3.2),
- responsibilities of carers (refer 7.4.1 and 7.4.7),
- emergency egress (refer 7.5).



# At the station



## 5 At the station

### 5.1 Access and egress

#### 5.1.1 Station precinct

##### *Paths of travel*

An access path is a path that enables independent travel for all passengers from entrances, through rail premises or infrastructure to the rail service. An access path may include a compliant walkway, ramp or lift, but does not include stairs, escalators, or revolving doors. Co-location of access paths and other pedestrian paths of travel allows intuitive way-finding, equal convenience and considers shortest travel distances.

On a new rail station, provide access paths that enable independent travel for all passengers to the essential service facilities within the public areas of the station to the maximum extent practicable.

On existing rail stations, or stations rebuilt within an existing rail corridor, provide an access path that allows unhindered passage to a preferred accessible boarding point on each platform and to all essential facilities except where this is not practicable.

The provider may nominate the access path and shall clearly sign it (refer 5.3.2). On existing stations the nominated boundary entrance / exit should, wherever practicable, be either the principal entrance or the one most accessible to the surrounding pedestrian and transport modes. Operators should identify accessible entrances and at inaccessible entrances should indicate the location of accessible entrances.

In the design of new facilities and the refurbishment of existing facilities, make every effort to minimise the length of access paths between entrances, boarding points and other essential facilities. Where distances are unavoidably long, provide resting points (refer 5.2.2).

##### *Connection to other transport modes*

Access for people with disabilities is enhanced when accessible paths of travel exist between different transport modes. These include airports, bus stops, ferry wharves, taxi ranks, parking, passenger loading zones, and public streets or walkways.

Figures 5.1.1.a and b illustrate examples of connectivity to other transport modes and appropriate accessible parking and taxi / passenger loading zones.

Wherever practicable, rail operators and providers will take reasonable steps to promote the provision of accessible connections to other modes when the station precinct is being redeveloped. If provided, these connections should be clearly signed.

Where other transportation mode options are within the rail station boundary, an accessible path of travel to the station entrance, train boarding point/s and essential facilities shall be provided to the maximum extent practicable.

Parking areas provided by rail operators / providers for rail customers are part of the public transport service and shall meet the relevant minimum mandatory requirements for the elements essential for an access path and accessible parking.

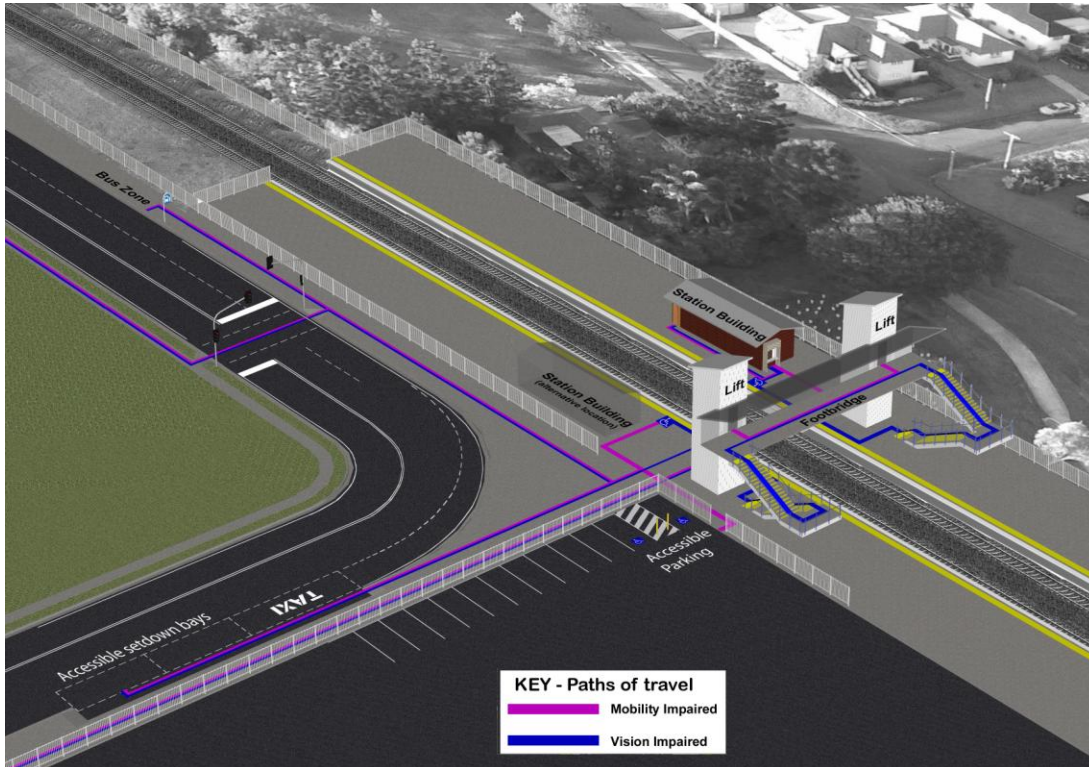


Figure 5.1.1.a. Examples of the connection and proximity of station entrance to other transport modes. Multiple boarding points are possible and are iterations of the boarding points illustrated.

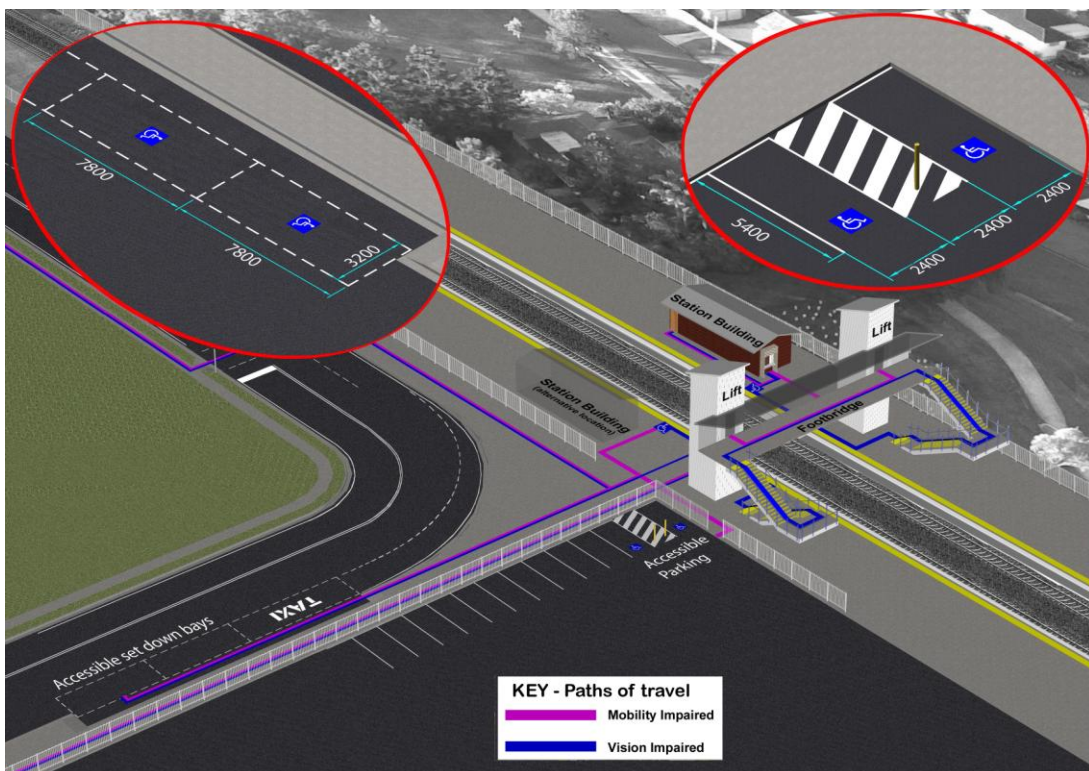


Figure 5.1.1.b. Examples of the station entrance, drop off zones and parking (dimensions in millimetres). Multiple boarding points are possible and are iterations of the boarding points illustrated.

### 5.1.2 Station entrance

#### *New stations*

New stations shall provide accessible public entrances that enable a continuous accessible path of travel to each platform and essential facilities.

#### *Existing stations*

On existing rail stations, and new rail stations in existing rail corridors, at least one nominated public entry point shall be provided. The physical characteristics of a site may prevent all entrances being accessible. Considerations in selecting the accessible entry point/s should include:

- giving priority to the entrance used by the majority of passengers to access rail services,
- providing the maximum practicable access to other accessible modes of transport,
- the surrounding topography and structural constraints,
- future rail corridor or precinct development.

### 5.1.3 Station access and egress

#### *Objective*

Provide equitable, continuous and unobstructed paths of travel to, from and within a railway station to enable independent access for all passengers to / from rail services and related accessible facilities.

#### *New stations*

Provide a continuous accessible path of travel connecting all public station entry points with:

- all boarding point/s to the train, and
- all accessible facilities provided for the public as part of the rail service.

Where practicable, all paths of travel leading to / from the same location should:

- be co-located as far as practicable, and
- be equitable in terms of distance travelled and convenience.

For example, co-locate lifts and stairs that provide an accessible vertical connection between levels. Figure 5.1.3.a illustrates co-location of access points at vertical changes in level.

Minimise the length of the accessible path to / from accessible station entry points and:

- essential accessible facilities,
- rest areas, and
- accessible boarding points.

All access paths shall:

- have a minimum width of 1200 mm (except at 'Doors' and 'Moving Footways' and gateways) ,
- have a minimum vertical clearance of 2000 mm,
- have passing bays every 9000 mm (refer 5.1.8) unless the minimum width of the access path is 1800 mm.
- be free of any obstructions (e.g. poles, columns, stanchions, bollards, fixtures and fittings),
- be provided exclusive of any required tactile ground surface indicators (TGSIs) (whether installed or not currently installed).

Where overhead obstructions adjoining access paths occur, such as the area beneath stairs with less than 2000 mm headroom, they should be made safe with physical barriers, such as walls, fences, handrails or landscaping.

Seats and other fittings / fixtures shall be set back an additional 500 mm from access paths and passing bays to ensure unhindered passage (refer 5.2.3).

Access path features are illustrated in Figure 5.1.3.b.

### *Existing stations*

An access path on an existing rail station provides a continuous accessible path of travel connecting a nominated accessible public entry point with:

- a preferred accessible boarding point on each platform,
- all essential facilities.

Access paths should meet the requirements for new stations. Where existing structural and technical constraints preclude a fully compliant access path, compliance shall be achieved to the maximum extent practicable however:

- a path width of 1000 mm (min.) may be provided,
- a path width of 850 mm (min.) may be provided to pass an immovable obstruction of up to 800 mm in length,
- platform edge warning TGSIs may form part of the access path or the 850 mm width area to the minimum extent practicable.
- the access path shall not overlap the platform edge safety line.

Relocate fixtures and furniture to achieve these access paths where practicable.

### *Good practice*

Design access paths and circulation routes exclusive of required queuing, milling or waiting space. Plan and design circulation areas to accommodate the nature and flow of both static and active station activities.

Where operationally feasible, separate directional passenger flows - this minimises delays due to congestion and contra-flow and enables ease of access for all passengers, but particularly those with a disability.

Use texture, finishes, colour and luminance contrast, lighting and the appropriate placement of related information and signage to further define unhindered paths of travel, circulation spaces and facilities.

Any glazing located adjacent to an access path that might be mistaken for a doorway or opening shall have a horizontal band 75 mm or greater in width that colour contrasts, and luminance contrasts by at least 30% (refer 5.3.3), relative to the first 2000 mm of the finished floor level on the opposite side the glazing. Locate the band the full door width of the glazing between 900 mm and 1000 mm above floor level.

When crowd management barriers are used on a regular basis, semipermanent and permanent barriers are preferable to temporary barriers. All semipermanent and permanent crowd management barriers should be detectable by people with vision impairments. A gap of 300 mm or less at floor level on semipermanent and permanent barriers will improve detection by cane users and reduce the potential for trips and falls.

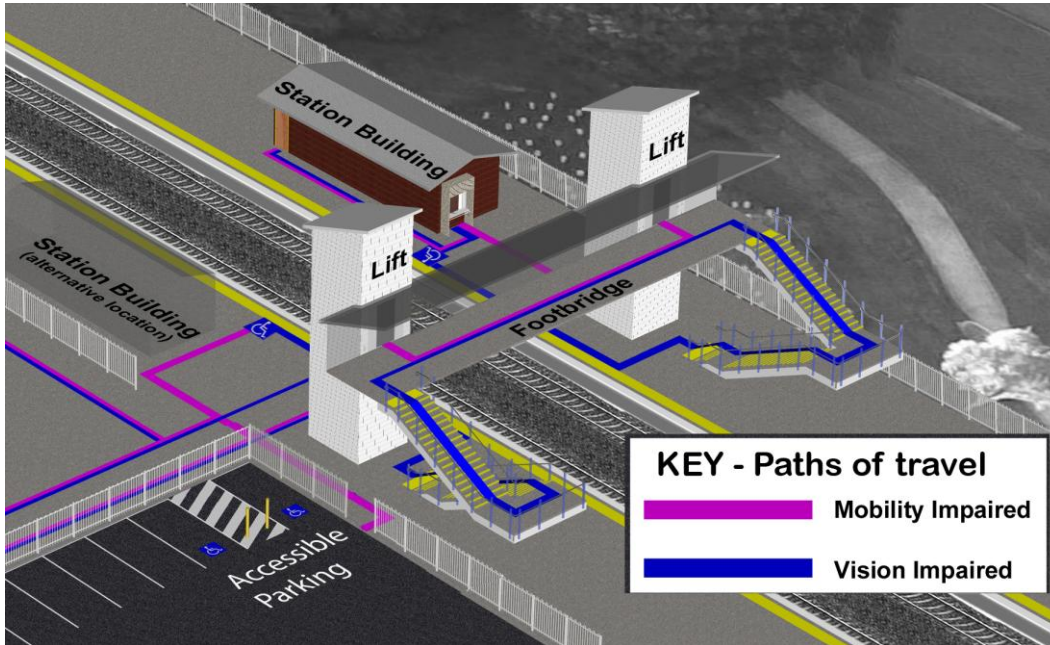


Figure 5.1.3.a. Example at a new station of the co-location of paths of travel, with separation of paths at vertical changes in level

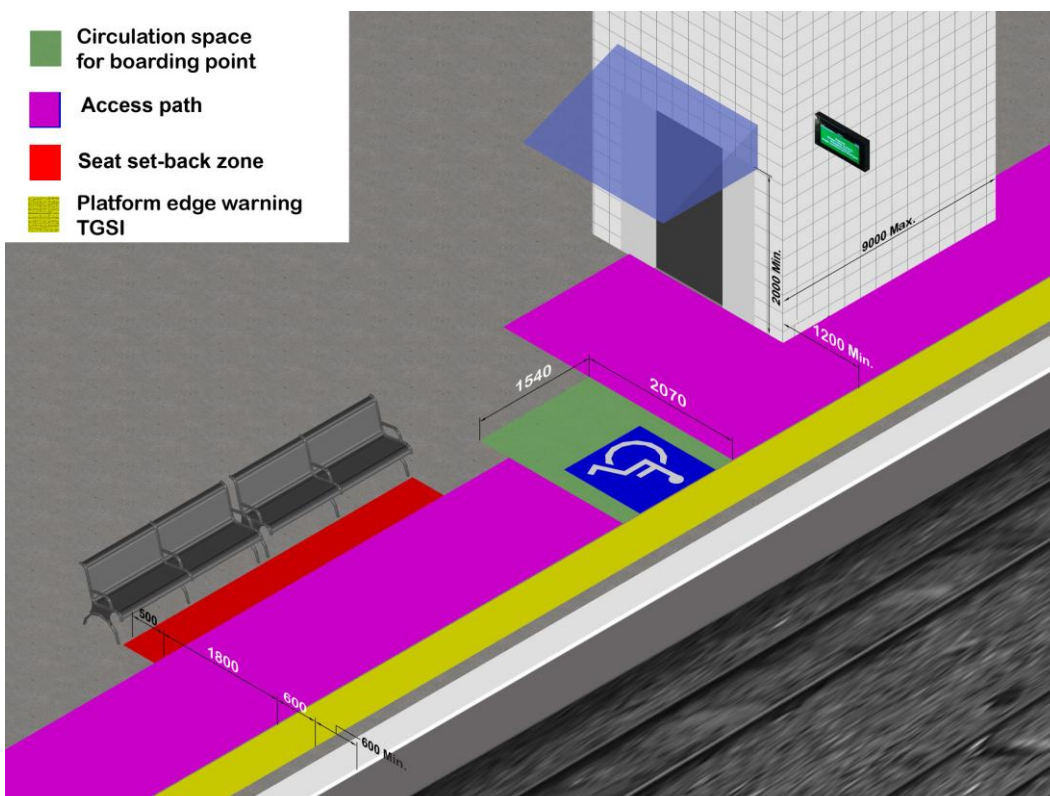


Figure 5.1.3.b. Example of an access path showing maximum access path length when path width is less than 1800 mm, clearances between TGSIs and obstacles, seat setback and overhead clearance (dimensions in millimetres).

## 5.1.4 Walkways, ramps and landings

### *New stations*

Provide access paths that allow unhindered passage along walkways, ramps and landings (refer to 5.1.3).

Maximum cross-fall on walkways, ramps, circulation spaces and landings on an access path is 1 in 40 for all surfaces (refer 5.1.9) except those with a bituminous seal or equivalent characteristic where 1:33 is permitted.

Walkways on an access path shall have:

- a gradient of no steeper than 1:20,
- landings varying between 15 m (1:20) and 25 m (1:33) apart, depending on walkway grade, with no landings required where gradient is no steeper than 1:33, (landing intervals can increase by 30% where at least one side of a walkway has a kerb and handrail or a wall and a handrail),
- a 600 mm wide 'at grade' space beyond the walkway edge if no kerb and handrail or wall and handrail are provided.

A ramp on an access path shall have:

- a gradient between 1:14 and 1:20 when it is longer than 1520 mm,
- 1200 mm minimum clear space between handrails, kerb rails and kerbs,
- landings varying between 9 m (1:14) and 15 m (1:19.5) apart, depending on ramp grade,
- warning TGSIs on the top and bottom landings of the ramp (refer 5.3.4) set back from transverse access paths so that they do not intrude into the transverse access path (refer 5.3.4),
- landings at top and bottom set back from transverse access paths so that handrail extensions (refer 5.2.4) do not intrude into the transverse access path,
- handrails complying with Part 5.2.4,
- kerb or kerb rail at least 65 mm above the ramp or landing surface, with the top of the kerb or rail not in the range of 75-150 mm above the ramp or landing surface (though if the ramp and handrail are attached to a wall that is not more than 100 mm from the inner side of the handrail (the access path side), no kerb or kerb rail is required).

Ramp features, dimensions and fixtures are illustrated in Figures 5.1.4.a and b.

Kerb ramps and step ramps shall not exceed 1:8 gradient or 1520 mm length. If transverse pedestrian traffic is likely, provide:

- graded triangular wings placed at right angles to the ramp and kerb, or,
- barriers of not less than 900 mm height with consideration given to providing a kerb rail or other means of detection by a person using a cane.

Rest areas may be required at intervals along walkways or ramps (refer 5.2.2).

Co-locate, as close as practicable, walkways, ramps and landings with other pedestrian paths of travel for equal convenience. If co-location is not practicable the access path should be clearly signed (refer 5.3.2).

### *Existing stations*

Wherever practicable co-locate walkways, ramps and landings with other pedestrian paths of travel for equal convenience. If co-location is not practicable the access path should be clearly signed (refer 5.3.2).

For information on acceptable access path widths on walkways, ramps and landings refer to 5.1.3.

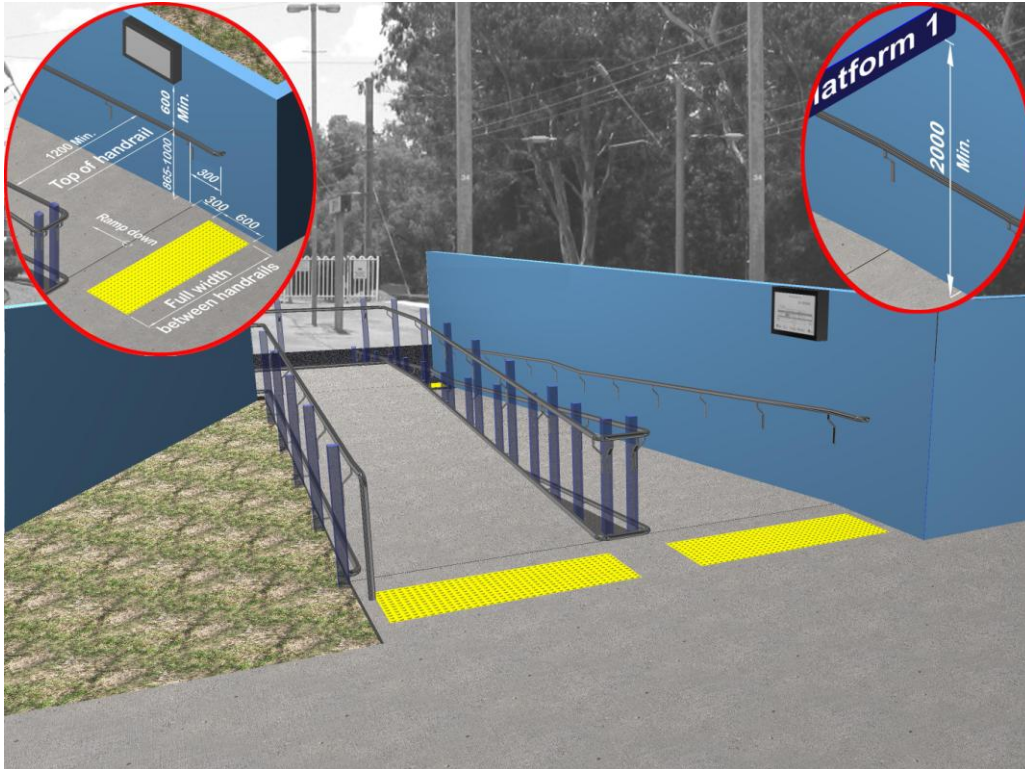


Figure 5.1.4.a. Examples of ramp access path dimensions and specifications (dimensions in millimetres).

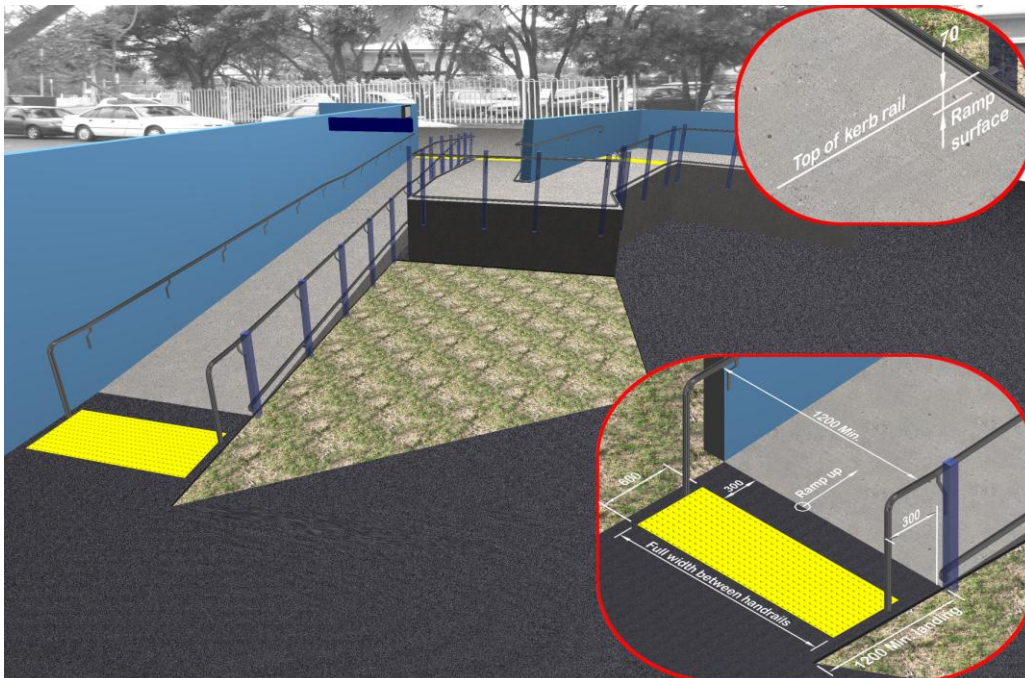


Figure 5.1.4.b. Examples of ramp TGS, kerb rail and handrail specifications. The 1800 mm minimum ramp width applies where passing bays cannot be provided on a narrower ramp at intervals of 9000 mm maximum between passing bays (dimensions in millimetres).



## 5.1.5 Lifts

Lifts and associated facilities should be co-located with stairs, moving footways or escalators and shall comply with *AS1735.12 (1999) Lifts, escalators and moving walks: Facilities for persons with disabilities*. Relevant features / interpretations of this standard are listed below for new and upgraded lifts.

### Lift car dimensions

Minimum lift car internal clear dimensions are:

Turn around lifts:

- 1400 mm deep, by
- 1400 mm wide by
- 2000 mm high.

Through lifts:

- 1400 mm deep by,
- 1100 mm wide and
- 2000 mm high.

### Notes:

At the minimum range of dimensions, a two door 'travel straight through' design is generally preferred and safer if it can be accommodated (as there is no need to reverse out of a lift in a wheelchair).

Rail operators / owners may opt for deeper lift cars in well-frequented stations to cater for ambulance stretcher access for medical emergencies.

### Lift doors

Lift doors shall have a:

- clear open width of 900 mm or greater,
- horizontal slide, power operation and automatic control, and,
- at least 6 seconds 'full open' time.

### Operation

If a lift car serves more than two landings, activation of a floor call control button in the lift car shall be acknowledged by a short audible tone and the illumination of a lamp that is located in or adjacent to the button. The tone is optional if the acknowledgement of the button's activation is easily felt, however it is good practice.

### Car arrival and direction of travel

At landings where landing lanterns are installed, car arrival and intended direction of travel shall be indicated audibly. If more than three lifts are co-located, visual indication of car arrival and intended direction of travel is also required. Floors at which the car stops shall be identified audibly and visually.

### Car floor indicators

Cars require floor indicators. Locate the indicator on a relevant wall of the lift car. Indicator numbers and letters shall be:

- 1800 mm or higher above the car floor,
- 25 mm minimum height.

For cars that are less than 1400 mm wide, which may restrict wheelchair movement, the floor indicator shall be located either on a side wall or on both front and back walls.

### Communication systems

Lifts require a two way communication system that shall have a microphone and a loudspeaker that produces a sound pressure level 1000 mm in front of the speaker of 70-80 dB(A) or greater.

#### 5.1.6 Stairs / steps

##### *New stations*

Stairs may be used in addition to an access path as they provide an alternative path of travel for many people with vision or hearing impairments, quick access and egress for ambulant passengers to and from the rail service and an essential means of egress in an emergency evacuation.

Minimum dimensions for the path of travel along stairs should be as for walkways, ramps and landings (refer 5.1.4), except that passing areas are not required.

Wherever practicable, stairs should be adjacent to the access path.

Stair design shall be generally linear rather than spiral, comply with the Building Code of Australia and as a guide the preferred dimensions are:

- treads in the range of 275-300 mm deep with a level, slip resistant surface,
- risers in the range of 150-165 mm high, and be of a design that prevents toes catching or other hindrances,
- treads not splaying back over risers by more than 25 mm or forming a trip hazard.

Strips of material that colour contrast and luminance contrast by at least 30% with surrounding surfaces (refer 5.3.3) shall be located on the nosing of the tread at 50-75 mm width. These strips should also texture contrast where applicable.

Warning TGSIs shall be located at the top and bottom of stairs and on intermediate landings where handrails are not continuous on both sides (refer 5.3.4).

Where practicable, TGSIs should not intrude into access paths transverse to the stair.

Stair handrails shall meet the requirements of 5.2.4 and, wherever practicable, be continuous and provided on both sides of the stairs.

Lighting on stairs shall comply with 5.3.6.

Where overhead obstructions adjoining access paths occur (e.g. the area beneath stairs) with less than 2000 mm headroom, they should be made safe with suitable barriers, such as walls, fences, handrails or landscaping.

Stair fixtures and features are illustrated in Figures 5.1.6.a and b.

Existing stations

If stairs and access paths are not co-located, clearly sign or indicate the access path for people with mobility impairments (refer 5.3.2).

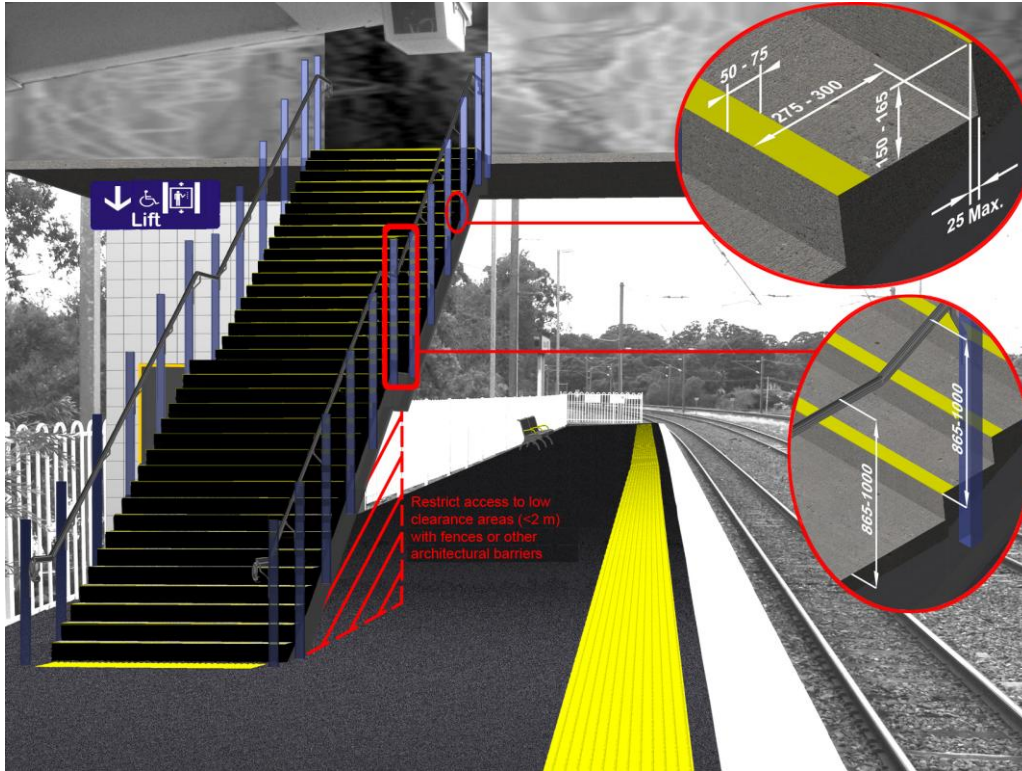


Figure 5.1.6.a. Examples of the stair tread / riser specifications, handrails, contrasting strips (dimensions in millimetres).

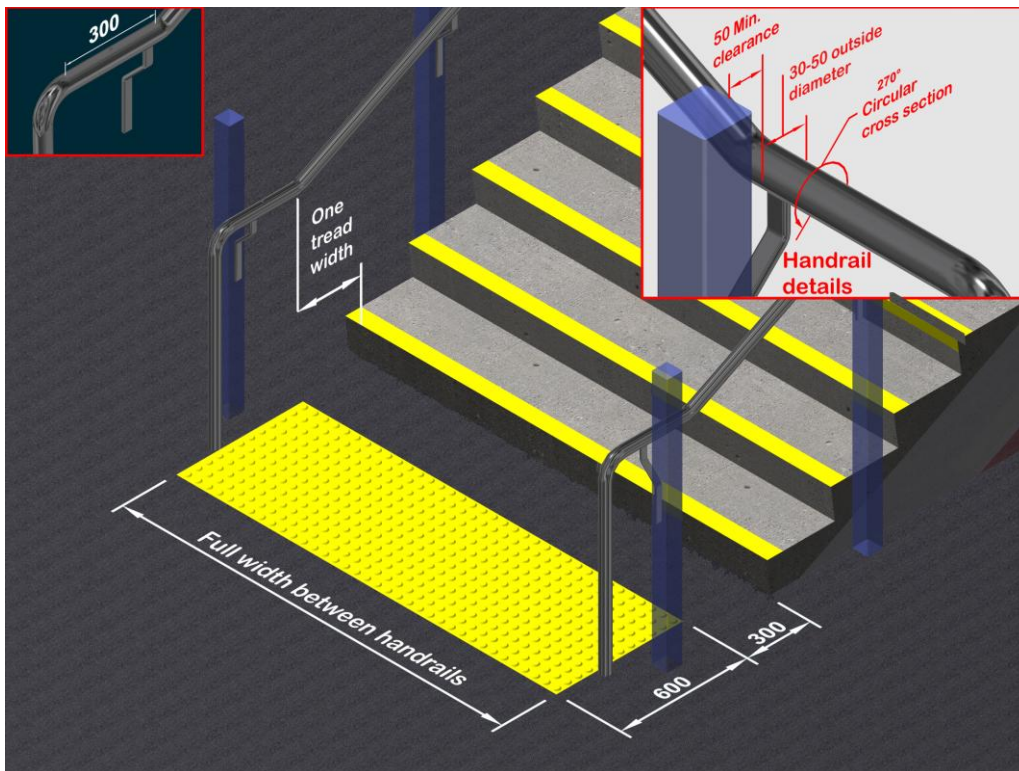


Figure 5.1.6.b. Examples of stair TGSI and handrail specifications (dimensions in millimetres).

## 5.1.7 Escalators and moving footways

### *New stations*

Escalators and moving footways shall not be the sole means of access to public areas of the station. However, they may be used in conjunction with access paths for people using mobility aids, as they provide a quick path of travel for ambulant passengers and many people with vision or hearing impairments. Wherever practicable, co-locate escalators and moving footways with the access path.

Warning TGSIs shall be installed top and bottom of escalators and moving footways,

- in bands 600 mm deep,
- the full width between the handrails of the escalator and moving footway,
- set back 300 mm from a hypothetical vertical line drawn between the floor and the farthest extension of the moving handhold.

Escalators should have colour and luminance contrasting strips at the tread nose as per stairs (refer 5.1.6).

The minimum unobstructed width of a moving footway or escalator shall be 850 mm.

Escalator dimensions, features and tactile ground surface indicator location are illustrated in Figure 5.1.7.

### *Existing stations*

Escalators and moving footways shall not be the sole means of access to facilities designated for passengers with mobility impairment.

When replaced, minimum width of the escalators and moving footways shall meet the 850 mm minimum as close as is reasonably practicable.

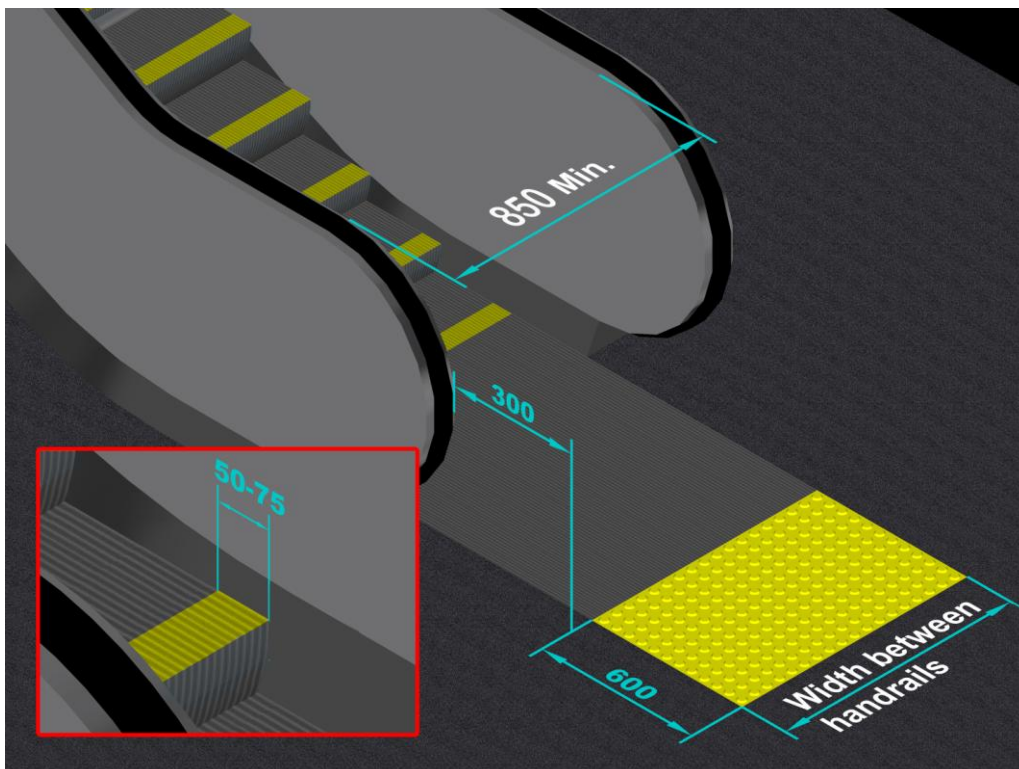


Figure 5.1.7. Examples of escalator width, TGSIs and contrasting strips (dimensions in millimetres).

## 5.1.8 Passing, manoeuvring and circulation spaces

### *Objective*

For people using mobility aids conforming to the size and performance requirements of this Code to be able to:

- pass each other at reasonable intervals along an access path,
- manoeuvre at critical areas such as boarding points and before essential facilities, and
- move freely in accessible areas of a station.

### *New stations*

Manoeuvring areas should be provided at any point where complete changes of direction or major adjustments to travel direction by people using mobility aids are required. These locations include:

- boarding points,
- in front of ticket vending machines, public telephones or ticket counters, and
- in front of allocated waiting spaces.

Provide spaces with minimum dimensions of 2070 mm in the direction of travel and 1540 mm wide to allow a person using a mobility aid to make a 180 degree turn. Manoeuvring areas are illustrated in Figures 5.1.3.b, 5.2.1.a, 5.2.1.b and 5.2.2.a.

Access paths less than 1800 mm wide require passing areas located at intervals not exceeding 9 m. When the passing area is:

- located on one side of the access path only, provide a passing area at least 1600 mm long and 1800 mm wide, and
- distributed equally on both sides of the access path, provide a passing area at least 2000 mm long and 1800 mm wide.

Passing areas and dimensions are illustrated in Figure 5.1.8.

### *Existing stations*

Existing rail stations may have space constraints that preclude the dimensions required for a 180 degree turn in a manoeuvring area. Where the minimum dimensions are unachievable due to legitimate technical constraints, and it is not practicable to relocate a feature requiring the circulation space, the greatest dimensions practicable shall be used.

Where space constraints exist distance between passing areas may extend out to a maximum of 20 m, or passing bays may be reduced to 1500 mm length or a 1200 X 1200 mm intersection landing at a T-turn or cross path.

Where access path width is legitimately constrained, no passing areas are required. However, make every effort to maximise access path width and minimise the distance between passing areas.

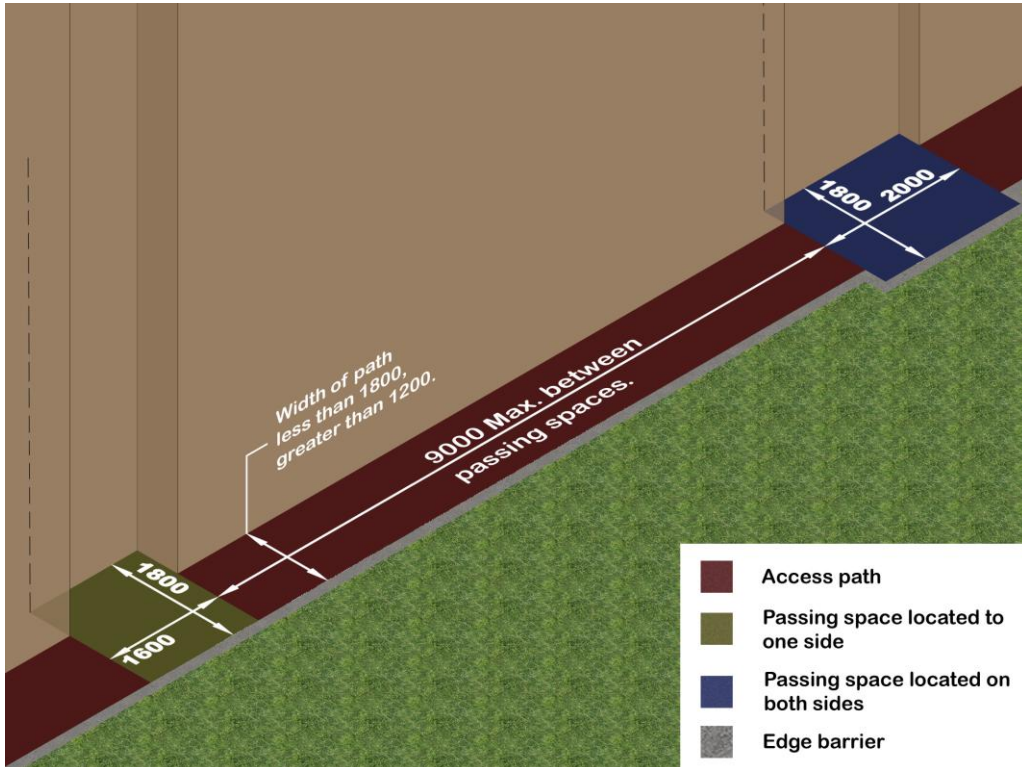


Figure 5.1.8. Examples of passing areas on access paths (dimensions in millimetres).

## 5.1.9 Surfaces

### *New stations*

All access paths, manoeuvring, passing and circulation spaces shall have slip-resistant surfaces that are traversable by mobility aids or ambulant people with poor mobility. Such surfaces shall meet industrial and commercial requirements for slip resistance.

Access paths should not be regarded as traversable when vertical or near vertical changes in level greater than 5 mm occur between abutting surfaces. Vertical change in level between abutting surfaces in the range of 3-5 mm should have edges that are chamfered, rounded or bevelled.

Pavers should not be considered as the preferred choice for new treatments as they may develop uneven surfaces that hinder people with mobility impairments and require high maintenance to sustain a compliant path of travel. If used, paving blocks should not have bevels, chamfers or rounds in excess of 5 mm when laid together.

Floor and paving surfaces should not have cracks, cavities or surface relief that allow accumulation of fluids, dust or debris. Such accumulations reduce friction between surfaces and increase the likelihood of slipping or tripping.

Surface glare can be an access barrier for people who have vision impairments or who are photosensitive. Surfaces should have minimal reflection and glare. Texture and colour contrast can also assist people with vision impairments to differentiate access path surfaces from other surfaces.

Grates placed over drains or the like on an access path shall have a flat profile but may have either elongated slots or circular openings. Openings shall not exceed 13 mm width but in the case of elongated slots may be up to 150 mm long.

Where practicable, slots shall be transverse to the path's primary direction of travel.

### *Existing stations*

On existing platforms differences in level between surfaces of up to 5 mm between abutting surfaces are acceptable.

### 5.1.10 Ticket gates

Locate any accessible gates to allow easy passage of mobility aids so that the gates do not catch them. Where revolving doors exist there must be an accessible door adjacent.

#### *New stations*

Gateways and checkouts, such as ticket gates, shall comply with the following:

- Where gateways and checkouts are installed, provide at least one barrier opening with minimum 850 mm clear open width.
- The International Symbol for access shall identify the accessible gate.
- The ticket, coin feed points shall be at 800 mm - 1200 mm above floor level, however the preferred range is 800 – 900 mm.
- A non-contact card reader shall be at a height of 700 mm - 1200 mm above floor level.

Whilst control operating forces of up to 19.5 N are permitted down to 5 N may be used, depending on application. Refer to Part 5.2.5.

Accessible gateway / checkout dimensions are illustrated in Figure 5.1.10.

#### *Existing stations*

Where gateways and checkouts are installed on access paths they shall conform to the requirements of new stations to the greatest extent practicable.

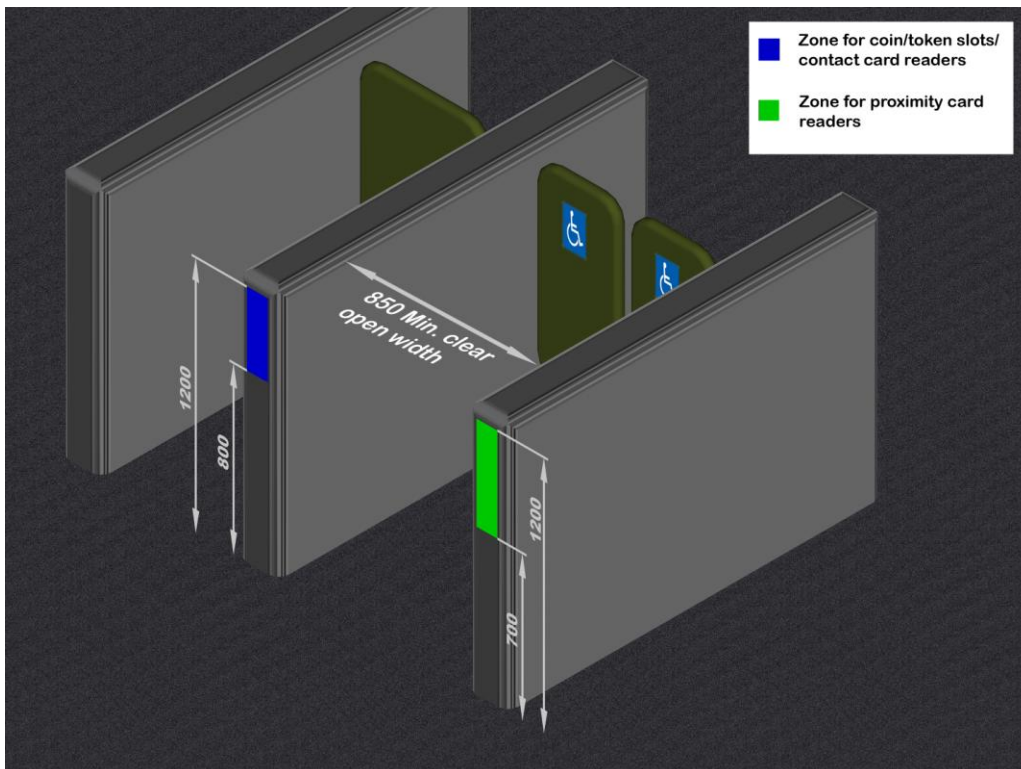


Figure 5.1.10. Examples of accessible gateway and checkout dimension and control specifications (dimensions in millimetres).



## 5.1.11 Doors

### *Performance requirement*

Doors located along an access path shall not present a barrier to independent access for all passengers.

### **Types of doors**

Doors shall be automatic, power assisted or manual.

Doors provided to accessible toilets:

- shall be either hinged or sliding,
- if inward opening or sliding, shall be capable of either being opened outwards or removed from the outside.

Doors opening towards the railway platform edge should not be outward opening due to public safety considerations, unless the doorway is recessed by the width of the doorway.

Doors to rooms containing electricity switchboards are required to be outward opening

Sliding doors or two way swung doors may not be suited to situations where:

- privacy is required,
- there is a high use or low maintenance requirement,
- security is a consideration,
- weather protection is required.

Where these situations exist, rebated hinged doors are preferred.

Where doorways have two independently operated door leaves, then at least one leaf shall meet the requirements of this Code of Practice. That leaf shall be the active leaf

At entrances where revolving doors or turnstiles are installed, alternative hinged or sliding door shall be provided

### **Automatic doors**

Automatic doors are preferable along an access path. Automatic doors give optimum access for people who have disabilities as the user does not have to undertake any specific action (apart from being proximate) in order to initiate the door operation. Where swing doors are used, ensure sufficient space for a person using a wheelchair on the swing side.

Activators for automatic doors shall accommodate people who have disabilities. Pressure pads of weight-activated doors shall be sensitive enough to detect a 15 kg assistance dog. Any other type of automatic door sensor on an access path shall be able to detect movement between ground level and 50 mm above the access path.

### **Manual doors**

Manual door activator (handles, push buttons and the like) requirements, including configuration and location are listed in 5.2.5. Door control location is illustrated in Figure 5.1.11.a and b. Note that manual door activators (handles, push buttons and the like) must be colour contrasted, and have a luminance contrast of at least 30%, to adjacent surfaces.

### **Power assisted doors**

Power assisted doors or doors on which it is necessary to provide closers, should remain open long enough to allow a person with impaired mobility safe passage through the doorway. Use delayed action closers, rising butt hinges or the like to facilitate automatic closing. A rate of travel of approximately 0.5 m per second should be used to calculate required delay.

### Door closers

Do not use door closers unless required by a regulatory authority (e.g. smoke or fire doors, toilet doors etc). Where possible, avoid the need for door closers by planning around regulatory authority requirements to better facilitate accessibility.

For doors other than fire or smoke doors where a door closer is fitted the force required at the handle to operate the door shall not exceed:

- |   |     |
|---|-----|
| - to initially open the door                  | 20N |
| - to swing the door                           | 20N |
| - to hold the door open between 60-90 degrees | 20N |

Note that fire and smoke doors will generally require operational forces greater than those allowed to enable accessibility and often have to overcome forces, such as differential pressure caused by air conditioning or in underground stations, the pressures caused by trains exiting tunnels, as part of their function.

Lift doors shall have a minimum clear opening of 900 mm.

To be detectable by people with vision impairments, at entrances and along an access paths, doors or doorframes should colour contrast, and luminance contrast by at least 30%, with surrounding surfaces (refer 5.3.3).

### Glazing

Glass in doors shall be safety glass in accordance with Building Regulations (AS1288-2006).

Frameless or fully glazed doors shall have a grabrail / handle or a horizontal band 75 mm or greater in width that colour contrasts, and luminance contrasts by at least 30% (refer 5.3.3), relative to the first 2000 mm of the finished floor level on the opposite side the glazing. Locate the band the full door width between 900 mm and 1000 mm above floor level. Security or maintenance requirements may limit the type and extent of these types of glazed doors

Glazing in doors can be useful to people with disabilities, as it provides a view of the user approaching the door from the other side.

Where a glazed viewing panel in a door is employed, it shall be located within a zone with its:

- lower edge at 300 mm - 1000 mm above floor level,
- upper edge at 1600 mm or higher above floor level,
- extend 200 mm or less from the door's latch edge and have a width of 150 mm or greater.

Location of glazed viewing panels is illustrated in Figure 5.1.11.a.

### Door thresholds

Level circulation spaces (thresholds/landings) are required at either side of a door that would normally be closed.

Differences in level on each side of a door should be avoided to enable safest possible entry for all. Note the maximum allowable tolerance of level difference, with a rounded or bevelled edge, on an access path is a 5 mm. Heights above this are considered a trip hazard. The minimum allowable crossfall on an access path is 1:40.

At entrance doors, where a difference in level is unavoidable, a threshold ramp may be provided at 1:8 with a maximum length of 450 mm from the face of the door (allowing a max height difference of 56mm). A threshold ramp shall extend for the full width of the door opening. Edges of such a threshold ramp shall be tapered or splayed at a maximum gradient of 1:8, where it does not abut a wall or kerb. (Note: such a wall or kerb must not encroach on the required approach circulation space). Door threshold ramps can make opening difficult on the threshold side as wheelchair users cannot approach the door as closely.

In other cases where level differences are necessary each side of a door, use either:

- a kerb ramp or step ramp (min 1:8 for level differences up to 190 mm and min width 1m), including level landings for the full extent of required circulation space at the top and bottom or 1330 mm (measured parallel with the direction of travel on the kerb ramp or step ramp), whichever is the greater. Edges of such a kerb ramp or step ramp shall be tapered or splayed 45 degrees at a maximum gradient of 1:8, where it does not abut a wall or kerb. Refer to section 5.1.4.
- a compliant ramp (min 1:14 to 1:20, for level differences greater than 190 mm) including level landings for the full extent of required circulation space at the top and bottom of the ramp or 1200 mm (measured parallel with the direction of travel on ramp), whichever is the greater, plus intermediate landings as required. A compliant ramp shall also have handrails and kerbs / kerbrails, TGSIs etc. Refer to section 5.1.4.

Note: On railway station platforms, it is not desirable to slope any of the above mentioned ramp types in the direction of the edge of the platform for reasons of passenger safety.

Note that "clear opening" of a door is defined as the distance between the open door face and the nearest part of the far frame when the door is opened to 90 degrees. The clear opening will be considerably less (on a swing door by approximately the door thickness plus one rebate overlap) than the "leaf size" of a door, as it is normally specified. Hence, for example, on a hinged fire or smoke door the "clear opening" may be up to 70 mm less than the "leaf size" (based on a 45 mm door thickness and 1 x 25 mm rebate overlap). It should be noted that normal standard "door leaf" sizes are 820 mm, 870 mm, 920 mm, 970 mm, 1020 mm. These sizes are easiest and cheapest to procure.

The required size of circulation spaces (and therefore landings/thresholds) at each side of a door will depend on:

- the clear opening,
- type and/or swing of the door, and
- the direction of approach.

The width of the rail corridor and the related existing dimensional constraints of existing buildings and structures within the rail corridor may limit the ability of operators to provide the same level of compliance required of new buildings on unconstrained sites. The relationship between clear door opening width and the required circulation space provided at each side of a door is often an inverse one. In some instances a wider door opening may require a narrower approach or conversely, a narrower door may require a wider approach.

The combination of clear opening and circulation space chosen for particular project where there are existing constraints will depend on the nature of those constraints related to the user approach, door type and opening direction. See below for detailed requirements.

### **Door mountings**

Swing doors shall not be in a wall greater than 300 mm thickness.

Sliding doors set in walls shall not be set back from the face of a wall in which they are set greater than 300 mm.

Surface mounted sliding doors shall have increased circulation space (all dimensions) in addition to that noted in table 5.1.11 below commensurate with the setback of the face of the door from the wall. The only exception is where a "front approach" is possible, dimension L does not need to be increased.

### **Circulation near doors**

Minimum clear distances between doors in passageways, vestibules and airlocks shall be 1350 mm with doors in the open position. Required latch approach distances ( $W_L$ ) shall be as for the front approach to all doors as shown in table 5.1.1.1.

It should be noted that all circulation spaces noted in the table below include:

- appropriate space for grasping a manual door handle,
- a 50 mm tolerance for judgement of starting position of wheelchair.

#### *New stations*

Minimum clear open door width shall be 850 mm. Given this, (even with minimal door thickness and rebate overlap on a swing door) the nearest standard "door leaf" to provide this clear opening on a swing door will notionally be a 920 mm leaf.

#### *Existing stations*

On existing rail stations, where legitimate dimensional constraints prevent compliance with the requirements for doors as required on new stations above, an 800 mm clear door opening is allowed. Where doors are legitimately not accessible, a sign directing people with disabilities to an alternative access path is required

Level circulation spaces and landings at doorways should meet the minimum dimensions of Table 5.1.1.1.

Table 5.1.1.1. Indicative minimum dimensions are shown in **bold**

			Door clear opening width in mm				
			800	850	900	950	1000
			Minimum clear opening required in existing platform buildings or where existing corridor constraints can be demonstrated Minimum clear opening required in new public transport buildings				
			800	850	900	950	1000
<b>Swing Door</b>							
Side approach							
If door swings away from user							
L	Hinge side approach	L	1160	1120	1085	1060	<b>1040</b>
	Hinge or either side approach	L	1200	1140	1110	1075	<b>1055</b>
W <sub>L</sub>	Hinge side approach	W <sub>L</sub>	220	190	165	<b>145</b>	<b>145</b>
	Latch or either side approach	W <sub>L</sub>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>
W <sub>H</sub>	Hinge side approach	W <sub>H</sub>	200	95	50	0	0
	Hinge or either side approach	W <sub>H</sub>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>
If door swings toward user							
L	Latch or hinge side approach	L	<b>1510</b>	<b>1570</b>	1665	1725	1725
W <sub>L</sub>	Latch or hinge side approach	W <sub>L</sub>	840	810	780	725	<b>625</b>
W <sub>H</sub>	Latch side approach	W <sub>H</sub>	110	110	110	110	110
	Hinge or either side approach	W <sub>H</sub>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>
Front approach							
L	Door swings toward or away from user	L	<b>1350</b>	<b>1350</b>	<b>1350</b>	<b>1350</b>	<b>1350</b>
W <sub>L</sub>	Door swings toward or away from user	W <sub>L</sub>	470	460	445	435	<b>415</b>
W <sub>H</sub>	Door swing toward user	W <sub>H</sub>	110	110	110	110	110
	Door swings away from user	W <sub>H</sub>	0	0	0	0	0
			Door clear opening width in mm				
			800	850	900	950	1000
<b>Sliding Door</b>							
Side approach							
L	Non latch or either side approach	L	<b>1180</b>	<b>1180</b>	<b>1180</b>	<b>1180</b>	<b>1180</b>
	Latch side approach	L	1160	1130	1110	1080	<b>1055</b>
W <sub>L</sub>	Latch or either side approach	W <sub>L</sub>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>
	Non latch side approach	W <sub>L</sub>	305	255	205	160	105
W <sub>H</sub>	Non latch or either side approach	W <sub>H</sub>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>	<b>610</b>
	Latch side approach	W <sub>H</sub>	160	135	95	80	<b>55</b>
Front approach							
L		L	<b>1350</b>	<b>1350</b>	<b>1350</b>	<b>1350</b>	<b>1350</b>
W <sub>L</sub>		W <sub>L</sub>	470	460	445	435	<b>415</b>
W <sub>H</sub>		W <sub>H</sub>	0	0	0	0	0

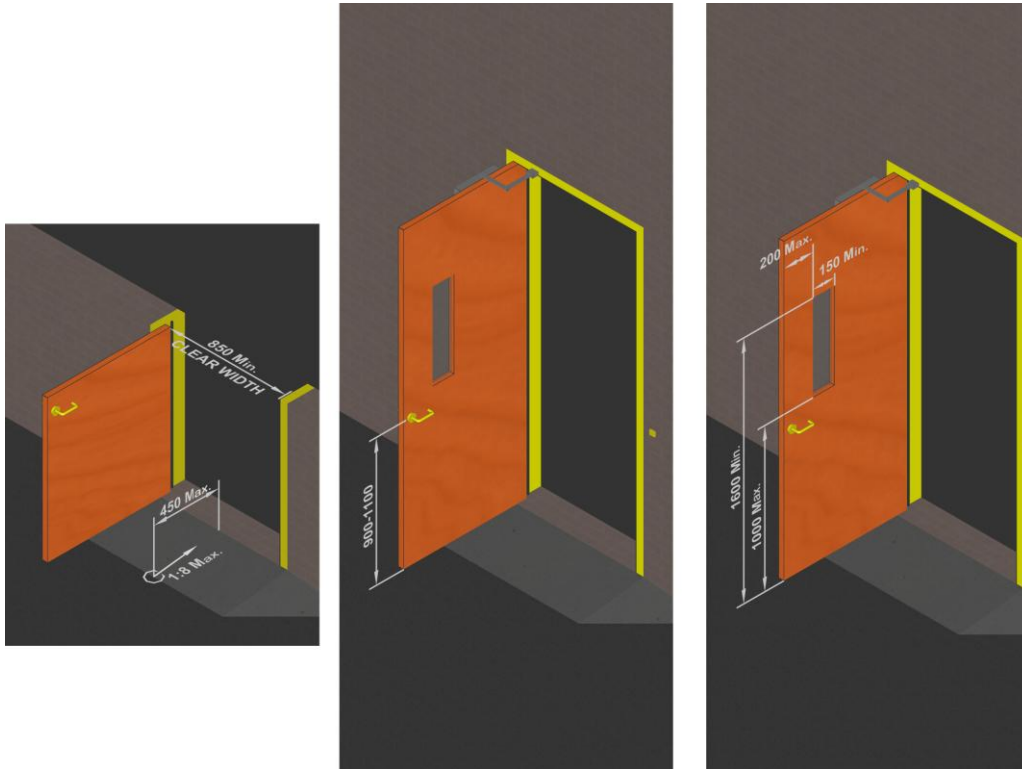


Figure 5.1.1.1.a. Examples of door clear open width, glazing and control specifications (dimensions in millimetres).

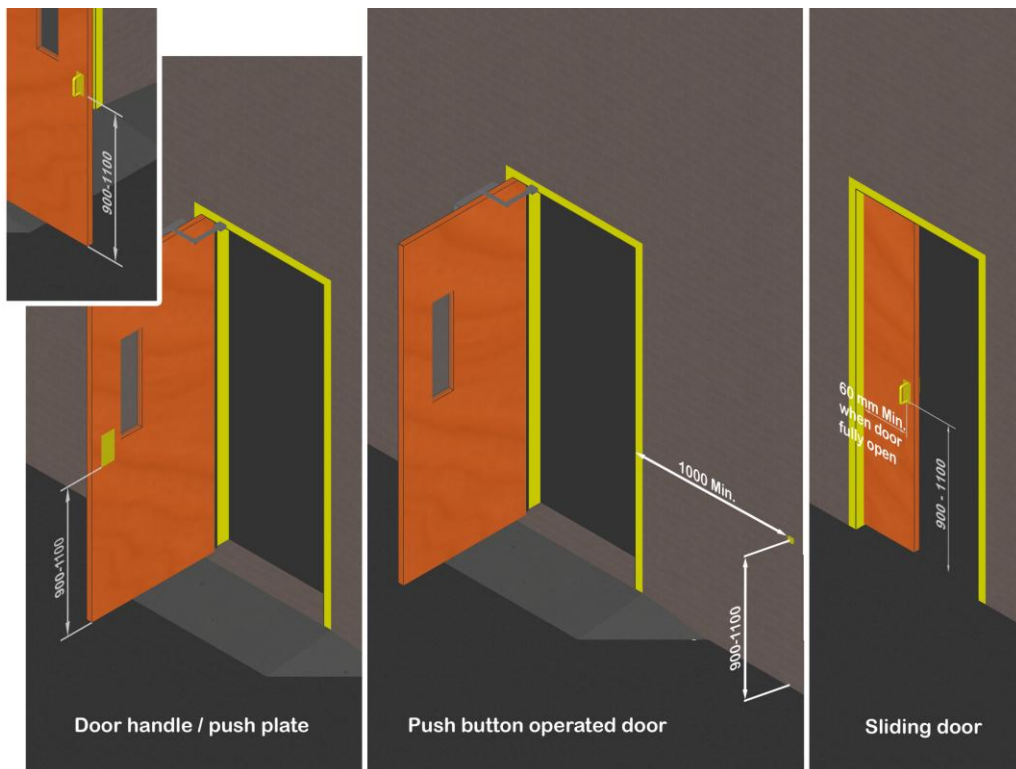


Figure 5.1.1.1.b. Examples of door control location specifications (dimensions in millimetres).

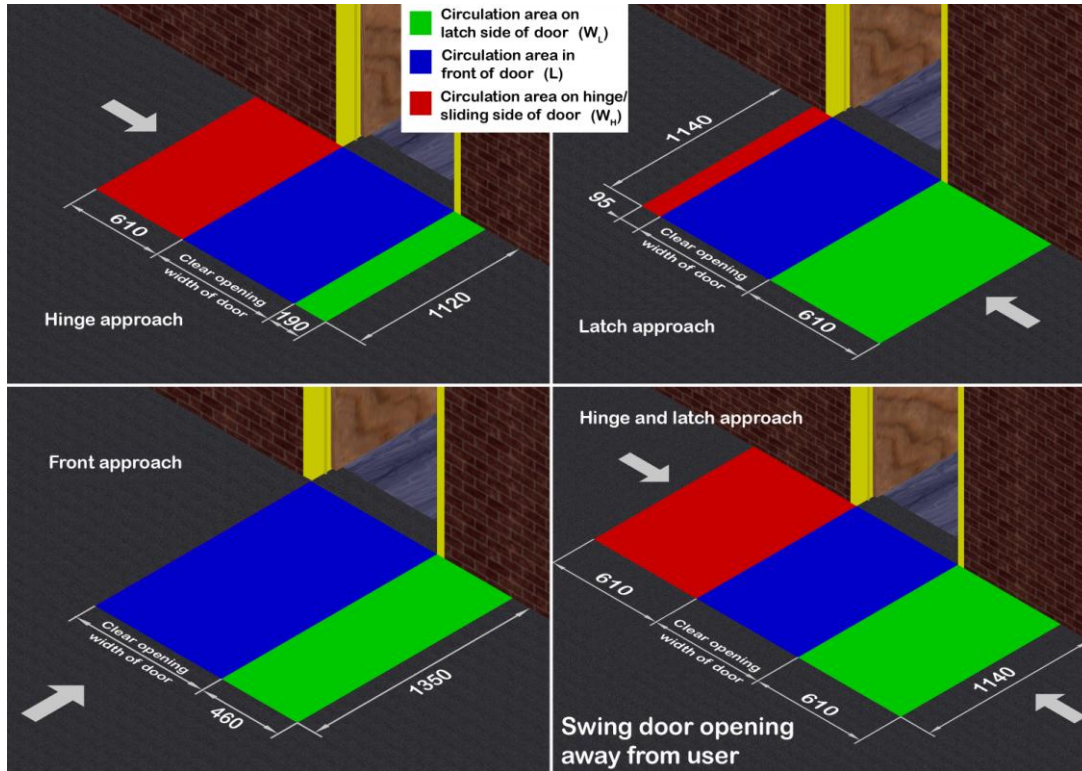


Figure 5.1.1.1.c. Examples of circulation space required at door opening away from user (dimensions in millimetres and for a door of 850 mm clear open width). As door width increases some circulation spaces decrease (refer Table 5.1.1.1).

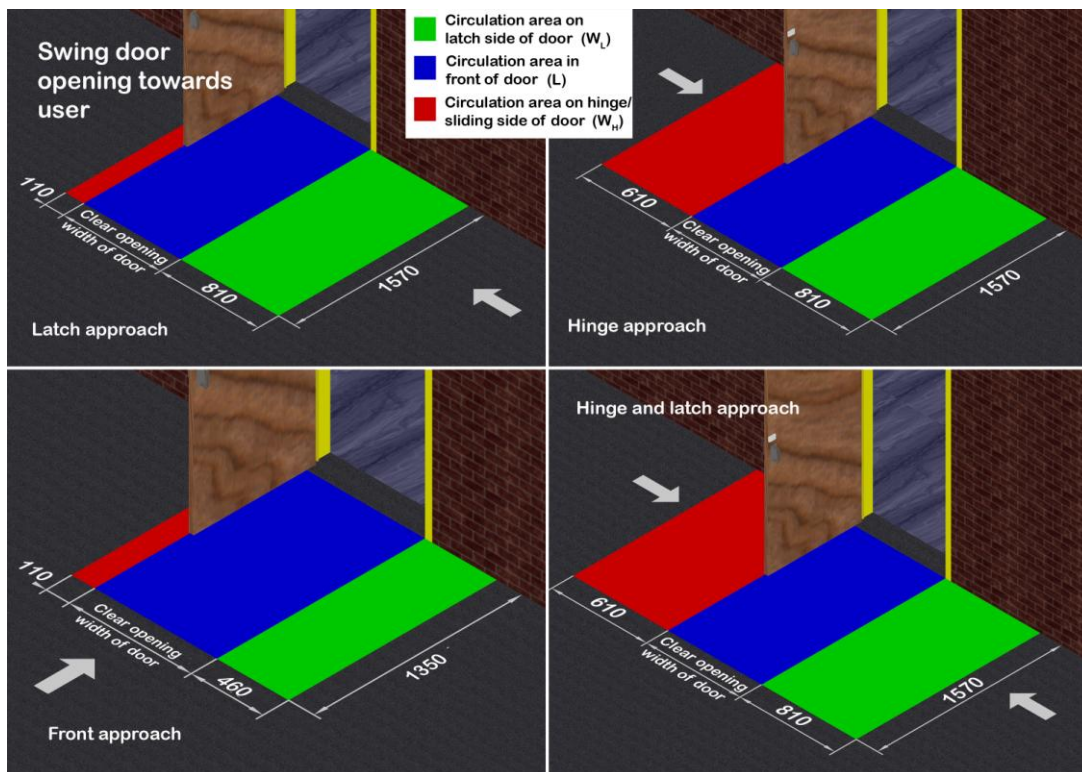


Figure 5.1.1.1.d. Examples of circulation space required at door opening towards user (dimensions in millimetres and for a door of 850 mm clear open width). As door width increases some circulation spaces decrease (refer Table 5.1.1.1).

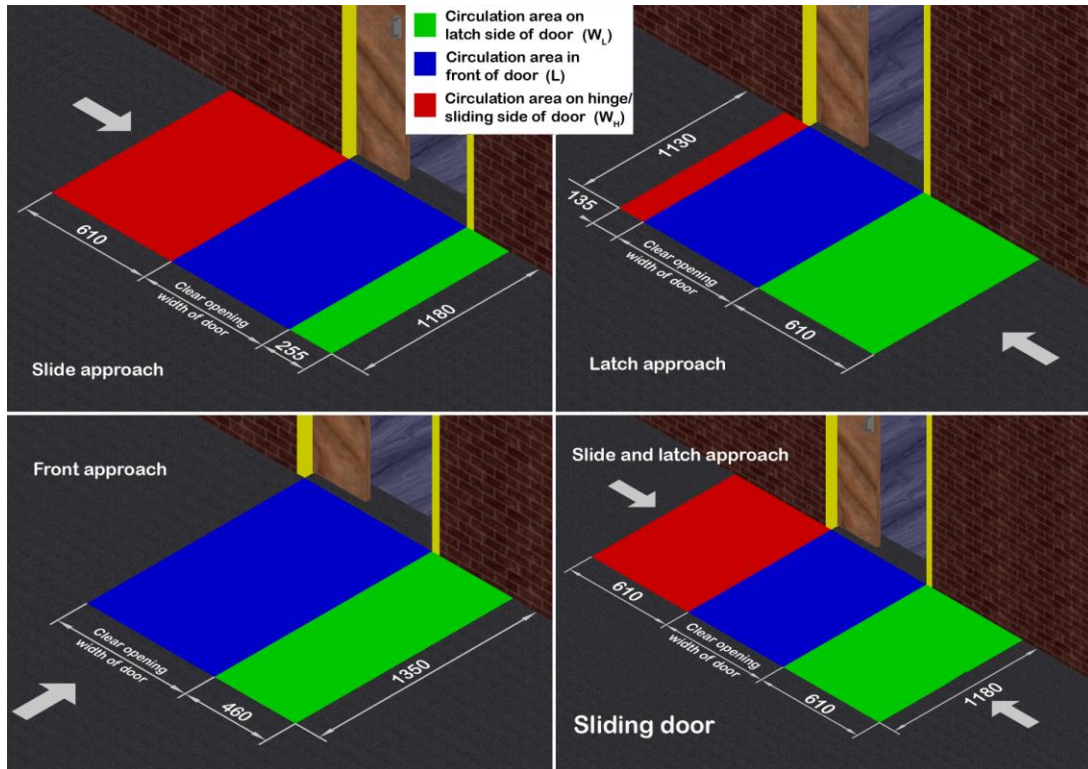


Figure 5.1.11.e. Examples of circulation space required at sliding door (dimensions in millimetres and for a door of 850 mm clear open width). As door width increases some circulation spaces decrease (refer Table 5.1.11).



### 5.1.12 Level crossing access to stations

Access requirements covered in this Code shall be considered in the interface co-ordination plans developed by owners and other parties that particularly address the continuity of standards of design, construction and maintenance of access ways used by people with disabilities to access the station.

#### *New stations*

Level crossings should not form part of the access path to new rail stations that are located in new rail corridors. Where practicable, level crossings shall meet the requirements of AS1742.7-2007.

#### *Existing stations*

Level crossings may form part of an access path to an existing rail station or a new station in an existing corridor.

However, if an unacceptable risk such as inadequate sight distances, multiple rail lines, high levels of patronage, including high numbers of school age children, is associated with a level crossing at an existing station then the crossing should be grade separated.

#### *At grade crossings*

Passive pedestrian crossings are to be orientated towards oncoming trains. For bi-directional tracks orientate the crossing towards the direction in which oncoming trains have minimum sight distance, or the direction oncoming trains predominately come from.

The point of entry of an access path into a level crossing should be aligned 90 degrees to the track direction. This 90 degree alignment should be taken as far back from the entry point as practically possible.

The preferred clear width of a level crossing is 1800 mm. Where pedestrian volume is low and the distance between level crossing entry points is less than 6 m the width can be reduced to 1200 mm clear width between TGSIs.

The distance to the nearest rail from the entry point to the level crossing, or any structures such as mazes or gates associated with the entry point, should be a minimum of 1500 mm.

A band of warning TGSIs 300 mm wide, colour contrasting and luminance contrasting with surrounding surfaces by at least 30%, delineates the edges of the access path and should not encroach on the 1200 mm or 1800 mm clear width required for access paths on level crossings.

A band of warning TGSIs, colour contrasting and luminance contrasting with surrounding surfaces by at least 30%, should be located at the entry point of the level crossing access path. The TGI band shall be 600 mm wide.

Access path grade should not exceed 1:40 and should fall away from the tracks towards the level crossing entry points.

Flangeway gap shall be 65 mm for newly constructed crossings and maintained to 75 mm maximum. The maximum depth shall be 50 mm and the change in level between rail and adjacent footpath not more than 5 mm. Flangeway gaps meeting these requirements cannot be provided on track curves of less than 1000 m radius.

In addition to the requirements for access paths, level crossings may have additional safety provisions which may include signs, audiovisual warnings, active or passive pedestrian mazes, active gate control mazes and lighting.

## 5.2 Passenger services / facilities

### 5.2.1 Tickets

All passengers shall be prepared to pay fares.

#### *New stations*

##### **Ticket counters**

If ticket counters are provided, at least one accessible ticket counter shall be provided and in operation.. If only one ticket counter is in operation it shall be the accessible counter.

Accessible ticket counters should have a counter top 830-870 mm above floor or platform level. If occupational health and safety issues arise due to this counter height requirement, provide ticketing by equivalent access.

The circulation space in front of accessible ticket counters should allow a person using a mobility aid to make a 180 degree turn. A minimum space of 2070 mm in front of the counter with 1540 mm width should be provided (refer 5.1.8). Ticket counter height and circulation space is illustrated in Figure 5.2.1.a.

##### **Fare payment and ticket validation systems**

For passengers who have difficulties with, or who cannot use standard fare payment systems, operators and providers shall offer a payment system by equivalent access that ensures equal convenience in purchase of tickets. On staffed stations, this will usually involve direct assistance.

If stations are unstaffed, direct assistance may be given at the destination station if it is staffed or a local arrangement put in place.

The circulation space in front of any ticket vending machine shall allow a person using a mobility aid to make a 180 degree turn. Provide space with dimensions of 2070 mm in the direction of travel and 1540 mm wide (refer 5.1.8).

Ticket vending machine controls are detailed in 5.2.5. Ticket vending machine operative component zones and circulation space are illustrated in Figure 5.2.1.b.

#### *Existing stations*

Where practicable, locate accessible ticket purchasing and validation facilities along access paths that run between preferred accessible boarding points and accessible entrances or at least conveniently close to them (refer 5.1.3).

Should space constraints preclude the dimensions required for a 180 degree turn in front of ticket vending machines or ticket counters, provide spaces that maximise circulation space to the greatest extent practicable.

If for genuine technical reasons a ticket counter at a staffed station cannot be made accessible to a person using a mobility aid, offer equivalent forms of ticketing to the passenger.

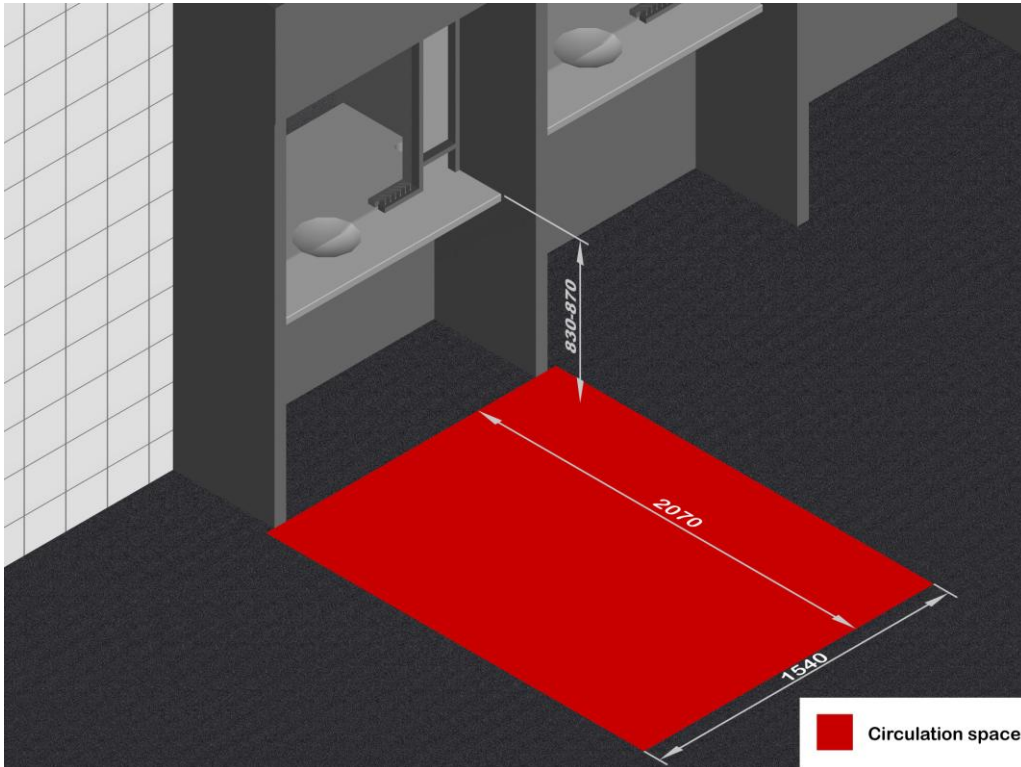


Figure 5.2.1.a. Examples of ticket counter circulation space and counter dimensions (dimensions in millimetres).

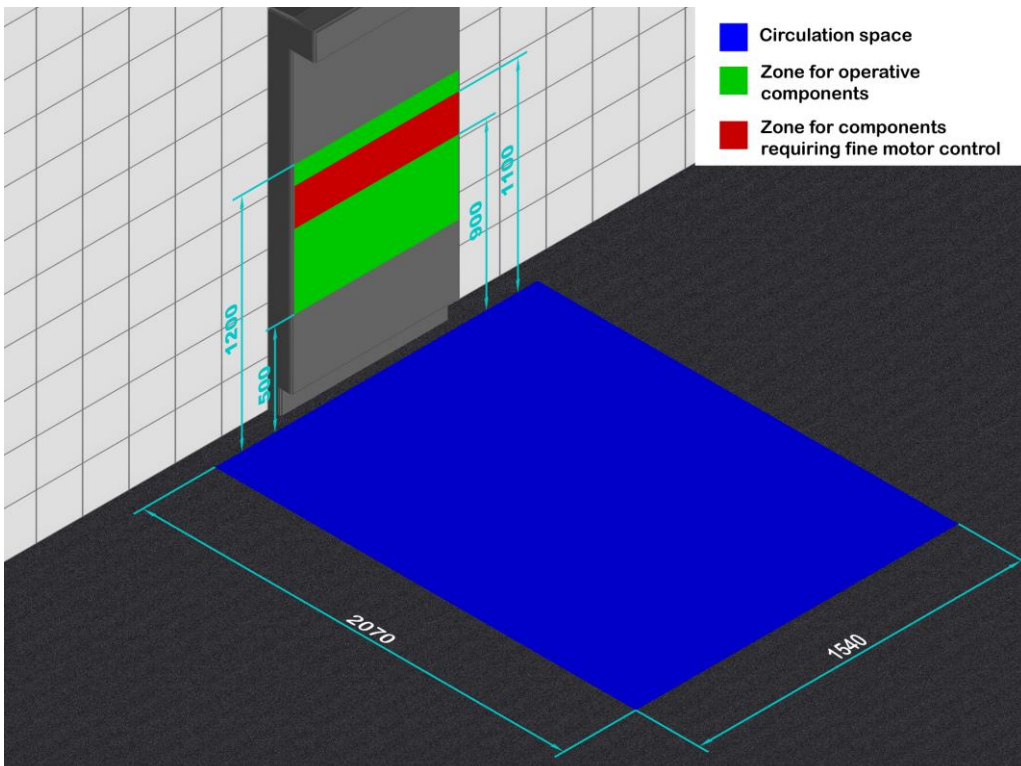


Figure 5.2.1.b. Examples of ticket vending machine circulation space and operative components dimensions (dimensions in millimetres).

## 5.2.2 Waiting and rest areas

### *New stations*

#### **Waiting areas**

A waiting area is a room or designated enclosed area in which passengers wait for the arrival of their train.

If a waiting area is provided, a minimum of 2 seats or 5% of the seats and 2 allocated spaces shall be available for passengers with disabilities if required.

Use pictograms and text as appropriate to identify priority seating.

If signs are used to identify priority seating, the range of 1400-1600 mm above floor level is recommended. Note: A shelter such as a canopy is not an enclosed area and does not constitute a "waiting area".

Allocated spaces in waiting areas do not require identification symbols or border definition (refer 7.3.2).

Locate allocated spaces beside other seats where practicable, so that mobility aid users can sit with travelling companions.

#### **Rest areas**

There shall be resting points for passengers along an access path if the walking distance between facilities or services exceeds 60 m. Resting points shall provide seating for a minimum of two people and space for one mobility aid.

### *Existing stations*

Where major site constraints do not allow for resting points at the required 60 m intervals, provide them in locations where the infrastructure permits.

### 5.2.3 Seating

Where platform dimensions permit, locate seating and allocated spaces to allow convenient boarding by passengers and their easy assistance by staff. Location of accessible seating and allocated spaces relative to platform facilities and preferred boarding points is illustrated in Figure 5.2.3.a.

#### *New stations*

Where provided and minimum platform width clearances allow, locate seats at regular intervals along a platform to provide rest points for people with limited mobility for those people with disabilities who do not require assistance to board.

Seats should have a colour and luminance contrast with their surroundings (refer 5.3.3).

It is recommended that seats should have:

- the front edge of the seat 400-450 mm above floor or platform level,
- a seat 400-450 mm from front to backrest or rear edge,
- the rear of the seat 20 mm lower than the front,
- armrests, if provided, at 220-300 mm above the front edge of the seat and placed within the centre of gravity of the seat,
- backrests, if provided, 760-790 mm above floor or platform level, and
- seat and backrest not exceeding an angle of 105 degrees.

Seats shall be set back at least 500 mm from the access path (refer 5.1.3).

An example of a seat is illustrated in Figure 5.2.3.b. For specific seating details refer to ASI428.2, Clauses 27.1 and 27.2.

#### *Existing stations*

Where practicable, locate seats near preferred boarding points and other accessible facilities and arrange seating at strategic intervals along access paths leading to the boarding points and accessible facilities as infrastructure constraints permit.

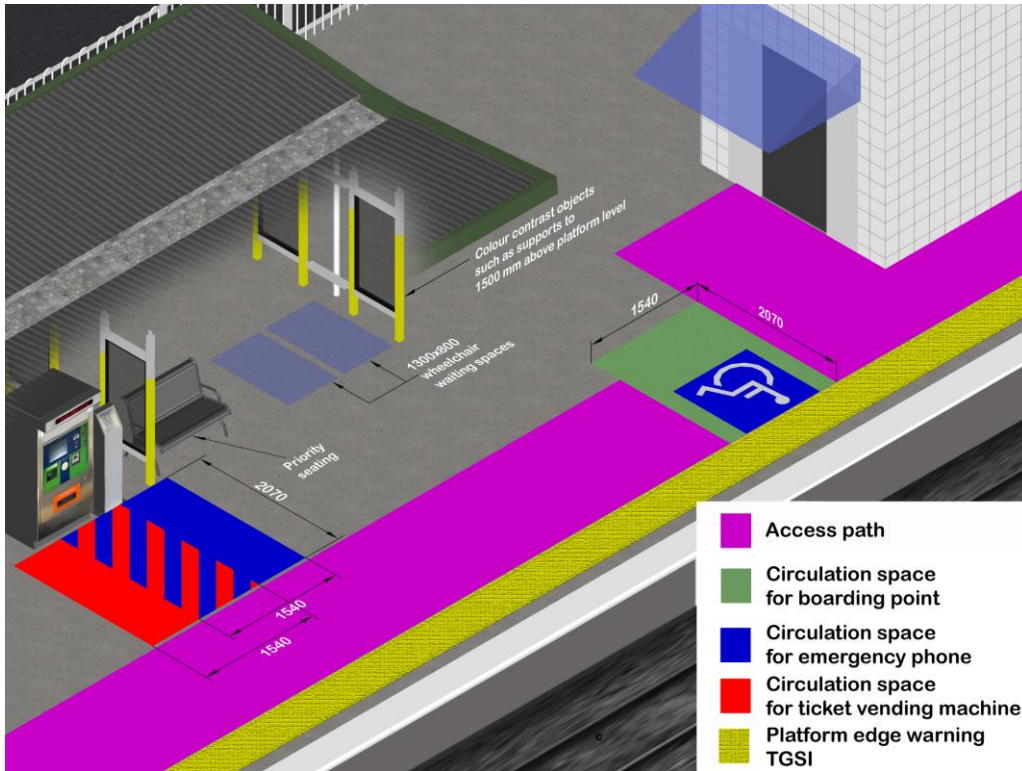


Figure 5.2.3.a. Examples of priority seating, allocated spaces and core feature location and circulation space (dimensions in millimetres).

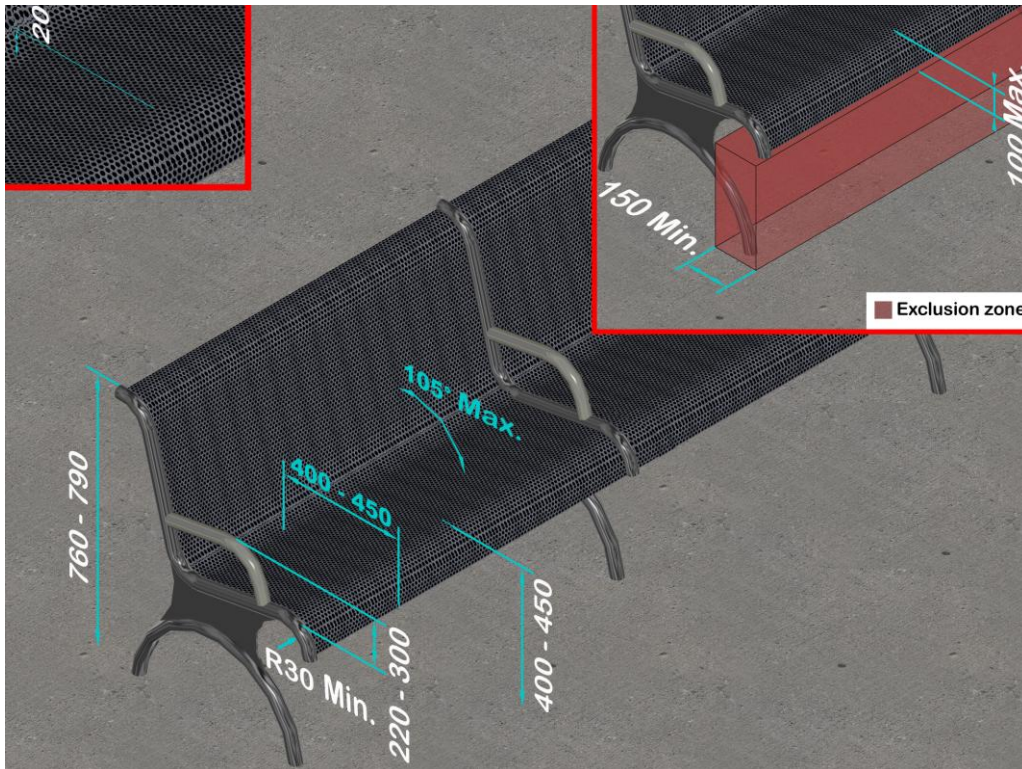


Figure 5.2.3.b. Examples of priority seating dimensions and specifications (dimensions in millimetres).

## 5.2.4 Hand and grabrails

### *New stations*

#### **Handrails**

Handrails have broad application on rail stations. References to handrails are in:

- 5.1.4 Walkways, ramps and landings
- 5.1.6 Stairs – steps

Handrails may also be located:

- wherever passengers are likely to require additional support or passive guidance,
- at fixed locations where passengers are required to pay fares.

Wherever installed, handrails shall have:

- 30-50 mm outside diameter and be circular or oval in profile,
- clearance of 270 degrees around the upper surface with no obstruction to the movement of a hand along the upper 270 degrees,
- 50 mm or more between handrail and any wall, support post or obstruction and where practicable maintain this clearance for at least 600 mm above the handrail,
- secure fixture and rigidity.

Handrails shall not intrude into required circulation spaces.

Handrails shall provide strong colour contrast, and luminance contrasting of at least 30%, with background walls and surrounding surfaces (refer 5.3.3).

If a handrail is interrupted, a domed warning button:

- 4–5 mm high,
- 10–12 mm diameter, and,
- approximately 150 mm from the end of the handrail,

shall be located on the top of the handrail.

If installed on walkways, handrails should meet the requirements for ramp handrails.

If handrails are placed along an access path to direct pedestrian flow, they shall be positioned to provide passengers with disabilities additional support and passive guidance.

Apart from those areas where they are required, handrails may be used to offer support for people who have impaired mobility and guidance for people with vision impairments. They may be located along the borders of access paths in areas where they do not interfere with pedestrian flow in locations such as:

- pedestrian over-bridges,
- pedestrian underpasses,
- access paths, other than ramps, bordered by walls, balustrades or fences, and
- any location except platforms where pedestrian flow is to be directed between barriers.

### *Ramps*

Locate ramp handrails at 865-1000 mm above the ramp or landing surface on both sides of the ramp.

Extend handrails 300 mm beyond the transition points at the top and bottom of the ramp and then turned away to a side wall, and / or terminated at the floor or platform surface.

### *Stairs*

Handrails shall be located 865-1000 mm above the tread nosing and consistent through the flight of the stair.

Handrail ends shall extend parallel to the floor or platform for:

- 300 mm beyond the nose of the stair's top riser,
- 300 mm beyond a point located a single tread's width past the stair's bottom riser,

and then either turned away to a side wall and / or terminated at the platform or floor surface.

### **Grabrails**

References to grabrails are in:

#### 5.2.6 Toilets

Wherever installed, grabrails shall have:

- 30-40 mm outside diameter and be circular or oval in profile,,
- clearance of 270 degrees around the upper surface with no obstruction to the movement of a hand along the upper 270 degrees,
- 50-60 mm between grabrail and any wall or obstruction, and maintain this clearance for at least 600 mm above the grabrail,
- secure fixture and rigidity and the ability to withstand a force of 1100 N applied at any point and in any direction,
- minimum corner and edge radii of 5 mm.

Grabrails should have a colour contrast, and luminance contrast by at least 30%, with adjacent surfaces (refer 5.3.3).

### *Toilets*

Accessible toilets require grabrails on the walls adjacent to, and to the rear of the pan.

The top of horizontal sections of grabrails shall be located 800-810 mm above the floor.

A rear wall grabrail shall commence 50-60 mm from the wall adjacent to the pan and extend at least 1100 mm from the adjacent wall where concealed cisterns are installed.

Unless interrupted by a surface mounted cistern a rear wall grabrail should be continuous. If interrupted the grabrail shall terminate 50 mm or less from the cistern.

Adjacent wall grabrails must:

- commence 50-60 mm from the rear wall,
- extend 900-950 mm from the rear wall, at which point they either turn or tilt upward.



If grabrails turn up vertically the vertical section must:

- be 1000-1050 mm from the rear wall,
- commence 900-950 mm above the floor,
- extend to at least 1400 mm above the floor.

The grabrail may be broken between the horizontal and vertical sections.

If they tilt upward, grabrails shall be unbroken and at 30-45 degrees to the horizontal rail, extending for at least 700 mm at the angle.

Examples of toilet grabrails are illustrated in Figure 5.2.6.a.

### *Existing stations*

Hand and grabrails on existing stations should meet the requirements for new stations to the greatest extent practicable. However, while handrails and horizontal grabrails require a clear area 600 mm above the rail, where significant design constraints limit this clearance it should be maximized as much as is technically / structurally practicable.

Handrails at the top and bottom landings should not protrude into access paths.

If necessary reduce the 300 mm handrail extension to the extent required to keep transverse access paths free of protruding handrails (refer 5.1.4 and 5.1.6.)

## 5.2.5 Controls

References to controls are in:

- 5.1.10 Barriers / gates
- 5.1.11 Doors
- 5.2.1 Tickets
- 5.2.6 Toilets
- 5.3.1 Passenger information

The force required to operate controls, other than lift and emergency controls, shall not exceed 20 N.

Lift control buttons are to operate within a range of 2 - 5 N of force.

Good practice is to have all passenger operated controls in the lower range of forces.

All manual controls should be operable with one hand and not require tight grasping, pinching, or twisting of the wrist.

Controls should have a colour contrast, and luminance contrasting by at least 30%, with surrounding surfaces (refer 5.3.3). Controls that are similar in colour, touch-screen, or flush with their surrounds may not be operable by blind or vision-impaired passengers. If no alternative to touch screen controls is possible, rail staff may need to offer equivalent access.

When designing and installing new controls on premises or infrastructure consider 7.2.3 Controls.

## *New stations*

### **Switches and buttons**

Switches and controls other than power points shall be located 900-1100 mm above the floor, and 500 mm or greater from internal corners, or reachable by a wheelchair user. Horizontally align switches and buttons with door handles or controls. Controls shall be located above a level surface not exceeding 1:40 slope and crossfall.

Power points should be located 600-1100 mm above the floor.

Switches or controls should be of rocker, toggle or push-pad action and with a control surface minimum width of 35 mm recommended.

### **Ticket vending machines**

Ticket vending and other vending machines essential to undertaking a rail journey shall have operative components located 500-1200 mm above the floor or station surface.

Controls, except touch screen controls, should:

- be clearly identifiable by touch and sight (refer 5.3.3),
- have a tactile surface that aids blind and vision-impaired passengers use of the control, and
- if needing to be grasped and turned, be located 900–1100 mm above floor level.

Ticket vending machine control zones are illustrated in Figure 5.2.1.b.

### **Doors**

Provide door handles operable by people whose hands cannot grip, such as 'D' shaped or lever handles. If used, locking bolts and latches shall have projections that allow people with poor hand function to operate them.

Locate door controls in the range of 900 – 1100 mm above floor level. Locate manual controls for power-operated doors clear of a sliding door in the open position and more than 1000 mm from a hinged door's arc. The controls shall be at least 500 mm from a recessed corner or obstruction and located above a level surface not exceeding 1:40 slope and crossfall.

Where direct assistance to open doors is requested, if call buttons are installed, locate call buttons 900 mm - 1100 mm above floor level and positioned to allow sufficient circulation space for a wheelchair user to reach and operate the button. The circulation dimension should be 1540 x 2070 mm where a wheelchair 180 degrees turn is required and sufficient circulation to accommodate the same wheelchair if a lesser angle needs to be negotiated.

Call buttons should have an integral, continuously operating light and visibly and audibly indicate registration of calls.

Door control location is illustrated in Figure 5.1.11.a and b.

Lever handles shall have 35-45 mm clearance between the handle and the back plate or door face at the centre of the handle. Place sliding door handles so that they are 60 mm or greater from the doorjamb lining when the door is fully open.

Door handles should colour contrast, and luminance contrast by at least 30%, with their background, as should other door controls (refer 5.3.3).

### *Existing stations*

If technical constraints prevent locating call buttons 900–1100 mm above floor or platform level, touch-only controls should be installed 900-1250 mm above floor or platform level.

Switches and controls not able to be located 900-1100 mm above the floor or platform may be located 900-1200 mm above the floor or platform if they are push only or 900-1250 mm if they are touch-only. Maximise circulation space in front of switches and controls to the greatest extent practicable.

Horizontally align switches and buttons with door handles or controls where practicable.

## 5.2.6 Toilets

### *New stations*

If toilets are provided, there shall be at least one unisex accessible toilet without airlock. In addition, an ambulant accessible toilet shall be provided. Accessible toilets shall be in close proximity to other toilets.

Where only one toilet is provided it shall be a unisex accessible toilet. Accessible toilets are not required if no toilets are provided.

Toilet cubicles shall have a minimum clear internal space of 2000 mm long by 1600 mm wide.

Toilet pans shall have:

- 790-810 mm from the front of the pan to the rear wall,
- 450-460 mm from the pan's centre line to the adjacent wall,
- 460-480 mm height above the floor,
- 400 mm maximum width at the centre,

and should have:

- 1200 mm minimum from the front of the pan to the front wall,
- 1150 mm minimum from the pan's centre line to the opposite wall.

Where practicable, toilet cubicles may have:

- clear internal space 2300 mm long by 1900 mm wide
- 1490-1510 mm minimum from the front of the pan to the front wall,
- 1440-1450 mm minimum from the pan's centre line to the opposite wall.

These greater dimensions will assist scooter users in manoeuvring their mobility aid in the toilet cubicle.

Refer to 5.1.11 for further information on doors and circulation spaces around doors.

Examples of recommended toilet cubicle and pan dimensions, grabrail, toilet paper zone and flush control zone are illustrated in Figures 5.2.6.a. Refer to 5.2.4 for more grabrail specifications.

Toilet pans should be robust enough to accommodate the load of an individual transferring from a wheelchair.

Where more than one unisex accessible toilet is provided, left and right hand pan locations shall be in equal proportions.

Toilet seats should colour contrast and have a luminance contrast of at least 30% with their relative viewing background.

Hand basins shall be located inside accessible toilets rather than outside.

Examples of hand basin, mirror, baby change table and other fixtures' locations and dimensions are illustrated in Figures 5.2.6.b and c.

### Other toilet fixtures

It is suggested that toilets have wall mounted shelves. If positioned adjacent to the basin as a vanity top the shelf should be located:

- 800-830 mm above floor level, and,
- at least 300 mm from the wall to vanity's front and at least 175 mm from the basin's side.

If positioned as a separate fixture the shelf should be located:

- 900 mm to 1000 mm above floor level, and,
- at least of 225 mm deep for frontal approach, at least 175 mm deep for a parallel approach, and with a minimum length of 400 mm for both.

Shelf locations are illustrated in Figure 5.2.6.c.

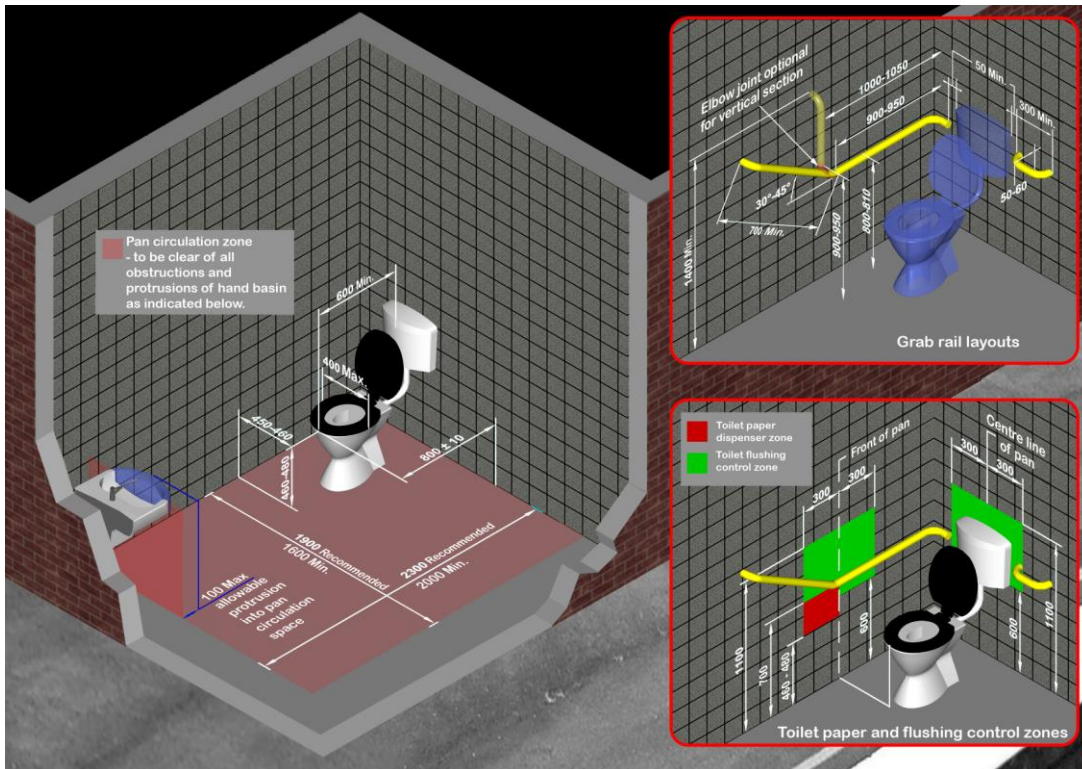


Figure 5.2.6.a. Examples of toilet pan, grabrail, toilet paper and flushing control dimensions (dimensions in millimetres).

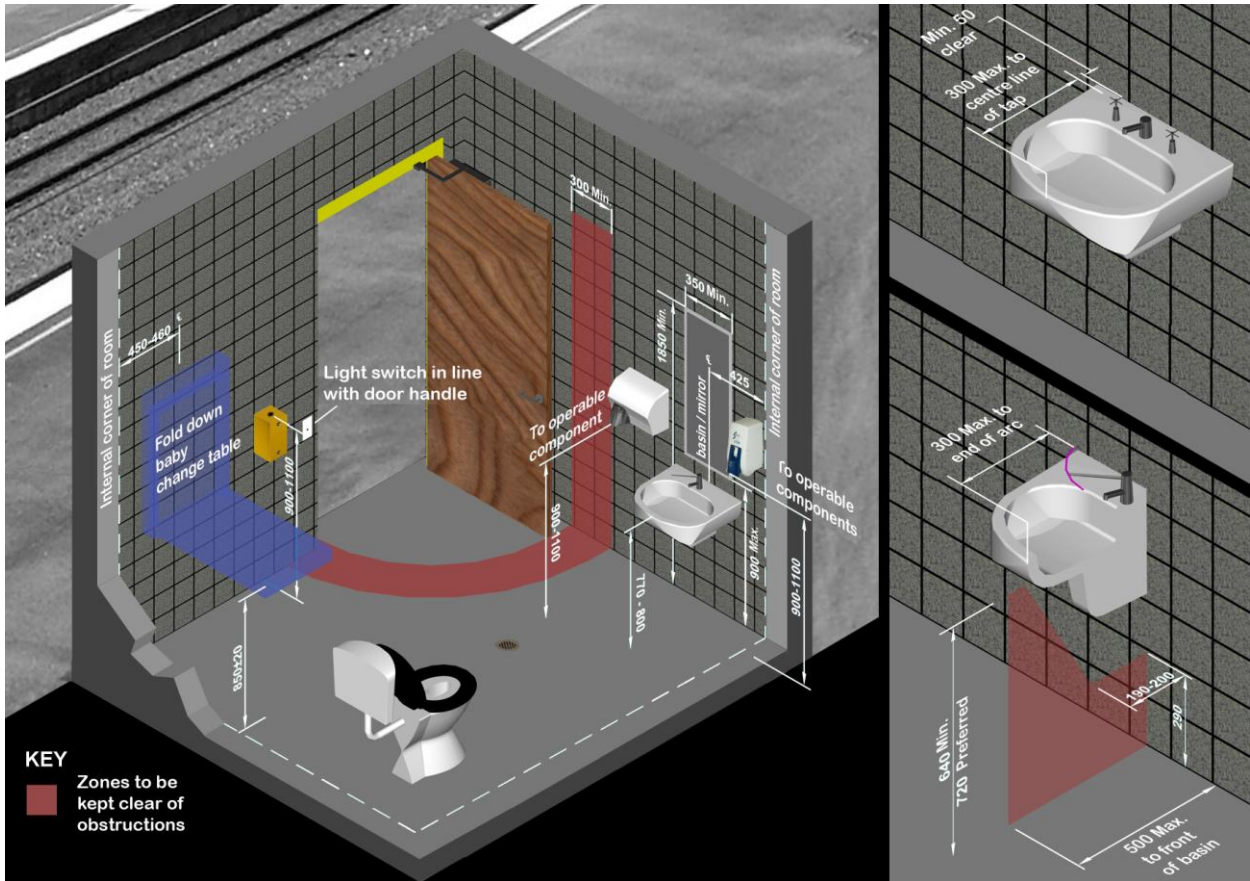


Figure 5.2.6.b. Examples of toilet door and hand basin circulation space and other dimensions (dimensions in millimetres).

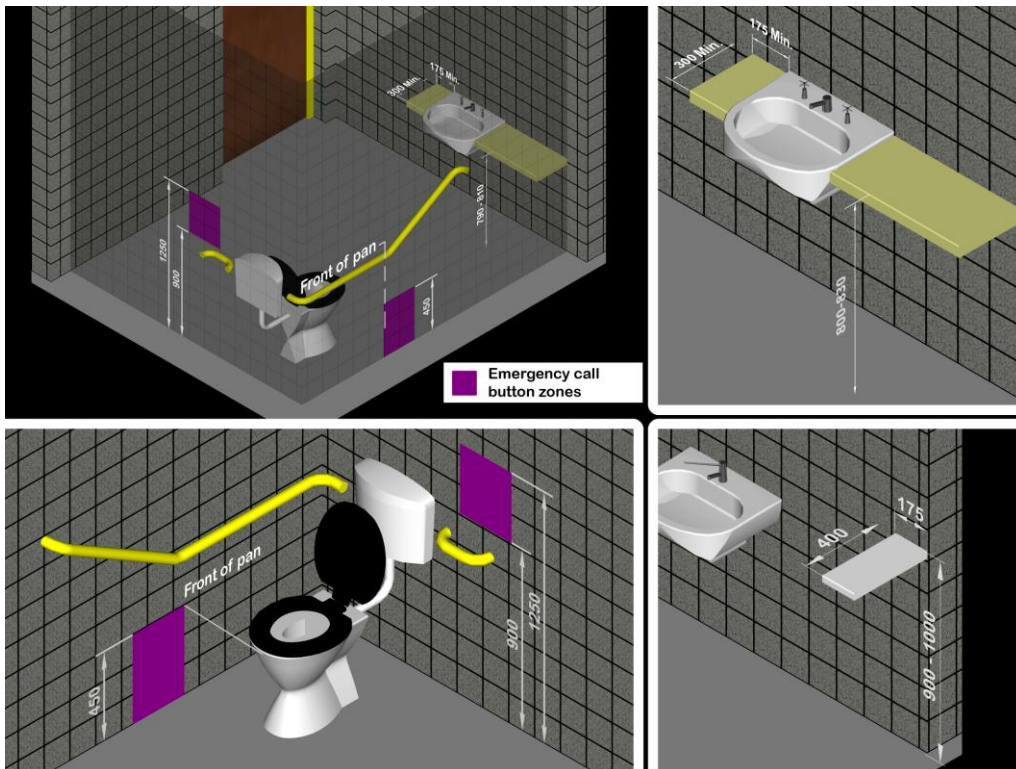


Figure 5.2.6.c. Examples of toilet hand basin, shelf and emergency control dimensions (dimensions in millimetres).

As people with disabilities may have young children, baby change tables and the like are accepted as part of a unisex accessible toilet provided they do not compromise circulation space. If provided, change tables should be located so that when in use the top of the table is 830-870 mm above floor level and clearance between the table and the floor is 800-840 mm. An example of a baby change table location is illustrated in Figure 5.2.6.b.

If provided, light and other switches, should be as per 5.2.5.

If provided, a mirror's dimensions should be as illustrated in Figure 5.2.6.b.

If provided, soap dispensers, sharps containers, hand dryers and such like should be firmly fixed to the wall and have controls and inlets / outlets 900-1100 mm above floor level. These fixtures should be located so that they are within reach of the hand basin wherever practicable.

Fixture locations are illustrated in Figures 5.2.6.b.

### *Existing stations*

Where possible on existing premises and infrastructure, accessible toilets should be in the same location as other toilets or be in a location of equivalent convenience to the access path should technical or structural constraints not permit co-location.

If technical constraints prevent the 2000 mm by 1600 mm internal dimensions of AS1428.1-2001, toilets should have a performance outcome as per toilets in rail cars (refer 7.2.5) with dimensions maximised as far as practicable.

Hand basins may only be located outside the toilet if space is too constrained for them to be placed inside the toilet cubicle and they would significantly compromise circulation space.

Existing premises and infrastructure may retain accessible gender specific toilets if technical constraints prevent construction of unisex units. People shall not be required to enter a gender specific area to reach a unisex accessible facility.

## 5.2.7 Telephones

### *New stations*

If public telephones are provided, each bank of public telephones should contain at least one low-height, wheelchair accessible unit. Where only one public telephone is installed, the unit should be low-height and accessible.

Each bank of public telephones should contain at least one SMS/text messaging unit that permits people who are deaf or hearing impaired to send or receive messages. Where only one public telephone is installed, the unit should be an SMS/text messaging unit.

Provide a clear manoeuvring space in front of each wheelchair accessible telephone with dimensions of 2070 mm in the direction of travel and 1540 mm wide to allow a person using a mobility aid to make a 180 degree turn (refer 5.1.8).

Telephones should not be located or oriented so that people using or waiting to use the telephone obstruct access paths.

Wherever practicable, align cantilever design telephone booths away from access paths. People with vision impairment frequently collide with such units after passing their white canes beneath the cantilever section without detecting the telephone booth.

### *Existing stations*

If provided, accessible telephones should be located in a convenient location near access paths that lead to preferred accessible boarding points and accessible facilities.

Existing rail stations may have space constraints that preclude the dimensions required for a 180 degree turn in a telephone's manoeuvring space. Where the minimum manoeuvring space dimensions are unachievable due to legitimate technical constraints, and it is not feasible to move the telephone to a more appropriate location, use the greatest dimensions practicable.

This manoeuvring space may partly overlap an access path, but telephone units should be at least 1300 mm from access paths.

## 5.2.8 Food and drink

### *New stations*

#### **Retail outlets**

Operators and / or providers shall ensure that any food or drink service that is provided as part of a public transport service is equally available to all. Provide access paths to counters, tables, seating, wheelchair spaces, vending machines and other necessary facilities in food and drink areas provided as part of a railway service (refer 5.1.3).

Rail stations may have food outlets or vending machines that are not designed, operated or owned by the transport provider and / or operator and which are not provided as part of a transport service. These are beyond the scope of this Code of Practice, however operators will take reasonable steps to ensure access.

#### **Vending machines**

If provided as part of a public transport service, vending machines should have controls that are accessible to all users (refer 5.2.5).

In front of each vending machine a clear manoeuvring space should be provided with minimum dimensions of 2070 mm in the direction of travel and 1540 mm wide, which allows a person using a mobility aid to make a 180 degree turn (refer 5.1.8). This manoeuvring space may partly overlap an access path, but vending machines should be at least 1300 mm from access paths.

### *Existing stations*

If rail operators / providers own food and drink outlets these facilities should provide full or at least equivalent service to passengers with disabilities. Where minimum standards for existing stations cannot be met service shall be provided by equivalent access or direct assistance.

Operator-owned cafeterias and rest rooms on heritage rail stations shall offer equal amenity of service and experience to all passengers. If technical, structural or heritage constraints completely or partly prevent access to counters, tables, food displays and so on, direct assistance through table service and other customer service shall be offered.

Existing rail stations may have space constraints that preclude the dimensions required for a 180 degree turn in a vending machine's manoeuvring space. Where the minimum manoeuvring space dimensions are unachievable due to legitimate technical constraints, and it is not practicable to move the vending machine to a more appropriate location, use the greatest dimensions that circumstances allow.



## 5.2.9 Belongings

See Part 4, 'Planning the rail journey' and 7.4.6 on 'Luggage' for more on belongings.

### **Booked services**

People with disabilities may have difficulty moving or carrying items of luggage to baggage check-ins when travelling on booked services. These items should be identified during the booking procedure (refer 4.4.3 and 4.4.5). Provide direct assistance, within occupational health and safety parameters, to move items of luggage identified and approved during booking. Small items of hand luggage are subject to normal customer service procedures.

While staff will assist in moving luggage and other approved belongings, passengers on rail premises and conveyances are responsible for the supply, assembly and operation of disability aids at all times. Disability aids include personal hygiene and medical equipment, communication and security devices.

### **Unbooked services**

On unbooked services normal customer service procedures apply with regard to the belongings of passengers who have disabilities.

## 5.3 Communications and way finding

### 5.3.1 Passenger information

All passengers require access to any information necessary for their use of rail services. This information may be delivered via various means including:

- PA system announcements / hearing augmentation,
- hardcopy information / timetable areas,
- electronic timetables and notices,
- hardcopy timetable and notices,
- recorded or real time audio / text messages.

This Code of Practice does not cover non-essential information, such as advertising or community information. For information on signs and their text refer to 5.3.2.

#### *New stations*

#### **Public address systems and hearing augmentation**

If installed, public address systems shall convey clear, unambiguous verbal messages to passengers. Public address systems shall be of good quality, delivering clear verbal messages without distortion or interference. As an accessible alternative to a public address system, provide a hearing system that informs hearing aid users of service related information (refer 5.3.5).

Minimize crosstalk or "audio spill" between public address system announcements given on adjacent platforms, as the mixing of messages creates confusion for people who have sensory impairments.

#### **Hardcopy information / timetable areas**

Hardcopy material for public distribution should be located in a zone 700-1200 mm above the floor and 300-400 mm deep. Ensure that items are obtainable with a single-handed operation. Self-service information counters, shelves or racks shall be connected to access paths (refer 5.1.3) and where they are directly approached shall allow circulation space in front of them sufficient for a wheelchair to turn through 180 degrees (refer 5.1.8).

#### **Electronic timetables and notices**

If installed, locate electronic timetables and notices at 2000 mm or higher above floor level if crowds are likely to obscure the units. Electronic timetables should be visible from boarding points. Refresh text on screens rather than scroll text across them, or ensure that scrolling text pauses long enough to be read. Where displays are mounted behind glass, it is recommended that the glass have a non-reflective surface.

Due to the frequency of rail services and the volume of service information to be displayed, passenger information needs to be refreshed often in order to allow passengers to make timely decisions. However, presentations of words or numbers on electronic notices should be visible for as long as operationally possible to maximise legibility and understanding. For information on legible text refer to 4.3.1.

#### **Hardcopy timetable and notices**

Passive, service-related information provision areas, such as hardcopy timetable displays or notice boards, should be positioned 1400-1600 mm above the floor. If this space is insufficient, the range may extend down to 1000 mm above the floor. Hardcopy timetable displays and other hardcopy service related notices shall be located to allow access and circulation (refer 5.1.3 and 5.1.8). Where practicable, timetable displays should not be located so that people reading them block access paths or where passengers are reading with their backs to the edge of platforms.

### **Recorded or real-time audio / text messages**

Present recorded or real-time service information both audibly and visibly to allow access by people who have vision or hearing impairment. This information may be delivered by Next Train Information consoles or similar. Audio messages require high clarity and shall be succinct. Refresh text on screens rather than scroll text across them, or ensure that scrolling text pauses as long as operationally to be read. For information on legible text refer 4.3.1.

Controls on Next Train Information consoles or on-demand service information consoles shall allow use by people with disabilities (refer 5.2.5). Where practicable, text displays should be co-located with control buttons. (Note: high vandalism may make this impossible.) The nature of the controls will determine the height at which the text shall be displayed (refer 5.2.5). Next Train Information consoles shall be located near access paths (refer 5.1.3) and where they are directly approached shall allow circulation space in front of them sufficient for a wheelchair to turn through 180 degrees (refer 5.1.8).

### **Information formats**

Refer to 4.3.1 for an explanation of accessible service information formats. If essential information is not accessible, equivalent access shall be given. For example, staff may assist by reading timetables to passengers or informing them of service alterations.

#### *Existing stations*

Relocate information areas to accessible locations or relocate objects that impede circulation areas around information areas. Circulation space may be legitimately constrained on existing stations. Refer to 5.1.3 and 5.1.8 for information on designing at existing stations.

### 5.3.2 Signs and symbols

Signs are integral to station design and, where appropriate and when a facility is provided, are required on stations in various parts of this Code of Practice:

- 5.1.1 Station precinct
- 5.1.2 Station entrance
- 5.1.3 Paths of access and egress
- 5.1.4 Walkways, ramps and landings
- 5.1.5 Lifts
- 5.1.6 Stairs / steps
- 5.1.7 Escalators and moving footways
- 5.1.10 Barriers / gates
- 5.1.11 Doors
- 5.1.12 Level crossing access to stations
- 5.2.1 Tickets
- 5.2.2 Waiting and resting areas
- 5.2.6 Toilets
- 5.3.1 Passenger information
- 5.3.5 Hearing augmentation
- 5.3.7 Emergency egress

#### *New stations*

Signs give visual cues to indicate direction or provide identification and therefore shall convey concise, clear messages. They shall also be situated appropriately, clearly visible from a seated or standing position, and be in context to their purpose. Overuse and clustering of signs may confuse people in that they must search through a number of options to find their desired information. Where used, signs conveying tactile messages shall be located consistently to permit their intuitive location by people with vision impairments.

Visual / tactile function signs may be placed differently to visual only signs. Specifications for placement of both are detailed below.

#### **Sign surface and colour**

Sign surfaces, including letters, numbers and symbols, should be matt and minimise reflection rather than glossy and reflective. Internally lit signs have the same need of matt, low gloss surfaces as externally illuminated signs, but require further care to ensure that over-illumination does not generate glare.

Text, numbers and symbols should have a good colour contrast, and luminance contrast by at least 30%, with the field of the sign surrounding them under all operational lighting conditions (refer 5.3.3).

If the sign's field colour does not contrast sufficiently with the wall, infrastructure or other background surfaces, a sign border of 5 mm minimum width should be provided. Borders should have a good colour contrast with the field of the sign that they enclose and with their background. It is recommended that text and sign borders are one colour and the sign's field is another.

For safety, sign edges, frames, tactile letters, numbers and symbols shall be rounded and without sharp projections.

## Symbols

Signs should incorporate existing, recognized symbols when these exist. For example, the International Symbol for access shall be used to identify an access path and which facilities and boarding points are accessible. Delineate areas covered by a hearing augmentation system with the International Symbol for deafness. In situations where another symbol is relevant, use symbols illustrated in ISO7001-2007 *Graphical symbols - Public information symbols* or AS2342-1992 *Development, testing and implementation of information and safety symbols and symbolic signs*. If no symbol for a facility exists, identify the facility with text.

The International Symbol of access is an abstract figure of a person sitting in a wheelchair on a square background. Face the International Symbol for access in the direction of travel on directional signs. For locational signs, face the International Symbol for access to the right.

The form of the International Symbol for deafness is an abstract figure of an ear with a diagonal slash on a square background. The white figure and blue background for either symbol are not mandatory. Where practicable though, use these colours to maintain consistency with elements of the built environment outside the rail system. Symbol size varies with expected viewing distance. Table 5.3.2 details symbol size relative to expected viewing distance. (Note: Some operators use the ear symbol plus the letter 'T', and perhaps accompanying text, to indicate hearing augmentation for T switch users.)

## Braille and tactile sign specification

Tactile signs should have raised text and/or symbols and corresponding Braille text. If signs have a tactile function, people who are blind and who have vision impairments must conveniently and easily locate them. Place signs consistently, within and between stations, to give people who are blind or vision-impaired a degree of certainty as to the anticipated location of signs. Position signs with tactile components 1200-1600 mm above the floor or platform surface.

Sign text that has tactile letters and numerals shall be:

- a Sans Serif font,
- centred at 1250-1350 mm above the floor or platform surface,
- raised or embossed at least 0.8 mm above the surface of the sign,
- either sentence or title case, depending on operator policy,
- left justified, though single words can be centre justified.

And it should have:

- minimum letter spacing of 2 mm,
- minimum word spacing of 10 mm,
- font with letters of constant stroke thickness,
- letter stroke of 2-7 mm,
- upper case letters or numbers 15-55 mm high,
- lower case letters at 50% of upper case.

Symbol size shall comply with Table 5.3.2 and if a symbol is tactile it shall be raised 0.8-1.5 mm above the sign surface. Symbols should be at the top of signs and centre justified.

Braille shall be:

- grade I Braille (uncontracted) in accordance with the criteria set out by the Australian Braille Authority,
- raised and domed,
- located 8 mm below the bottom line of text,
- left justified.

If a sign incorporates directional arrows, provide a small arrow in association with the Braille. On signs with multiple lines of text and numbers, horizontally align a semi-circular Braille locator on the sign's left margin with the first line of Braille. Braille and tactile sign location is illustrated in Figure 5.3.2.

**Visual use only signs**

Locate signs for maximum visibility and context to access path or facility identified. For example, place signs identifying access paths as near to directly ahead in the direction of travel as practicable. Further, as far as practicable locate signs identifying facilities or giving instruction in the use of controls immediately beside the facility or control. However, try to avoid locations that allow glare on the sign surface or backlighting of the sign. Illumination of signs, whether located internally or externally, should satisfy 5.3.6 during operational hours.

Position signs 1400-1600 mm above the floor, though if this vertical space is insufficient, the range may extend down to 1000 mm above the floor. As far as practicable, avoid locations where crowds may obscure signs. Locate signs at 2000 mm or higher above floor level if crowds are likely to obscure the sign. Scale a sign's text, number and symbol size according to its presumed viewing distance as per Table 5.3.2.

Good practice is to provide a letter or number height of not less than 17.5 mm for each metre of viewing distance, especially if the text is on a moving sign.

Table 5.3.2  
Letter and Number Height Relative to Viewing Distance      Size of International Symbols for Access and Deafness Relative to Viewing Distance

Required viewing distance	Minimum height of letters and numbers	Required viewing distance	Minimum size of symbol
m	mm	M	Mm
2	6	≤7	≥60 x 60
4	12	7 – 18	≥110 x 110
6	20	>18	200 x 200 to 450 x 450
8	25		
12	40		
15	50		
25	80		
35	100		
40	130		
50	150		

## Way-finding signs

To be functional, way-finding signs shall form part of a complete, comprehensible system. However, although an important part of way-finding, way-finding signs are no substitute for good design that incorporates a simple, consistent and intuitive layout of access paths, facilities and destinations. A complex layout requiring a profusion of signs is of little merit, as overuse of signs, and signs requiring complex design, may cause confusion rather than give direction.

Locate station way-finding signs on access paths where directional decisions are made, such as where:

- paths commence or terminate at entrances and exits,
- paths divide, such as at lifts, ramps and stairs, and,
- paths intersect or re-converge.

If way-finding signs are located at 2000 mm or higher, a corresponding tactile sign with equivalent information should, if practicable, be located nearby as specified below.

If a tactile component is incorporated into the directional signs, locate it consistently so that people with vision impairments will intuitively know where they are likely to be located. Where access paths are bordered by walls and these walls provide the way-finding cue for people who are blind or vision-impaired, locate the signs on them. If no wall or vertical surface borders an access path, or any that do are not within the required height range, provide free standing signs at the border of the access path in locations that do not compromise passenger circulation.

Rail is part of a greater transport network and other transport modes may share rail premises. Signs at station exits should direct passengers to parking, rail station bus stops or kiss and ride facilities. Further, access paths may also connect stations to nearby transport facilities, such as bus stops, airports, car parks and passenger set-down areas or taxi ranks. If so, signs may be located at station exits to indicate the access path to these.

## Location / facility signs

Locational signs (where required) shall identify:

- the station's name,
- platform numbers,
- lifts and lift landing numbers,
- areas covered by hearing augmentation systems,
- accessible toilets,
- help phone / duress alarms,
- next train information,
- ticket vending machines,
- priority seating (where provided),
- electronic ticketing readers,
- information consoles, and,
- any other accessible facilities.

Locate accessible toilet signs on the latch-side wall 50-300 mm from the door's architrave, but where this is not possible, the sign may be placed on the door itself.

If a lift has no audio enunciation of floor or level, a tactile sign identifying floor or landing level should be located on the door frame or on the landing wall immediately beside the lift. The normal location range for tactile signs applies. Good practice is to add tactile symbols despite enunciation being provided.

If a hearing augmentation system is installed but does not cover an entire station, the area covered by the system shall be designated by signs displaying the international symbol for deafness around its margins. Signs should be tactile and located as per the requirements for tactile signs unless they are likely to be obscured by crowds. In this case locate non-tactile signs at 2000 mm or greater above the floor or platform surface.

## Audio signals

Audio signals may be considered to enhance the identification of certain facilities that are located on a platform that mostly lacks directional cues. Homing signals of various descriptions are appropriate but each shall be consistently specific to a single facility type throughout the rail network. But care shall be taken to avoid homing signals that could be mistaken for audio tactile crossing signals on nearby roads or the audio signals associated with level crossings. Careful consideration must also be given to the type, volume and frequency of the sound so as to avoid excessive and irritating environmental noise for passengers and neighbours.

### *Existing stations*

Signs at inaccessible entrances shall direct people with disabilities to accessible entrances. Where access paths leading to or from preferred accessible boarding points and other accessible facilities do not follow the main pedestrian routes, clearly sign the alternate access path. As the path may also serve as emergency egress routes, the signs should be very clear.

Where not all facilities are accessible, signs shall direct passengers to accessible facilities. For example, if accessible toilets cannot be co-located with other toilets, provide signs to indicate the access path to the accessible unit.





Figure 5.3.2. Example of a tactile and Braille sign at toilet door (dimensions in millimetres).

### 5.3.3 Colour and luminance contrast

References to colour and luminance contrast in this Code can be found in:

- 4.3.1 Service information
- 5.1.3 Station access and egress
- 5.1.6 Stairs / steps
- 5.1.7 Escalators and moving footways
- 5.1.9 Surfaces
- 5.1.11 Doors
- 5.2.3 Seating
- 5.2.4 Handrails and grabrails
- 5.2.5 Controls
- 5.3.2 Signs and symbols
- 5.3.4 Tactile ground surface indicators
- 5.3.6 Lighting
- 6.1 Train – platform gap
- 6.2.3 Signals for requesting boarding assistance
- 7.1.1 Doors
- 7.1.2 Access paths
- 7.1.4 Steps / stairs
- 7.1.5 Surfaces
- 7.2.1 Seating – unbooked services
- 7.2.2 Hand and grabrails
- 7.2.3 Passenger controls
- 7.3.2 Signs and symbols
- 7.3.3 Colour contrast

Many fixtures and components in rail premises and infrastructure shall, and others should, have strong colour contrast, and luminance contrast by at least 30%, with their surroundings. This ensures that people with low vision can detect potential obstacles and locate controls, handrails, stair treads and grabrails and comprehend signs. These contrasts shall hold under all operational lighting conditions and when the objects are wet or dry.

For signs, use of lighter coloured letters on darker background, as per many of the International Symbols, is preferred.

### *Factors affecting colour contrast*

Colour is subjectively determined by the combination of the different wavelengths of light reflected by a surface as perceived by the observer and is difficult to measure objectively. However, individual colours and surface textures reflect visible light differently. For example, gloss surfaces reflect better than matt surfaces, and lighter colours reflect better than darker colours. Therefore, both colour and surface texture should be taken into account when ensuring that objects contrast sufficiently with their background. These contrasts shall hold under all operational lighting conditions and when the sign or sign elements are wet or dry.

The colour of artificial light will influence colour contrast (refer 5.3.6 and 7.2.4). For example, colours that contrast well under daylight or white light may contrast poorly under yellow light. Only daylight and white lighting will show the true colour of all objects and therefore white should be used rather than lighting of other colours. If it is necessary to use artificial light of colours other than white, TGSIs, objects, signs, text and symbols all should be examined under both daylight and the proposed artificial light to ensure colour contrast with their surroundings under both lighting regimes.

### **Measuring Luminance Contrast**

When the luminance values of the two objects that must contrast are known, the percentage of luminance contrast can be determined on-site using either of the formulae:

Percentage contrast =  $(L2 - L1)/L2$ , where L1 is the lesser luminance value.

Percentage contrast =  $(L1 - L2)/L1$ , where L2 is the lesser luminance value.

For signs, use of lighter coloured letters on darker background, as per many of the International Symbols, is preferred. The formulae for calculating the percentage of luminance contrast between letters, characters or symbols and their background, and between the background and its surrounding surface are as above. These contrasts must hold under all operational lighting conditions and when the sign or sign elements are wet or dry. Minimum useful luminance contrast is 30%.

### *Objects abutting an access path*

When abutting the edge of an access path, or forming part of an access path, objects may present a hazard. Such objects should be sited away from access paths on new stations and relocated on existing stations. If this is not practicable these objects shall colour contrast, and luminance contrast by at least 30%, with their surroundings. These contrasts should hold under all operational lighting conditions and when the objects are wet or dry. Such objects include the following:

- poles, columns, stanchions, bollards,
- seats or station furniture,
- bins, telephones, information fixtures,
- ticket or vending machines,
- fences or barriers.

Any glazing located adjacent to an access path that might be mistaken for a doorway or opening shall have a solid horizontal band 75 mm or greater in width that colour contrasts, and luminance contrasts by at least 30% (refer 5.3.3), relative to the first 2000 mm of the finished floor level on the opposite side the glazing. Locate the band the full door width of the glazing between 900 mm and 1000 mm above floor level.

### *Handrails*

When in proximity to a background wall or solid surface, handrails shall be colour contrasted, and luminance contrasted by at least 30%, with the wall or surface. Handrails placed along an access path and distant from a wall or solid surface should be colour contrasted, and luminance contrasted by at least 30%, with their background.

## Signage

Letters, numbers and symbols on signs should be colour contrasted, and luminance contrasted by at least 30%, with the body of the sign. Lighter coloured letters, numbers or symbols on darker background are preferred, as per the International Symbols. Where signs are located on walls or solid backgrounds, the body of the sign should exhibit colour contrast, and luminance contrast by at least 30%, with the background. Signs should not have glossy surfaces or be located so that lighting causes glare or reflection on their surfaces. For full details on the colour contrast and luminance contrast recommendations and requirements for signs refer to 5.3.2 and 7.3.2.

### 5.3.4 Tactile ground surface indicators (TGSi)

Tactile ground surface indicators (TGSIs) are one element in the way finding toolbox to improve safety and provide directional cues for people with vision impairment.

Wayfinding cues include:

- inner margins of platform-edge warning TGSIs,
- use of texture, colour and luminance contrasting, slip-resistant surfaces,
- garden bed edges and kerbs,
- handrails on overbridges, stairs or ramps,
- signage including use of pictograms, text, tactile characters and Braille,
- safety and boundary fences fitted with tapping rails or kerbs,
- walls or building frontages that are unobstructed by seats, telephones, information consoles, ticket vending machines, or any other facilities that cause crowds to congregate rather than flow.

Since many people with vision impairments have some degree of residual vision, TGSIs shall offer good colour contrast, and luminance contrasted by at least 30%, with surrounding surfaces in all operational and weather conditions (refer 5.3.3). Discrete units shall have a stronger contrast with their background than integrated units. Ultraviolet light can bleach or chemically change TGSi colours. Ensure that TGSIs are colour fast in sunlit or open situations.

#### New stations

Correctly installed warning TGSIs are an important safety feature on station platforms. Falls by people with vision impairment from platforms, or down stairs and escalators may be reduced when TGSIs are correctly installed at these potentially hazardous areas. However, overuse of TGSIs can create a confusing environment for people who are blind or vision-impaired and may present a barrier to people with mobility impairment, so that their application should be restricted to certain applications and situations. Except where required by this Code at platform edges, stairways, escalators, travelators and ramps, warning TGSIs shall not form part of an access path.

Warning TGSIs are composed of a series of rows of evenly spaced truncated cones. These truncated cones may be integrated into tiles or laid discretely. Truncated cones shall have:

- 50 mm between centre points,
- 15 mm between bases,
- 25 mm top diameter,
- 35 mm basal diameter,
- 4-5 mm vertical profile.

Warning TGSi truncated cones are illustrated in Figure 5.3.4.a.

The surface of ceramic or masonry integrated TGSIs bases should be flush with the surrounding surfaces. Synthetic tiles that are attached to floor or platform surfaces with adhesive should have a base no thicker than 3 mm or this base may become a tripping hazard. Where the 15 mm space between the truncated cones cannot be met, such as when TGI tiles shall be cut to allow their close abutment on a curved platform, departure from the dimension shall be minimised.

On station platforms, warning TGSIs shall be installed:

- along platform edges,
- at stairs (refer 5.1.6),
- at ramps (refer 5.1.4),
- at escalators and travelators (refer 5.1.7).

On platform edges, install a row of warning TGSIs:

- along the complete length of the platform and parallel with the platform edge,
- commencing a minimum of 600 mm back from the cope edge,
- in a continuous band 600 mm wide.

Figure 5.3.4.b illustrates warning TGSIs relative to platform edge.

At stairs, install a row of warning TGSIs:

- at the top and bottom of the stairs and parallel with the nearest riser,
- commencing 300 mm back from the nosing line,
- in a continuous band 600 mm wide,
- for the full width of the stair between the handrails.

At ramps other than step or kerb ramps, install a row of warning TGSIs:

- at the top and bottom of the ramp and parallel with the sharp transition at the ramp's top or bottom,
- commencing 300 mm back from the edge of the sharp transition at the ramp's top or bottom,
- in a continuous band 600 mm wide,
- for the full width of the ramp between the handrails.

At tram platform edges it is not always possible to set warning TGSIs back 600 mm. In this case 300 mm is acceptable.

Where both handrails are continuous through the ramp and stair landings no warning TGSIs are required on the landings.

At escalators and travelators, install a row of warning TGSIs:

- at the top and bottom of the escalator or at the start and finish of the travelator,
- commencing 300 mm back from a point directly beneath the farthest extent of the moving handrail,
- in a continuous band 600 mm wide, and,
- for the full width of the escalator or travelator between the handrails.

Where practicable, warning TGSIs should not intrude into intersecting access paths but should be contained within the landings required at the top and bottom of these facilities.

Access paths require at least 2000 mm vertical clearance over their entire length and width. Obstructions shall not intrude into this vertical space (refer 5.1.3). Where overhead or projecting obstructions adjoining access paths occur, such as the area beneath stairs with less than 2000 mm headroom, they should be made safe with physical barriers, such as walls, fences, handrails or landscaping.

### Existing stations

TGSIs on existing stations and platforms must comply with the requirements for new stations to the maximum extent practicable. Maintain access path widths through relocation of fittings and fixtures such as rubbish bins, seats and ticket vending machines.

However, warning TGSIs installed on platform edges may compromise clear access paths in some circumstances. Clear access path width may be reduced from 1200 mm to 1000 mm where site constraints or fixed structures preclude full compliance. This also applies to new structures, such as lifts, that are constructed on existing stations with limited space.

Where an access path width of 1000 mm cannot be achieved adjacent to the platform edge warning TGSIs, solutions include:

- Equivalent access by maintaining an access path of at least 1000 mm to at least one side of an obstacle.
- Providing an access path of at least 1000 mm to a designated boarding point and equivalent access to essential facilities on the platform.

Where 1000 mm clear access paths are not achievable using the above or other options, warning TGSIs may form part of the access path. However, the overlap of warning TGSIs and access paths must be minimized.

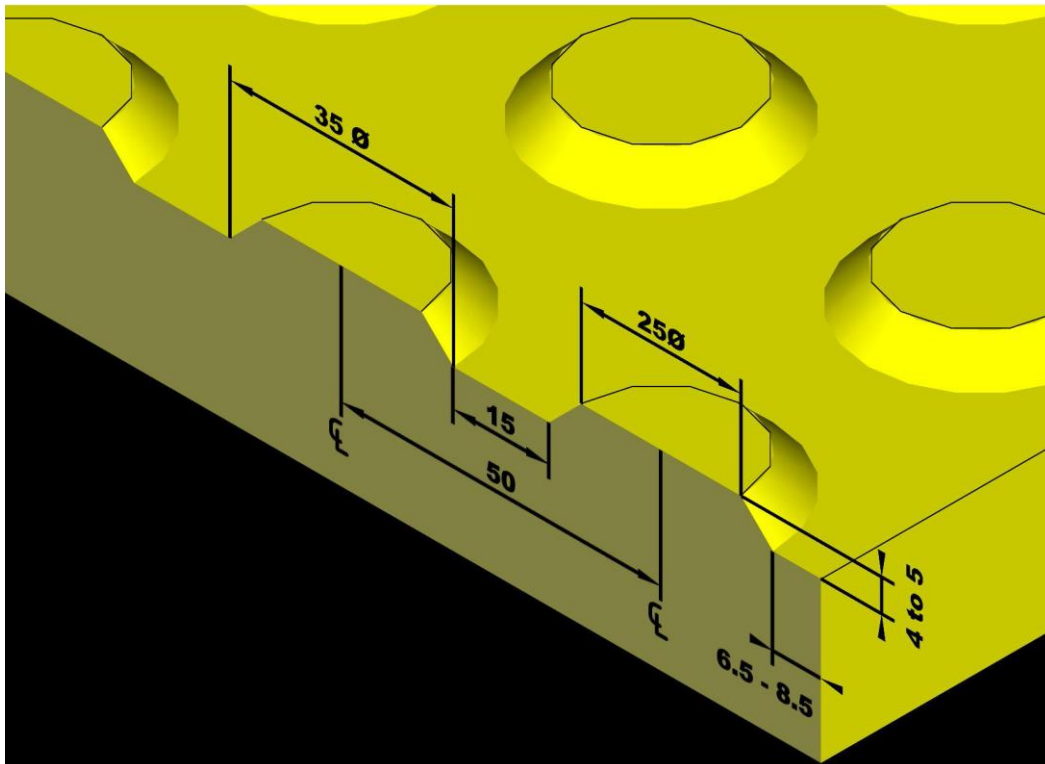


Figure 5.3.4.a. Tactile Ground Surface Indicator surface dimensions (dimensions in millimetres).

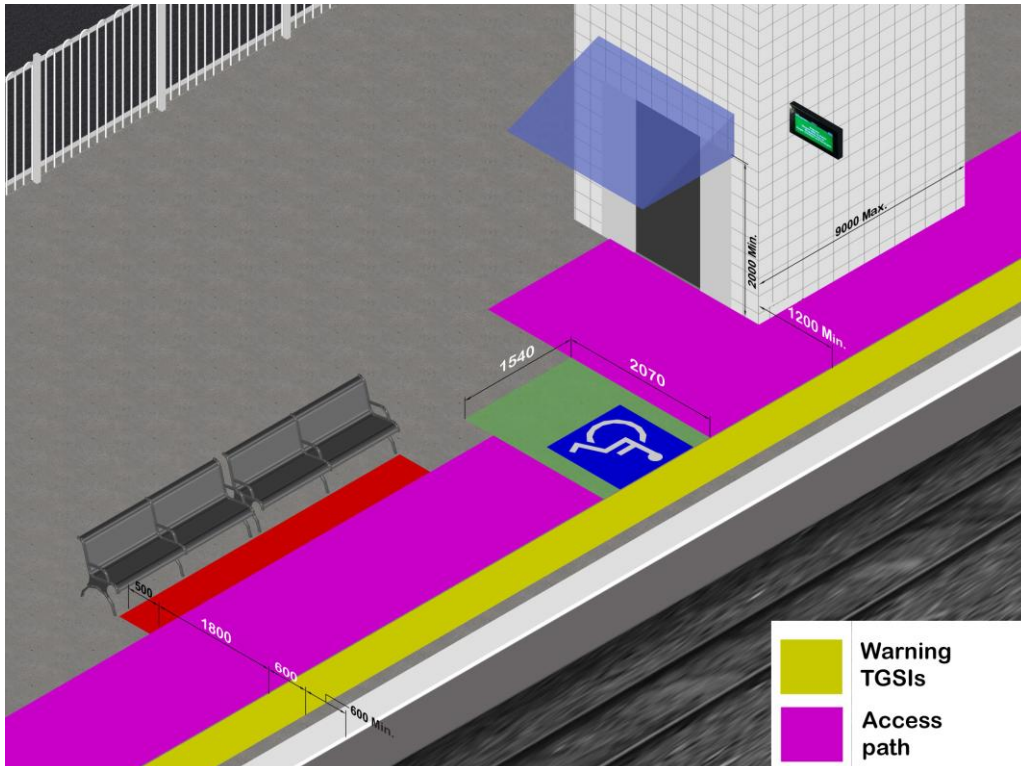


Figure 5.3.4.b. Examples of warning TGSs relative to cope and nearby objects (dimensions in millimetres).

### 5.3.5 Hearing augmentation

If a public address system is installed in an enclosed station, provide a hearing augmentation system that informs hearing aid users with a T-switch of service related information. The system shall cover at least 10 percent of the total enclosed space.

As hearing aid users are frequently frail-aged people, covered seating areas should be within the hearing augmentation field. If the hearing augmentation system does not cover the entire station, identify the system boundaries with directional signage using the International Symbol for deafness (refer 5.3.2).

Equivalent access may be provided by visual service information on stations.

### 5.3.6 Lighting

Adequate lighting is a requirement for safe, convenient movement of customers and staff in the rail environment.

#### Uniformity of illumination

People with vision impairments require higher levels of illuminance than other passengers to travel safely, read signs, find facilities and safely board trains. Since the eyes of people with vision impairments frequently take longer to adjust to illuminance changes, illuminance shall be consistent along access paths and around accessible facilities. Changes between areas with different illuminance requirements should be gradual rather than abrupt transitions.

Illuminance uniformity over the floor of a space or access path, calculated according to Appendix C of AS1680.0-1998, should be 0.5 or greater. Where spaces adjoin, but do not share sources of illumination, for example areas separated by doors, the ratio of the average illuminance within the space to that of the adjoining spaces should not be more than 1:5. Shadows might appear as solid objects to people with low vision, so lighting should be arranged to avoid deeply shadowed areas.

#### Glare

Glare disadvantages all users of the rail environment, impairing vision and causing visual discomfort. It especially affects people with vision impairment. In the case of people with cataracts for example, glare might partly opaque their vision. People who are deaf or hearing impaired often lip read to enhance comprehension during conversation. Verbal interaction with staff requires well-lit environments with minimal glare so that subtle movement of face and lips can be easily discerned. Minimise glare from all lighting sources and reflected glare from all illuminated surfaces.

#### Lighting colour

Daylight and white lighting contain the full spectrum of visible light. This allows true colours to be seen, optimising colour and luminance contrasts on signs, TGSIs, access paths and other facilities and fixtures. The colour of artificial light, and any spectral absences, will influence colour contrast. For example, colours that contrast well under daylight or white light may contrast poorly under monochromatic or strongly coloured light sources. White lighting is therefore recommended as it allows best consistency of colour with daylight.

Where other than white lighting is used, determine that good colour contrast between elements achieved under both daylight and the artificial lighting regime.

#### Flashing / strobe lighting

Flashing or strobe lighting flashing in the circa 5 to 30 Hz frequency range may cause epileptic seizures and is not recommended for use except where required as an emergency warning. Where a visual warning cue is required, choose a frequency of 3 Hz or less.

#### Enclosed and open platforms

Two distinct station lighting environments exist, enclosed and open stations. Enclosed stations are screened by walls and ceilings and are unlikely to cause environmental nuisance through waste light spilling into surrounding residential or commercial areas.

Open stations are located in exposed sections of rail corridor and visible from surrounding residential or commercial areas. Enclosed stations can therefore have higher illuminance than open stations without causing public nuisance.

Table 5.3.6 stipulates illuminance levels within the maintenance cycle for lighting that will allow people with disabilities to access stations independently. No maximum levels are listed but greatly exceeding the levels is not recommended as over-lit stations may affect safety through compromising the night vision of drivers when entering or leaving a brightly lit station environment.



**Table 5.3.6.** Maintenance illumination levels for the listed facilities or fixtures.

Facility or Fixture	Average illuminance, ground level on a horizontal plane (Lux)	Minimum illuminance, ground level on a horizontal plane (Lux)	Minimum illuminance, vertical surface 1.5 m above ground (Lux)	Minimum illuminance to average illuminance ratio.	Maximum illuminance to average illuminance ratio.
<b>Enclosed Stations</b>					
Entrances	150			0.5	
Primary access paths including stairs, ramps and walkways.	150			0.5	
Toilets	200			0.5	
Counter Tops	250			0.5	
Timetables	200			0.5	
Lift car interior		100			
Telephones, ticket vending machines, next train information	200			0.5	
General platform area	160			0.5	
Open footbridge	150			0.5	
Subways	150			0.5	
Platform edge to 4000 mm back from the cope including the yellow warning line and warning TGSIs		150			

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**Open Stations**

Entrances	42	21	14	7
Primary access paths including stairs, ramps and walkways.	42	21	14	7
Toilets	200			0.5
Counter Tops	250			0.5
Timetables	200			0.5
Lift car interior		100		
Telephones, ticket vending machines, next train information	200			0.5
General platform area	42	21	14	7
Enclosed platform areas	160			0.5
Station core areas under shelters, canopies and awnings	160			0.5
Open footbridge	42	21	14	7
Enclosed footbridge	150			0.5
Subways	35	17.5	17.5	
Platform edge to 4.0 m back from the cope including the yellow warning line and warning TGSIs		30		

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### 5.3.7 Emergency egress

#### *New stations*

As with any buildings or public structures, rail stations shall be quickly and safely evacuated during emergencies. Access paths and station entrances may serve as egress routes during emergencies. The Building Code of Australia requires that Class 9b buildings such as open spectator stands and public auditoria have not more than 60 m travel distance from an emergency exit. However, this would be difficult to achieve on a linear structure such as a rail platform. Further, moving from one end of the platform to another may put a person at sufficient distance from the emergency to be considered safe. Therefore, using public access paths to leave the station or by relocation to other parts of the platform the performance outcome allowed by the Building Code is met.

Exit paths shall be easily located by people with a disability during emergencies. Provide clear directional signage to enable this (refer 5.3.2).

Use of lifts is prohibited in cases of fire, unless they are fire rated and / or direction is given for their use by emergency services.

If installed, emergency warning systems shall alert people who have sensory disabilities. Both visual and audio components are required and shall alert all passengers and staff simultaneously.

If installed, audible alarms require an intensity and frequency sufficient to alert people with hearing impairments. Audible alarms must exceed background noise, averaged over a period of 60 seconds, by 15 dB(A), with minimum permitted level of 75 dB(A). Sound frequencies exceeding 6000 Hz may not be audible to older people.

Visual alarms shall flash in conjunction with audible alarms and do so at approximately 1 Hz frequency.

#### *Existing stations*

As some stations may have only a single access path leading from the accessible entrance to the preferred accessible boarding point and essential facilities, this route shall be clearly signed (refer 5.3.2). Alternative emergency egress routes to a safe place shall be available on stations with few or only one accessible entrance in the event that the access path is blocked during an emergency or direct assistance provided.

# Boarding and alighting the train



## 6 Boarding and alighting the train

### 6.1 Train – platform gap

#### *New stations and carriages*

Due to a combination of technical, operational and safety factors, it is not practicable to achieve the horizontal and vertical gaps required for independent access by all people with disabilities even when building new stations. While differences in level are unavoidable they should be minimised. When carriage floors and boarding points are at different levels, passengers with disabilities may require assistance to board and alight the train.

Boarding devices such as ramps may be deployed manually or be power assisted, for example mobile hoists or platform lifts. Preferred accessible boarding points shall have a firm and level surface that allows a boarding device to be safely and securely deployed.

Ensure that a manual or power assisted boarding device is available at any preferred accessible boarding point where the rise or gap between the platform surface and the carriage floor exceeds:

- 12 mm vertically, or,
- 40 mm horizontally.

Boarding devices may be carried on trains or kept at stations but shall be available and deployed for passengers who have a disability on request.

Passengers who require assistance at boarding may be asked to board or alight the service before or after other passengers.

Platforms function as a 'stair tread' when stepping into or out of a carriage. If used, coping blocks should be colour contrasted, and luminance contrasted by at least 30%, with their surroundings and the carriage tread plate. Warning TGSIs will inform passengers with vision impairments that they are close to the platform edge (refer 5.3.4), but defining the cope or platform edge visually increases the safety of boarding.

#### *Existing stations and carriages*

Existing platforms will seldom be at the same vertical level as the carriage floor. Technical constraints such as track curvature and gradients and rolling stock gauge requirements affect the horizontal gap between train and platform. Where a platform cannot be raised to approximate the same horizontal plane as the carriage floor along its entire length, other options should be explored which may include building up the platform height of the preferred accessible boarding point and its required circulation and manoeuvring space (refer 5.1.8) to the same level or as near as practicable. This allows deployment of a boarding ramp with a gradient not exceeding 1:8 (a grade separation of 190 mm or less). Gradients of steeper than 1:8 may require direct assistance.

## 6.2 Boarding devices

### 6.2.1 Ramps

Boarding ramps are portable, not prone to failure and relatively inexpensive, hence they are preferred over the options of hoist or platform lifts (refer 6.2.2), particularly in urban systems where congestion and train dwell time present safety and operational constraints.

Ramp gradients may be as steep as 1:4 to 1:7.5, but ramps in this range may not be able to be used independently by passengers with mobility impairments (refer 6.1). Good practice is for boarding ramps to not exceed 1:6. For independent use, boarding ramps must have gradients of:

- 1:8 or less steep for a ramp with maximum length of 1520 mm, or
- 1:14 or less steep for any length over 1520 mm.

Boarding ramps exceeding the 1:8 and 1:14 gradients above require staff or carer assistance to use (refer 6.1).

Mobility aids that fit the allocated space in the carriage must also fit on ramps. When deployed, a boarding ramp that allows independent access shall have:

- 800 mm minimum width including side edge barriers,
- no protrusions rising more than 6 mm above the surface except side edge barriers,
- side edge barriers on new ramps that contrast in colour, and have 30% luminance with, the ramp surface, and,
- a slip-resistant surface with a coefficient of friction of 0.75-1.0 when tested as per AS3696.13-1991.

If deployed at carriage doors that are less than 800 mm wide and which cannot be modified, ramps should match the door width at the point of abutment with the door opening. Boarding ramp dimensions are illustrated in Figure 6.2.1.

Boarding ramps shall be able to support at least 300 kg, which may be the combined weight of the passenger, a carer (if required) and their mobility aid. The maximum load capacity shall be clearly labelled on the boarding ramp to avoid service failure or accidents while supporting very heavy loads.

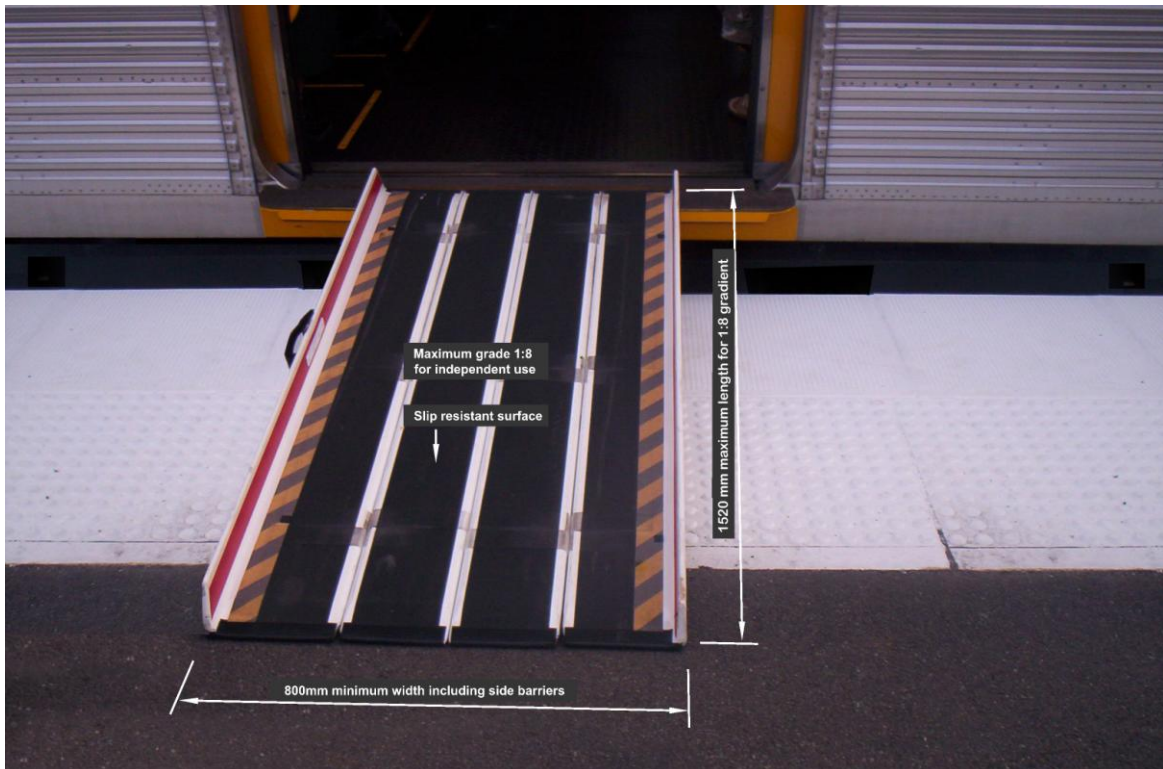


Figure 6.2.1. Example of boarding ramp dimensions (dimensions in millimetres). For a rise above 190 mm and below the 380 mm maximum (slopes from 1:8 to 1:4 max.) wheelchair users may need assistance to board. Good practice is for boarding ramps to not exceed 1:6.

## 6.2.2 Hoists

Hoists and platform lifts are heavier and bulkier than ramps; take longer to deploy and are more prone to service failure. However, hoists or platform lifts may be the only boarding option in certain circumstances. For example, where platform structures or differences in level between carriage floor and platform surface do not permit deployment of a boarding ramp of acceptable gradient (refer 6.1), or at a heritage station where vertical separation between carriage floor and platform surface is extreme, requiring passengers to board or alight via stairs.

Mobility aids that fit the allocated space in the carriage must also fit on boarding devices. A hoist or platform lift's platform should have:

- 800 mm minimum clear width,
- 1300 mm minimum length, and,
- a slip-resistant surface with a coefficient of friction of 0.75-1.0 when tested as per AS3696.13-1991.

Often a carer will assist a person as they board or alight so the lift platform's length should preferably exceed 1500 mm. If deployed at carriage doors that are less than 800 mm wide which cannot be modified, hoists and platform lifts should match the door width at the point of abutment with the door opening.

Hoists and platform lifts shall be able to lift and support at least 300 kg, which may be the combined weight of the passenger, their mobility aid and carer. The maximum lifting capacity of hoists and platform lifts shall be clearly labelled on the devices to avoid service failure or accidents while lifting very heavy loads.

## 6.2.3 Requesting boarding assistance

### *New stations and carriages*

Passengers shall be able to notify the operator that a boarding device is needed to board or alight. If provided, controls for requesting assistance shall be located in or near allocated spaces in accessible carriages, or if on platforms, at or near the preferred accessible boarding point. Any passenger operated control shall be clearly signed (refer 7.3.2) and should colour contrast, and luminance contrast by at least 30%, with surrounding surfaces (refer 7.3.3). Notification of the need for a boarding device may also be given by communication with rail staff at boarding or in transit (refer 6.3).

Where practicable, locate assistance controls in carriages:

- 550 – 1200 mm above the carriage floor, and,
- 500 mm or greater from an internal corner.

If provided on stations, locate assistance controls as per 5.2.5.

If provided, controls in carriages or on platforms may have an integral, continuously operating light. Alternatively, a control lighting system that permitted indication of a call for assistance being sent and acknowledged could be used:

Light off = request for assistance available.

Light flashing = passenger request for assistance recorded.

Light continuously on = staff acknowledge request for passenger assistance.

Refer to 7.2.3 for further information on controls.

### *Existing stations and carriages*

If assistance controls are provided and cannot be placed as per new carriages or stations, they should be located as near to the required ranges as practicable.



### 6.3 Staff assistance

Staff shall assist passengers who request boarding assistance by deploying and operating boarding aids where grade and horizontal separation between carriage floor and platform surface require their use (refer 6.1). If provided, direct assistance may only be given at preferred accessible boarding points. If no controls to request boarding aids are installed at preferred accessible boarding points or in carriages, staff shall be available to deploy boarding aids on request. Some rail operators may require notice of at least one hour to provide direct boarding assistance at unstaffed stations. Passengers should be made aware of the procedures involved with direct assistance and the appropriate means of requesting it.

# Travelling by train



## 7 Travelling by train

### 7.1 Access and egress

#### 7.1.1 Doors

##### **Car entrance**

Entrance doors on access paths in new rail cars shall allow passage of people who have disabilities. All cars or doors on a train may not be accessible to passengers with disabilities.

Automatic doors give optimum access for people who have disabilities as they have no user performance requirement for operation. Where used, sensors for automatic doors and controls for power-operated or manual doors shall accommodate people who have disabilities (refer 7.2.3). For safety reasons, passenger entrance doors to rail carriages may be controlled by train staff in both normal and emergency operation. Emergency door controls may require direct assistance where they do not meet the requirements of 7.2.3.

The International Symbol of accessibility shall be clearly visible beside or on the accessible door on the outside of accessible carriages (refer 7.3.2). When located on access paths, door trims should have a colour contrast, and luminance contrast by at least 30%, with surrounding surfaces (refer 5.3.3).

Train livery should not be of a colour that permits inter-car gaps to be mistaken for doors.

The force required to manually open a door in normal operations should not exceed 20 N.

Provide grabrails that comply with 7.2.2, whether vertical, horizontal or both, on both sides of carriage entrance doors within the carriage.

Surfaces of access paths passing through doors should comply with 7.1.2.

Lighting at railcar doors shall comply with 7.2.4 when stationary at platforms.

Features of carriage doors are illustrated in Figure 7.1.1.a.

##### *New carriages*

##### **Door opening**

Doors shall have a minimum clear open width of 850 mm. On booked services, genuine technical or space constraints permit a clear open width ranging down to 760 mm, however maximum achievable width should be provided.

### **Door circulation space**

Sliding doors are preferred as the confined nature of a carriage access path permits little manoeuvring of a mobility aid while opening hinged doors. Further, hinged doors may completely obstruct access paths for other passengers. When opened away from a passenger and into an access path, hinged doors potentially constitute a risk to other passengers in the access path. If provided, hinged doors located along the side of an access path should open away from the access path and into the berth, toilet or space behind.

Railcar doors across access paths, such as carriage entrance / exit doors, that are either sliding doors or hinged doors that open away from the passenger, should have a clear space at least 850 mm wide and 1300 mm long before the door. Circulation space should at all times be maximised to allow access to door and controls for the widest range of passengers practicable. Hinged doors where the door opens toward the passenger should have a clear space at least 850 mm wide and at least 1300 mm long plus the door leaf's width. The recommended space in front of the door may be on an angle when the accessible path of travel to the door is not aligned ninety degrees to the door. Doors located beside an access path, such as toilet, sleeping berth or similar doors, should not have less than the access path width in front of them (850 mm unless structural constraints reduce this width) and should exceed the minimum 850 mm clear open width to the maximum degree practicable. Door circulation space at railcar doors is illustrated in Figure 7.1.1.b.

Tram and light railcar doors across access paths, such as car entrance / exit doors, should have a clear space at the door that is at least 850 mm wide and that has the maximum length practicable without undermining the structural integrity of the tramcar. Circulation space should at all times be maximised to allow access to door and controls for the widest range of passengers practicable.

### **Door opening methods**

Doors on conveyances may be automatically controlled, passenger operated or manually opened by the operator. Non-automatic doors require a door opening control or a means of requesting that the door be opened (refer 6.2.3).

### **Door control identification**

Audio and visual cues can assist people to locate the door controls.

### **Door opening request controls**

If provided, call buttons to request direct assistance in order to open manual doors should meet 5.2.5.

### **Door control placement**

Controls for power-operated sliding carriage entrance doors should be located on both sides of the door and as close to the door as practicable, or alternatively, close to the inner edge of the door leaf. Ensure that sliding doors in the open position do not cover wall-mounted controls or signs / symbols associated with the controls, where practicable.

Locate controls for power-operated hinged doors more than 1000 mm from the arc of the door's opening swing. Ensure that seats, grabrails or other fixtures do not interfere with or obstruct access to the door control.

External door controls may not always be within the range specified for internal door controls (refer 7.2.3) if a rail network's platforms are not at uniform levels.

Where vertical and / or horizontal separation between platform and carriage floor exceeds the provisions of 6.1, so that a boarding ramp, lift or hoist is required, staff should activate the door control as part of the boarding procedure and as a customer service measure.

Refer to 7.2.3 for further information on controls.

### *Existing carriages*

Carriages in service or ordered prior to April 2, 2004, may have minimum clear open door widths of 760 mm. Where door widths on access paths can be increased to a minimum of 850 mm this should occur. If structural constraints prevent full compliance, increase widths to the maximum extent practicable. People using mobility aids should be informed, either directly by staff or by public communications (refer 4.3.1 and 4.4.2) of the dimensions of noncompliant doors in accessible cars prior to travel.

Circulation spaces for mobility aids at doors in existing rail cars may be limited by existing car configuration and other technical constraints. Where practicable, maximise the space provided in front or beside doors to improve the functional manoeuvrability of mobility aids.

On booked services, onboard carriage wheelchairs, as used in passenger aircraft aisles, may be considered to provide equivalent access. These shall be designed for safe use by staff and fit through all doors on designated access paths on accessible cars. Discussions with mobility aid users at the time of booking regarding door widths, circulation space and other constraints will prevent disappointments once onboard and clearly informs potential passengers prior to the journey regarding the level of staff assistance provided (refer 4.4.3 and 4.4.5).



Figure 7.1.1.a. Examples of carriage entrance and door specifications (dimensions in millimetres). Note: Sign text may be sentence or title case.

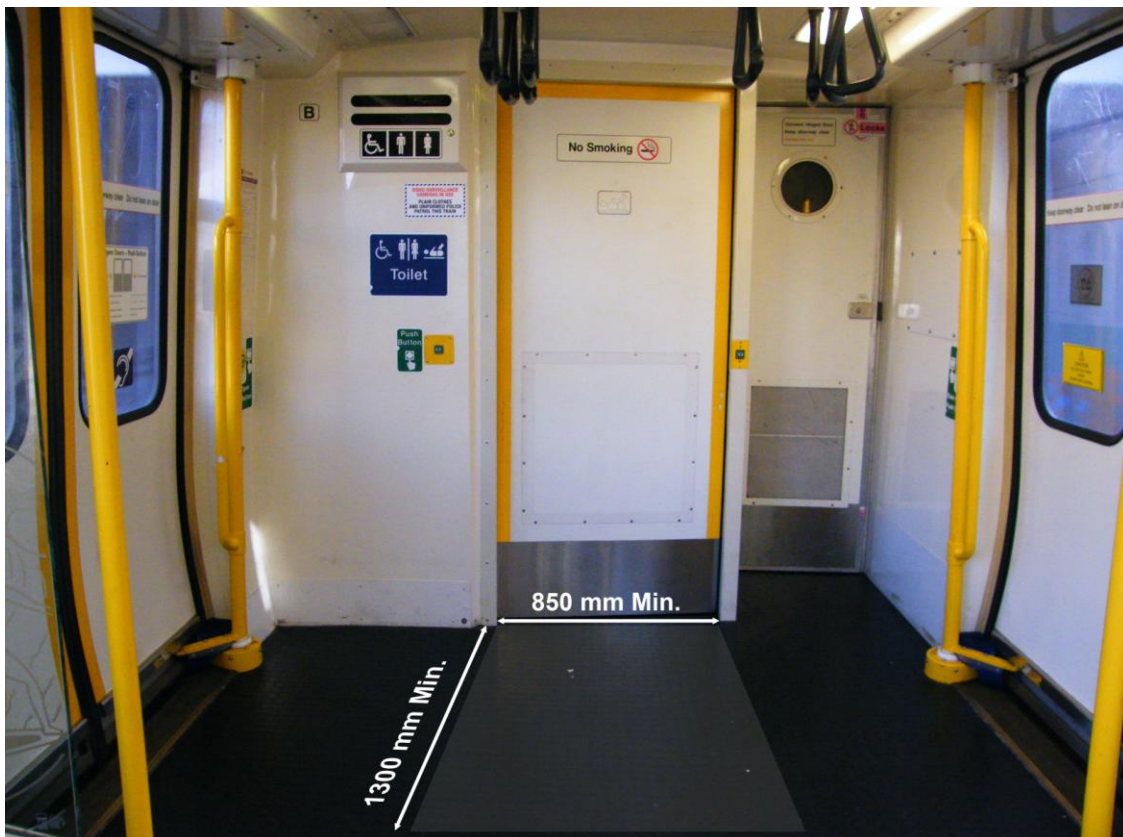


Figure 7.1.1.b Example of circulation space in front of internal sliding door (dimensions in millimetres).

## 7.1.2 Access paths

### *New carriages*

Access paths shall extend from the entrance doorway to the allocated space/s, priority seats and other essential facilities accessible to passengers with mobility aids. Access paths need not extend to / through an area with hearing augmentation where this area is not accessible to a person with mobility impairment. Sections of carriages that lack accessible facilities, and which are not on access paths between accessible facilities, are not required to be accessible to all passengers.

Access paths may pass through doors and shall have:

- 850 mm minimum clear width, except where design constraints require local restriction to a minimum of 760 mm,
- firm, non-slip, level surfaces (refer 7.1.5).

A restricted access path is illustrated in Figure 7.1.2.

Unobstructed vertical clearance above floor level shall be maximised with a minimum 1900 mm unobstructed vertical clearance above entrance door tread plates and minimum 1900 mm below passenger visual displays.

Where practicable, handrails (refer 7.2.2), controls (refer 7.2.3) and other fixtures and fittings shall not protrude into the clear width of the access path. If handrails or grabrails are installed as supports along access paths on stairs or through corridors, they shall comply with 7.2.2.

Objects such as handrails, grabrails, and other fixtures that border access paths should be colour contrasted, and luminance contrasted by at least 30%, with their surroundings (refer 5.3.3).

Use of transparent surfaces abutting access paths should be limited as these might not be detected by people with vision impairments and may also create problems associated with modesty and graffiti. If transparent weather shields, walls or doors are used, ensure:

- no markings that mimic retinal or corneal defects (such as shapes, etching or misting),
- a colour and luminance contrasting band that contrasts with its relative viewing background (refer 5.1.11).

Access paths may include up to 50 mm of adjacent allocated spaces. If allocated spaces adjacent to access paths are occupied, some manoeuvring by people in the allocated spaces may be required to achieve a clear access path.

Except at entrance doors and inter-car areas, access paths should not have vertical or near vertical change in level greater than 5 mm between abutting surfaces to make them traversable for a wheelchair. As far as reasonably practical, entrance door and inter-car tread plates should have a vertical change of no more than 5 mm from the floor surface, and the edges should be rounded or bevelled.

On booked services, provide equivalent access by direct assistance where access paths to essential facilities cannot be provided. Onboard carriage wheelchairs may form part of a direct assistance solution where door, corridor or toilet dimensions are constrained. These chairs shall be designed for safe use by staff and fit through all tight points on designated access paths in accessible cars.

Discussions with mobility aid users at the time of booking regarding access path widths will prevent disappointments once onboard and clearly informs potential passengers prior to the journey regarding the level of staff assistance provided (refer 4.4.3 and 4.4.5).

Lighting on access paths shall comply with 7.2.4.

The above specifications apply to trains only. Due to width constraints of trams and light rail, passengers who use wheelchairs should be able to enter, exit and position their wheelchairs in allocated spaces of 1300 mm long and 800 mm wide.

### Existing carriages

Locating allocated spaces and priority seats near the entrance vestibule on unbooked services will minimise access path length. Differences in level at surface abutments on access paths of up to 5 mm are acceptable and should have chamfered, rounded or bevelled edges. Existing door entrances and inter-car areas may have surface abutments in excess of 5 mm.

Increase existing, non-compliant access path dimensions where this is practicable without undermining the structural integrity of the car. If structural constraints prevent full compliance, increase dimensions to the maximum extent practicable.

If dimensions of an access path to an essential facility on a booked service cannot be altered and a compliant mobility aid will not pass along the access path, provide onboard carriage wheelchairs or other forms of direct assistance.

A restricted access path is illustrated in Figure 7.1.2.



Figure 7.1.2. Example of 760 mm minimum clear width of access path where design constraints do not permit 850 mm minimum width. Note onboard carriage wheelchair used to provide direct assistance (dimensions in millimetres).



### 7.1.3 Passing and manoeuvring spaces

Sufficient space shall be provided to enable passengers using wheelchairs or other mobility aids to enter and exit an accessible carriage and to manoeuvre their aids into the allocated space (refer 7.2.1). Wheelchair and other mobility aid users may need to pass each other in this process.

Carriages that contain allocated spaces shall have sufficient manoeuvring space near allocated spaces.

The passing area may comprise part of the allocated space, its adjacent manoeuvring space or both.

Turn taking is an acceptable practice to allow mobility aids to pass and it is reasonable to expect that all passengers will be cooperative and helpful in ensuring that other passengers are able to use the rail service.

The dimensions of 7.1.3 apply to trains only. Due to width constraints of trams and light rail, passengers who use wheelchairs should be able to enter, exit and position their wheelchairs in allocated spaces of 1300 mm long and 800 mm wide.

#### *New carriages*

The entrance vestibule may function as both manoeuvring and passing area to allow wheelchair allocated spaces to be consolidated. Where practicable a clear area:

- 2070 mm long, and,
- 1540 mm wide,

should be provided in the entrance vestibule of the accessible carriages of unbooked services. Where reasonably practicable, this space should be clear of weather shields, fixed seats and other obstacles where these would hinder entry to, or exit from, allocated spaces that are located immediately beside the vestibule. Provision of optimal manoeuvrability for mobility aids should be carefully balanced by the need to provide hand and grabrails for passengers who are elderly, vision-impaired or those standing on a heavily loaded train. Passing and manoeuvring spaces are illustrated in Figures 7.1.3.a and b.

Wherever practicable, in carriages where allocated spaces are not consolidated into one car of a set, locate the two allocated spaces either side of the access path. This creates a clear floor area that, while not meeting the 2070 mm by 1540 mm space required for a wheelchair to turn through 180 degrees (refer 5.1.8), nevertheless creates a large, shared manoeuvring space.

Maximise internal toilet dimensions to meet the specifications of 7.2.5 wherever practicable. Passing areas or manoeuvring space on access paths to toilets are unlikely, therefore the toilet itself becomes the 180 degrees turn manoeuvring space for compliant mobility aids.

In each accessible carriage of a booked service provide at least one space, 800 mm wide and 1300 mm long, adjacent to the access path. This allows two mobility aids to pass if turns are taken. It is accepted that a mobility aid user can turn into a 1300 mm long by 800 mm wide space that lies parallel to a compliant access path.

It is accepted that mobility aid users may not be able to enter or exit an allocated space in a single manoeuvre, given the internal configurations of a carriage.

#### *Existing carriages*

The dimensions of a recommended manoeuvring space are illustrated in Figure 7.1.3.c.

Manoeuvring by all passengers will be required on crowded trains. On occasion, passengers may need to temporarily detrain in order to pass on the platform during boarding or alighting.



Figure 7.1.3.a. Example of circulation space dimensions in a new carriage (dimensions in millimetres). Note: Sign text may be sentence or title case.



Figure 7.1.3.b. Example of circulation space dimensions in a new carriage (dimensions in millimetres).



Figure 7.1.3.c. Example of circulation space dimensions in existing carriage (dimensions in millimetres).

## 7.1.4 Steps / stairs

Not all sections of a carriage shall be accessible to people with disabilities. However, stairs in carriages shall not be the only means of access to facilities designated for passengers with mobility impairment. Locate allocated spaces and designated seating on the entrance level of carriages that have two or more levels.

### *New carriages*

Stair risers shall be opaque. Where possible, stairs shall not intrude into circulation spaces.

Strips of colour and texture contrasting material, luminance contrasted by at least 30% (refer 5.3.3), shall be located on the nosing of the tread at 50-75 mm width, and may be located on the nosing of the riser.

Stair handrails shall meet the requirements of 7.2.2 and be continuous and bilateral. For safety reasons, TGSIs are not installed in trains.

Lighting on stairs shall comply with 7.2.4.

Objects such as handrails, grabrails, and other fixtures that border stairs should be colour contrasted, and luminance contrasted by at least 30%, with their surroundings (refer 5.3.3).

Internal stairs are illustrated in Figure 7.1.4.

Carriage entrance tread plates function as steps at low platforms, and also at high platforms where horizontal gaps between the tread plate and platform exist. Tread plates should be colour contrasted, and luminance contrasted by at least 30%, with their surroundings (refer 5.3.3).

If tread plates are not used, ensure a contrasting strip 50-75 mm wide on the floor edge as per stair treads at the carriage entrance.

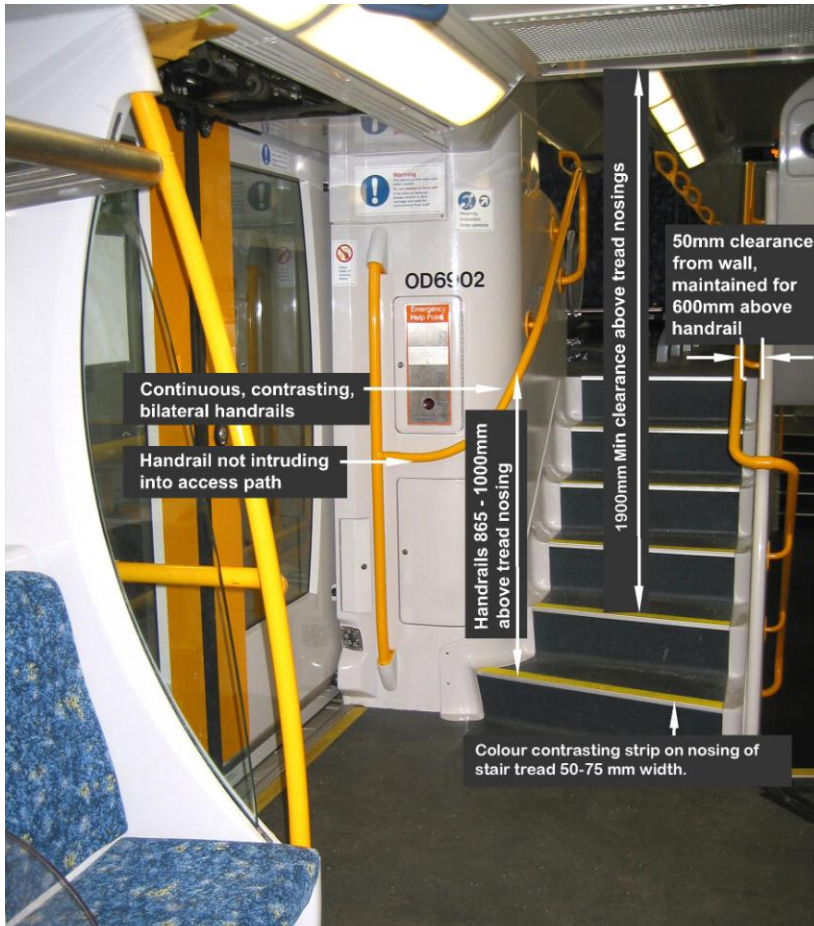
Stairs at the carriage entrance shall have riser heights corresponding to the tread width ranges specified in Table 7.1.4 when measured at the centre line of the stairs. Assume pro-rata adjustment applies where risers fall between these dimensions.

### *Existing carriages*

Stairs that do not form part of an access path to priority seating and other facilities for people with mobility impairments may be left unaltered if alteration is not technically or operationally feasible.

*Table 7.1.4*

Riser height	Tread width
215 mm	215-223 mm
210 mm	215-229 mm
200 mm	225-240 mm
190 mm	237-253 mm
180 mm	250-267 mm
170 mm	265-282 mm
160 mm	281-300 mm
150 mm	300 mm



**On split level carriages, provide access to the essential facilities for passengers with mobility impairment on the entrance level. The essential elements include priority seating, wheelchair spaces, toilets (if provided), and access to information and emergency assistance.**

*Figure 7.1.4. Examples of carriage internal stair configuration and specifications (dimensions in millimetres).*

## 7.1.5 Surfaces

### *New carriages*

All access paths, manoeuvring, passing and circulation spaces, steps and stairs shall have slip-resistant surfaces that are safely traversable by mobility aids or ambulant people with poor mobility. These surfaces should also contrast in colour, luminance and where possible texture, with surrounding walls, doors and fixtures to provide way-finding cues for people with impaired vision.

Floors in vestibules and at entrances are particularly prone to wetting during rainy weather. Water may then be further walked through the carriage on passengers' shoes. Food and drink may be spilled in carriages. Surface texture shall therefore meet industrial and commercial requirements for slip-resistance under wet and dry conditions. Further, they shall be slip-resistant under light contact pressure, as walking sticks will not receive full pressure until part way through a person's stride. The static coefficient of friction, when the surface is dry, should be at least 0.40 when tested with the dry floor friction test of AS4586-2004. When the surface is wet the static coefficient of friction should be 35-44 when tested with the wet pendulum test of AS4586-2004 and using a 4S rubber slider.

A durable material with a fine, sharp or granular surface usually provides a high static co-efficient of friction and thus slip-resistance under most circumstances. Suitable carriage floor surfaces include:

- slip-resistant tiles,
- synthetic floor matting, such as composite vinyls or rubber,
- short-pile carpet.

All these materials shall remain in slip-resistant condition throughout their service life. Floor surfaces should not have cracks, cavities or surface relief that allow accumulation of fluids, dust or debris. Such accumulations reduce surface friction and increase the likelihood of slipping or tripping.

Carpets, tiles and floor matting in rail carriages require:

- secure attachment to the floor,
- firm underlay,
- exposed edges fastened to the floor surface, with a trim running the full length of the exposed edge and rising up to 5 mm above the abutting floor surface.

Carpets further require:

- a level loop, a textured loop, a level cut pile or uncut pile texture,
- pile height of 6 mm or less.

Anti-static carpet prevents interference with hearing aid use that results from static electricity build up.

To prevent slips or tripping, where two surfaces of different materials abut, they should have a similar static coefficient of friction and be close in slip-resistance. All surfaces, except at carriage entrances and in intercar areas, should have no more than 5 mm of vertical tolerance where they abut.

Surface glare can be an access barrier for people who have vision impairments or who are photosensitive. Surfaces shall be non-reflecting and create minimal glare. The use of textured surfaces may be applied to help reduce glare and reflectivity. Texture and colour contrast and luminance contrast can also assist people with vision impairments differentiate access path surfaces from other surfaces.

### *Existing carriages*

If for technical reasons surfaces cannot be replaced, treat them to bring them to compliance for slip-resistance.

## 7.2 Passenger facilities

### 7.2.1 Seating – unbooked services

Carriages require allocated spaces for mobility aids and seating prioritised for the use of people with disabilities. Priority seating and allocated spaces should be easy to locate and use. It is suggested that priority seating be a different colour to other seating in order to be easily found and recognisable.

An allocated space may be used for other purposes if it is not required for use by a passenger in a wheelchair or similar mobility aid. Folding seats may be placed in the allocated spaces but should not compromise allocated space dimensions when folded up. If installed, assistance controls shall be located in or near allocated spaces. Refer to 6.1 for controls specifications.

If standard aisle seats have handholds to assist people with poor balance who are walking to standard seating, the handholds should be colour and luminance contrasted with adjacent surfaces. People with vision impairments may use the colour contrast and luminance contrast of the handhold as a way-finding guide when moving along the aisle. Handholds should be located on the top of the backrest on the aisle side of the seat.

Allocated spaces and associated fixtures and features are illustrated in Figures 7.2.1.a and b.

#### *New carriages*

### **Allocated wheelchair spaces**

#### **Location**

Operators may determine the location and orientation of allocated spaces. If practicable however, provide allocated spaces adjacent to or near each other and near the entrance vestibule (refer 7.1.2). This provides greater potential manoeuvring space for mobility aids (refer 7.1.3) and enables two passengers using mobility aids to travel together.

Seating should be co-located with allocated spaces to allow carers and friends to travel with the passenger using the mobility aid.

Consolidation of allocated spaces in single cars may affect train dwell time and boarding and detraining due to limited platform space at the boarding / alighting point.

#### **Number per carriage**

In a suburban rail set, provide at least:

- two allocated spaces for each carriage in the train that has 33 or more fixed seats, and,
- one allocated space for each carriage in the train that has less than 33 fixed seats.

In an outer-suburban, intercity or regional unbooked train, provide at least one allocated space, equal to the number of cars in the train. Co-location of spaces in carriages allows people who use wheelchairs to travel together.

An allocated space is additional to the fixed seating capacity. Up to 8 allocated spaces may be located together in one car of a set however, consideration shall be given to the level of amenity and inclusiveness of the car's design for people using mobility aids and their carers.

## Dimensions

An allocated space is a three dimensional, rectangular space with dimensions:

- 1300 mm long,
- 800 mm wide, and,
- minimum 1900 mm high.

## Signage

An allocated space shall clearly display the International Symbol of accessibility, whether on the floor, on an adjacent wall, or both. If displayed on the floor, the symbol should be as large as practicable so that during times of peak crowding it is recognisable from the boundary of the allocated space where it abuts an access path. Colours of White figure on Ultramarine Blue are preferred but not mandatory.

When used, allocated space priority signs should be placed on the wall behind or beside the allocated space at a height where passengers sitting in seats that may share the allocated space cannot obscure them. The range of 1400-1600 mm above floor level is recommended. Use the International Symbol for Access and provide text reading: "Please vacate this space for people using mobility aids." or similar as deemed appropriate.

## Grabrails

Provide grabrails in all allocated spaces except where anchoring of mobility aids is required as a condition of travel. Grabrail dimensions and specifications shall comply with 7.2.2.

## Priority seats

### Numbers and availability

Designate at least 2 fixed seats per rail car as priority seating for passengers with disabilities. Priority seating is available to all passengers but signed to require its surrender when required by a person with a disability.

Examples of priority seating and associated fixtures and features are illustrated in Figure 7.2.1.c.

### Location

Operators may determine the location and orientation of priority seats. However, an access path shall connect priority seats to accessible entrances and other essential facilities for passengers with mobility aids (refer 7.1.2). Since priority seats are intended for use by the elderly and less mobile, locate priority seats as close as practicable to entrances.

### Signage

Place priority seating signs on the wall behind or beside the priority seating at a height where a seated person cannot obscure them. The range of 1400-1600 mm above floor level is recommended. Use the International Symbol for Access and any other International Symbols and text deemed appropriate.



## Type and Dimensions

Priority seats on unbooked services should be fixed rather than folding. Priority seats have the following recommended dimensions:

- minimum 450 mm width for the seat cushion,
- the top of the cushion be 450-520 mm above floor level.
- the seat cushion be 400-450 mm deep.
- the rear of the seat cushion be not more than 20 mm lower than the front.
- armrests, if provided, be 220-300 mm above the highest part of the seat cushion.
- the top of the backrest be at least 750 mm above floor level.
- the seat to backrest included angle not exceed 105 degrees.
- 600 mm clear legroom space between the fronts of cushions when two seats face each other,
- 680 mm from the back of the front seat to the rear of the seat cushion on the rear seat when seats face the same direction and one is located behind another, and,
- 230 mm legroom from the back of the front seat to the front of the seat cushion on the rear seat when seats face the same direction and one is located behind another.

Assistance dogs will usually stay with their owner during travel (refer 4.2.4). The 230 mm minimum of lower legroom, and at least 260 mm space available beneath the seat, accommodates a reclining assistance dog.

### *Existing carriages*

Maximise numbers of allocated spaces and priority seats where technical or legitimate space constraints prevent full compliance. Where storage of train equipment and space constraints prevent dimensions for allocated spaces being met, maximise the dimensions to the fullest extent practicable or enable manoeuvring of a mobility aid into the seating area by removal of handrails or other discretionary fixtures / fittings. Access path width may need to be reduced from 850 mm in order to maximise space and seating dimensions but should never be less than 760 mm (refer 7.1.2).

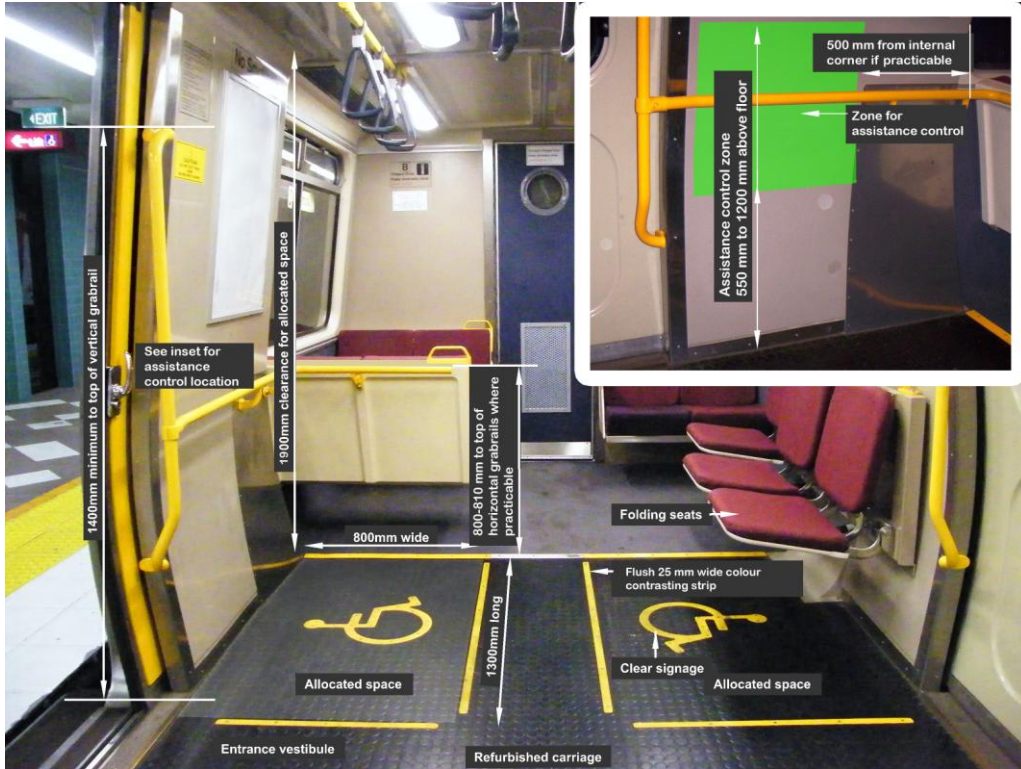


Figure 7.2.1.a. Examples of allocated space and assistance control dimensions and specifications (dimensions in millimetres).



Figure 7.2.1.b. Examples of allocated space assistance control specification (dimensions in millimetres).  
Note: Sign text may be sentence or title case.



Figure 7.2.1.c. Examples of priority seating dimensions and specifications (dimensions in millimetres).  
Note: Sign text may be sentence or title case.

## 7.2.2 Hand and grabrails

Handrails and grabrails are necessary components of access paths, allocated spaces and toilets but, where practicable, should not intrude into the required circulation spaces of these facilities.

### *New carriages*

#### **Handrails**

References to carriage handrails are in:

- 7.1.2 Access paths
- 7.1.4 Steps / stairs

Horizontal handrails and grabrails require a clear area 600 mm above the rail. Limited wall space, demands for equipment storage and other technical constraints may make this clearance impractical, however the clearance should be maximized and controls recessed where possible to minimise impact on handrail functionality.

#### *Access paths*

Where installed along access paths, handrails should meet the requirements of 5.2.4 and have:

- 865-1000 mm vertical separation between the top surface of the handrail and the access path surface (refer 7.1.2), and
- ends turned away to a side wall or continued down to the floor.

#### *Stairs*

Handrails shall be as per Part 5.2.4 except that handrails on carriage steps may terminate at the top riser or the nose of the bottom tread. At these points the handrail shall be turned away to a side wall, turned downwards for at least 100 mm, continued down to the floor or along the path of travel. An example of stair handrails in rail cars is shown in Figure 7.1.4.

Rather than the extension of the handrail, a domed warning button:

- 4–5 mm high,
- 10–12 mm diameter, and,
- approximately 150 mm from the end of the handrail,

may be located on the top of the handrail.

## Grabrails

References to carriage grabrails are in:

- 7.1.2 Access paths
- 7.2.1 Seating
- 7.2.5 Toilets
- 7.4.3 Bathroom amenities

Wherever installed, grabrails should meet the required specifications of 5.2.4 and have a slip-resistant design where required in wet areas.

Grabrails should meet the recommended specifications of 5.2.4. Dimensions may need to be altered to ensure functionality in all settings e.g. where a grabrail is provided next to a weather shield and the flexed hand grip needed to raise or lower from an adjacent seat may require larger clearance between the shield and the rail.

Grabrails should have a colour contrast, and luminance contrast of at least 30%, with adjacent surfaces (refer 7.3.3).

Grabrail dimensions and fixings are illustrated in Figure 7.2.2.

### *Access paths*

Consider installation of grabrails beside access paths where handrails are needed for stability and guidance, but are impractical or impossible to install. For example, vertical grabrails should be installed where there are double leaf doors and should be located on both sides of the carriage doors.

If installed, vertical grabrails should extend at least 1400 mm above the floor surface and reach to within at least 800 mm of the floor except where head strike may be possible e.g. in or adjacent to the allocated space. Where not installed near a wall, vertical grabrails may attach to the floor to permit their detection by a person using a white cane.

### *Allocated spaces*

Horizontal grabrails should be located on at least one wall bordering an allocated space and if practicable run for the full length of the wall where it borders the allocated space. The top of horizontal sections of grabrails should be located 800-810 mm above the floor wherever practicable, though structural constraints may require this range to extend higher or lower. If provided, vertical grabrail sections should extend from at least the horizontal grabrail to 1400 mm or higher above the floor except where there is a risk of head strike for the wheelchair passenger.

### *Toilets*

Accessible toilets should, wherever practicable, have grabrails as per 5.2.6.

Toilet grabrails are illustrated in Figure 7.2.5.b.

### Existing carriages

Grabrails may be used where handrails cannot be installed.

If the carriage wall behind a vertical grabrail is concave, the 50-60 mm clearance range between rail and wall may be relaxed.

Where non-compliant grabrails of up to 50 mm diameter are in place and functioning safely and effectively, these should be left in situ until the refurbishment cycle of the carriage allows their refit with designs that are as compliant as possible.

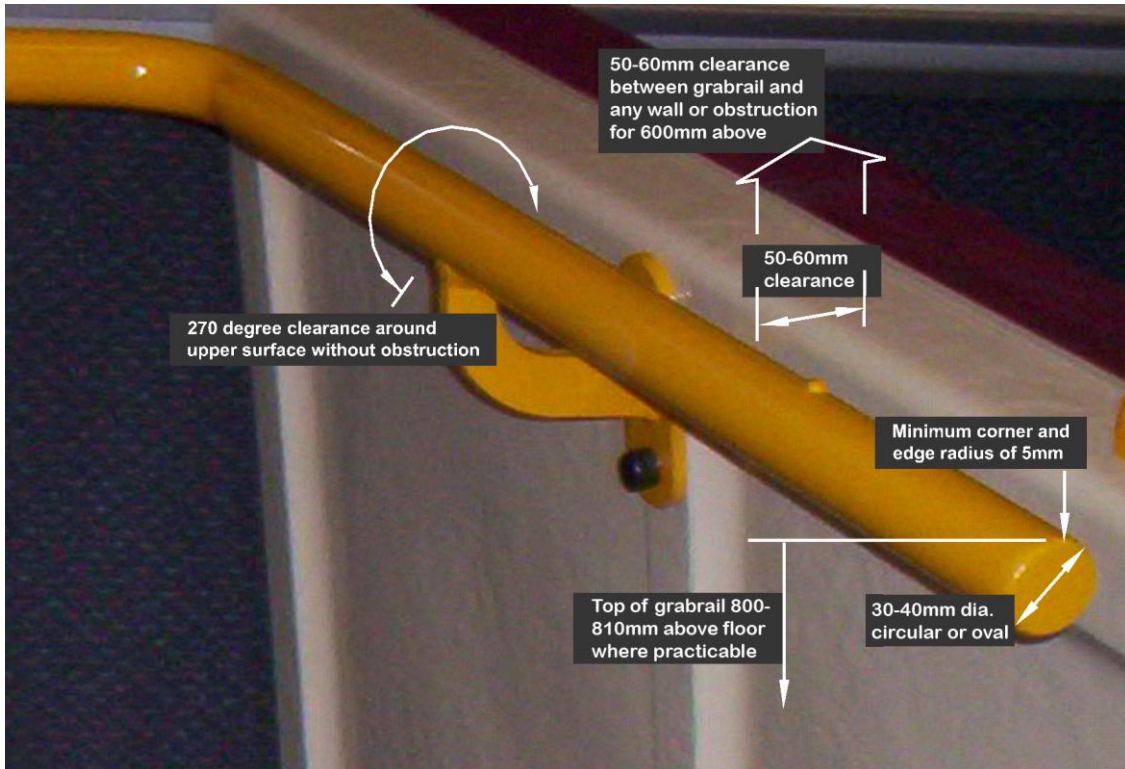


Figure 7.2.2. Examples of grabrail dimensions and specifications (dimensions in millimetres).

### 7.2.3 Railcar passenger controls

Passenger controls that are located on access paths shall be operable by passengers who have disabilities. Where possible, seat, grabrails, weather shields and other fixtures should not obstruct access to controls.

References to controls are in:

- 7.4.2 Food and drink
- 7.4.4 Sleeping accommodation
- 7.5.2 Controls

*New carriages*

#### **Push and touch control operation**

Controls should meet the requirements of 5.2.5.

#### **Identification of push and touch control function**

Control function should be identifiable by blind and vision-impaired passengers. This may be achieved by:

- colour and luminance contrasting characters not less than 10 mm high and Braille equivalent, adjacent to or on the button, or
- tactile characters not less than 12 mm high, and projecting at least 0.6 mm from their background and preferably up to 1.5 mm, adjacent to or on the button (Characters may combine contrast and tactility.)

Door-open and door-close symbols may be consistent with symbols that convey the same message on lift car doors. An example of a tactile door-open symbol is illustrated on the buttons of Figure 7.2.3.a. Characters and symbols should colour contrast, and luminance contrasted by at least 30%, with their background (refer 7.3.3). Surfaces on the same plane and within 300 mm of assistance controls should have a finish that reduces glare and reflection.

#### **Identification of controls**

Controls should be locatable by touch. This may be achieved by:

- raising the button, pad or sensor surface above the surrounding surface by at least 1 mm and preferably 3 mm, or,
- locating the button within a colour and luminance contrasting section, at least 75 mm wide at its smallest dimension, and raised above the surrounding surface by at least 3 mm, or,
- recessing a button, pad or sensor within a raised section at least 2 mm high, or,
- having a surface texture that strongly contrasts with the surrounding surface, or,
- distinctive shape or function (e.g. switches, toggles, levers or D handles).

Where inadvertent or nuisance use needs to be discouraged, ensure controls are clearly signed.

Minimum dimension across control button or assistance control faces should exceed 19 mm.

Moving parts of adjacent control buttons or assistance controls should be 10 mm or further apart.



### Push and touch control identification

Controls should be identifiable by sight and should have a colour contrast, and luminance contrast of at least 30%, with surrounding surfaces (refer 7.3.3). For buttons this may be achieved by:

- continuous illumination from within the button, or
- a colour and luminance contrasting border at least 3 mm wide on or around the button.

Controls that are similar in colour, that are touch-screen, or that sit flush with their surrounds will not be operable by blind or vision-impaired passengers. If controls with these non compliant characteristics are used, equivalent access to the same service shall be available.

### Door controls

Door controls are illustrated in Figures 7.2.3.a and b.

When pressed, door controls or pads, external or internal, should have a visual and audible cue to inform passengers that the opening request is recorded.

#### *Door control location*

Inside carriages, locate manually initiated door opening controls 900 - 1100 mm above floor level. Wheelchair users will better reach controls if they are located lower in the specified range.

Wherever practicable, door controls inside carriages should be 500 mm or further from internal corners, weather-shields and the like. If this is not practicable, maintain maximum distance from corners practicable.

All manual door controls shall be operable with a single hand, by a person with poor manual dexterity and not require tight grasping, pinching, or twisting of the wrist. People with poor manual dexterity have difficulty with door furniture such as doorknobs and certain types of door handles. Door handle operation shall meet the requirements of 5.2.5.

#### *Door handle operation*

Provide direct assistance where emergency door controls do not meet the above requirements for door controls.

Door handle dimension and function is illustrated in Figure 7.2.3.b.

#### *Existing carriages*

Switches and controls that for technical or structural reason are not able to be located within the required ranges shall be located as close as practicable to the prescribed ranges.

If controls such as D handles, levers, buttons and pads lack colour or luminance contrast with surrounding surfaces but cannot be replaced, where possible alter the colour of the surface surrounding the control. Buttons and pads should sit within a contrasting field 100 x 100 mm. "D" handles and levers should sit within a field 100 mm wide and extending the length of the handle or lever.

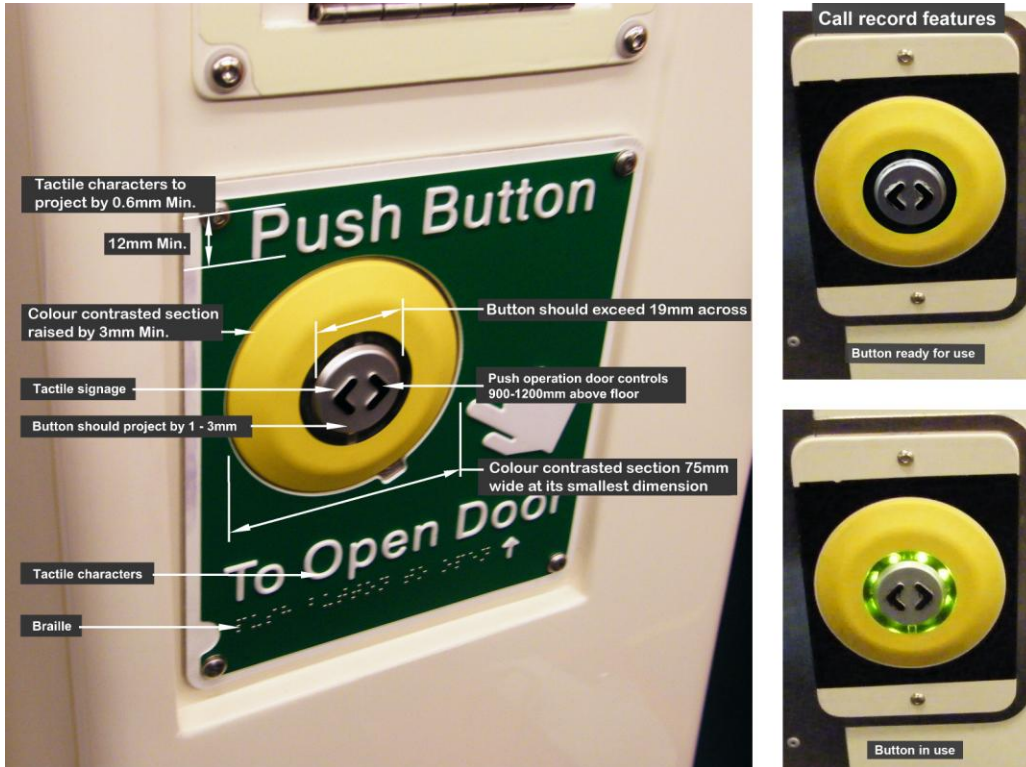


Figure 7.2.3.a. Examples of door control button specifications (dimensions in millimetres). Note: Sign text may be sentence or title case. The illustrated button and sign layout is for example only and not prescriptive.

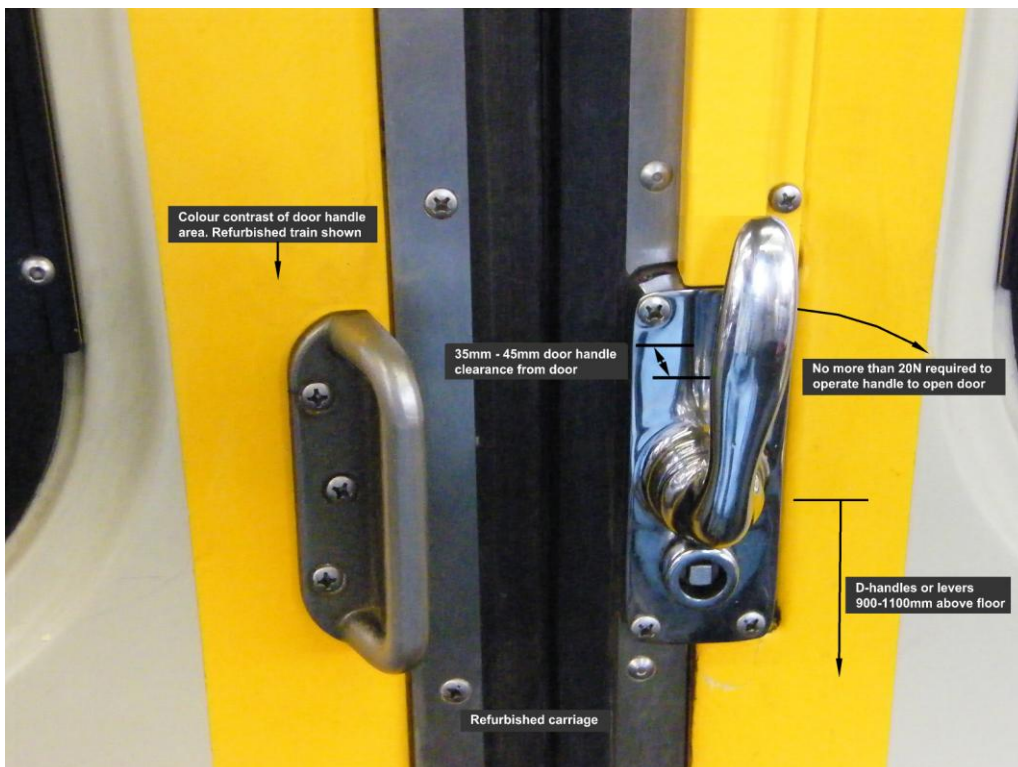


Figure 7.2.3.b. Examples of door handle specifications. Door handle clearance is measured from the centre of the handle (dimensions in millimetres).

## 7.2.4 Railcar lighting

A discussion of lighting and its requirements is found in 5.3.6.

Table 7.2.4 stipulates illuminance levels within the maintenance cycle for lighting that will enable people with disabilities to access carriages independently.

Lights in crew areas and on booked service seating areas, sleeping berths and access paths may be dimmed during advertised 'lights-out' periods so that passengers may sleep. In sleeping berths, lighting should also be adjustable by the passenger.

**Table 7.2.4.** Maintenance illumination levels for the listed facilities or fixtures.

Facility or Fixture	Average illuminance, ground level on a horizontal plane (Lux)	Minimum illuminance to average illuminance ratio.
Entrances	150	0.5
Access paths including stairs	150	0.5
Toilets	200	0.5
Areas where fares are purchased	150	0.5
Counter tops	250	0.5
Bars and dining tables*	160	0.5
Displays including network maps, timetables and any other service related notices	200	0.5
Sleeping berths	40 but adjustable up to 150	0.5

## 7.2.5 Toilets

### *New carriages*

If toilets are provided on a train, there shall be at least one unisex accessible toilet on the train without airlock available to passengers using wheelchairs or mobility aids that fit the footprint of the allocated space (refer 7.2.1). These toilets shall allow passengers in wheelchairs or mobility aids to enter, position their aids and exit. Where the minimum internal dimensions of 5.2.6 are not able to be met, attempt to meet the dimensions to the maximum extent practicable.

An access path shall connect accessible toilets with allocated spaces and priority seats, or equivalent access provided. Where practicable, locate accessible toilets in proximity to allocated spaces, priority seats and sleeping berths.

Refer to 5.2.6 and 7.1.1 for information on doors and 7.2.2 for grabrails.

Examples of toilet pan dimensions and location, toilet paper zone, flushing control zone, and emergency call button zone are illustrated in Figure 7.2.5.a. Examples of grabrails are illustrated in Figure 7.2.5.b. Examples of hand basins and fixtures are illustrated in Figure 7.2.5.c.

### *Existing carriages*

As per new carriages, maximise internal dimensions as far as is practicable. Information about toilet dimensions should be publicly available (refer 7.3.1), and also provided at booking on request.

Hand basins may be located outside the toilet if space is too constrained for them to be placed inside the toilet cubicle. This should be a last option however as it could create hygiene issues.

In situations where technical constraints do not permit a door clear open width of 850 mm, a toilet door may be reduced to 760 mm clear open width.

Existing carriages may retain accessible gender specific toilets if technical constraints prevent construction of unisex units.

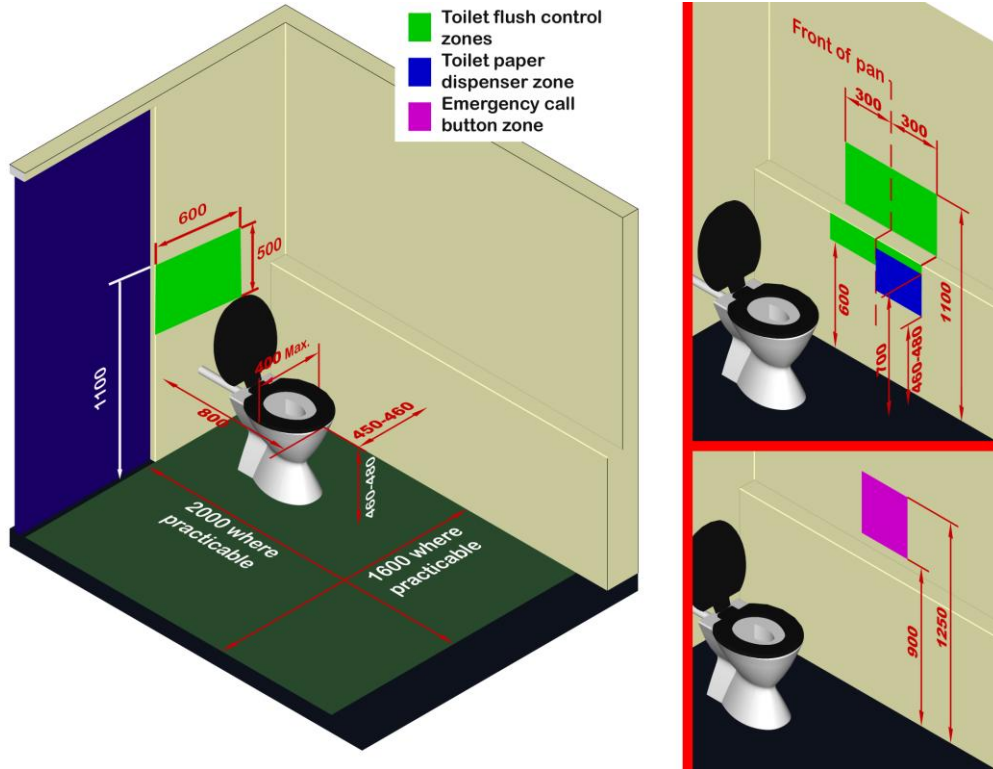


Figure 7.2.5.a. Examples of toilet dimensions, showing zones for toilet flushing control, toilet paper and emergency call buttons (dimensions in millimetres).

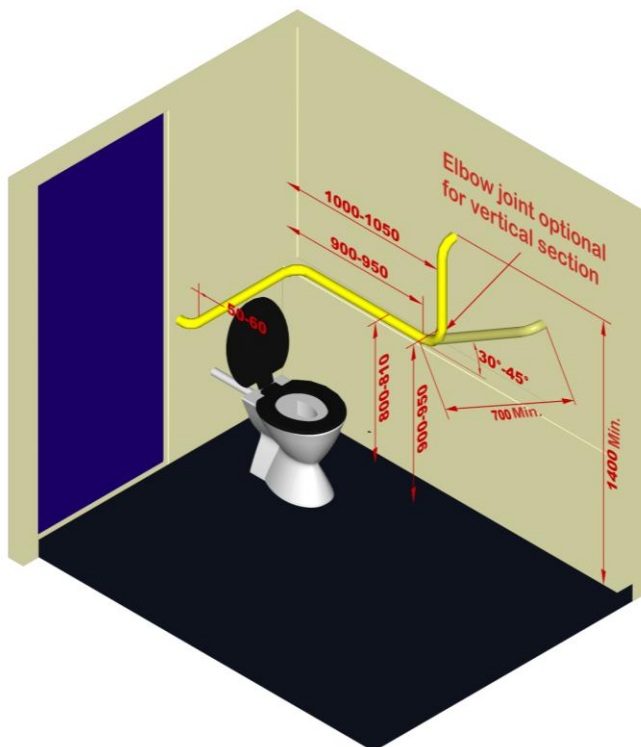


Figure 7.2.5.b. Examples of toilet grabrail dimensions (dimensions in millimetres).

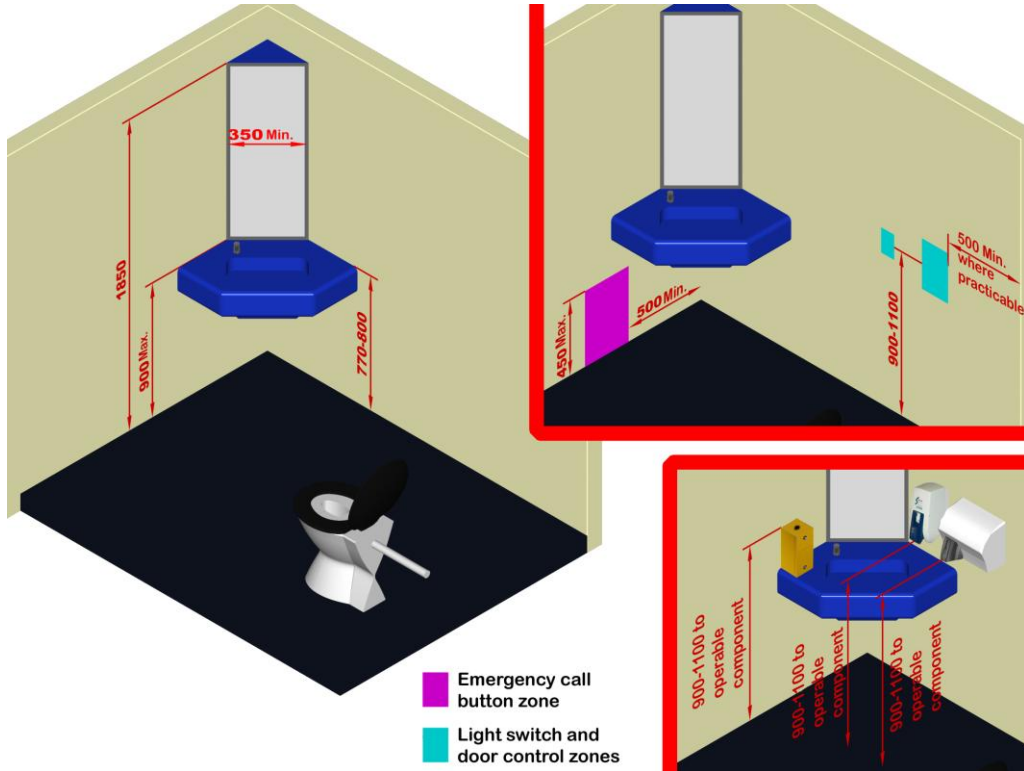


Figure 7.2.5.c. Examples of toilet hand basin and fixture dimensions (dimensions in millimetres).

## 7.3 Communications

### 7.3.1 Passenger information

Essential service information provided onboard trains shall be accessible to all passengers. Provision of accessible information assumes that all passengers have at least basic competence in spoken or written Plain English. Plain English and the use of symbols enhances comprehension.

All passengers shall be equivalently informed on their whereabouts during a journey. If this is not practicable via audio announcements and visual display, staff may directly inform passengers. Refer to 7.3.4 for information on hearing augmentation and visual equivalents.

If essential information is unavailable in a passenger's preferred format, provide equivalent access. For example, staff may assist by reading programs or menus to passengers and by directly informing them of service alterations. Operators should remain current in their provision of essential information, noting technological changes that improve information delivery.

Printed information that is available on trains shall comply with 4.4.2.

#### *Unbooked services*

Recommended essential information provided on an unbooked train service is:

- announcement of next stop, where applicable,
- destination, where applicable,
- safety related communications, and,
- any unscheduled change of service.

#### *Booked services*

Services offered on booked train services may also have information in accessible formats relating to:

- entertainment programs,
- itineraries,
- service-alteration notifications,
- menus, and,
- any other essential information that directly relates to customer service on the booked service.



Figure 7.3.1. Examples of visual alternative destination display location and specifications (dimensions in millimetres).



## 7.3.2 Signs and symbols

Signs and symbols are integral to carriage fit-out and are required or recommended in various parts of this Code of Practice:

- 7.1.1 Doors
- 7.2.1 Seating
- 7.2.3 Passenger controls
- 7.2.5 Toilets
- 7.3.1 Passenger information
- 7.3.4 Hearing augmentation
- 7.5.2 Controls (emergency egress)

The confined nature of a rail carriage decreases the need for directional way-finding signs. Instead, emphasis should be placed on identification of accessible features and control functions. These features and functions may include:

- accessible doors,
- accessible toilets,
- passenger operated controls,
- hearing augmentation / visual display areas (where these are not provided throughout the train),
- allocated spaces, and,
- priority seating.

Large signs are often inappropriate in carriages as space is limited and viewing distances are short. Therefore, signs need to convey concise, clear messages using limited information. Where practicable, prioritize pictograms and International Symbols over text in signs. Sign characters and symbols should colour contrast, and luminance contrast by at least 30%, with their background (refer 7.3.3).

Signs in carriages should meet the requirements of 5.3.2 and 7.2.3 where necessary for:

- surface and colour,
- symbols,
- letter and symbol size and format,
- visual use only signs,
- way-finding signs, and,
- location / facility signs.

If a sign incorporates raised lettering / symbols, they should be at least 0.6mm above the surface of the sign. Braille should meet the requirements of 5.3.2.

Signs shall be situated appropriately, clearly visible from seated or standing positions, and in context to their purpose. Overuse and clustering of signs may confuse people in that they must search through a number of options to find their desired information.

### Priority seating

For priority seating use the International Symbol for Access and any other International Symbols deemed appropriate, such as a man with a cane, on signs identifying designated seating. Sign text should include: "Priority seating. Please vacate these seats for people with disability" or similar, plus any other text deemed appropriate. Place priority seating signs on the wall behind or beside the priority seating at a height where a seated person cannot obscure them. A range of 1400-1600 mm above floor level is recommended.

### Allocated spaces

The floor area of an allocated space may display the International Symbol of access, and the floor space may be outlined with a strip at least 25 mm wide. Where applied, the symbol and strip shall colour contrast, and luminance contrasted by at least 30%, with the surrounding floor surface. Symbol size should be large enough not to be obscured by passengers standing on it and should be in the range of 200 x 200 mm to 450 x 450 mm. While recommended, the white figure on ultramarine blue for the allocated space's symbol is not mandatory. If folding seats share the allocated space, locate a sign displaying the International Symbol asking passengers to vacate the seats if the space is needed as per priority seating.

### Location of door signs

Signs identifying accessible facilities, such as accessible toilets, should incorporate tactile symbols. Raised text and Braille may be added if further explanation is deemed necessary. Place the International Symbol of access on the outside of accessible carriages at the entrance doors. Internal doors on long access paths may require signs on both sides if there is no dominant direction of travel requiring identification.

Position accessible signs:

- 1400-1600 mm above the floor surface or above head height if the sign is likely to be obscured by standing or seated passengers, and,
- 50-300 mm from the door's frame or architrave,
- on the latch-side wall where practicable if the door has a latch.

If there is insufficient space on the latch side of the door, a sign may be placed on the non-latch side of the door; and where this is not practicable, the sign may be placed on the door itself. If used, wall-mounted symbols, Braille and text shall comply with the requirements of 5.3.2 except that symbols and text should be raised a minimum of 0.6 mm not 0.8 mm.

Signs located externally to signify accessible doors may not always be within the above vertical range if a rail network's platforms are not at uniform levels. If so, locate as close as is practicable to door controls that are located as per 7.2.3.

### Hearing augmentation

If a hearing augmentation system does not cover an entire carriage the area covered by the system shall be designated by signs displaying the International Symbol for deafness around its margins. An example of a hearing augmentation sign is illustrated in Figure 7.3.2. Refer to 7.3.4 for further information on hearing augmentation.

### Destination signs

If possible, destination signs shall be visible from, or available at, preferred accessible boarding points. They may be displayed either on the carriage or the station platform.

If installed on the train, destination signs may be placed over the windscreen of the driver's cab, on the side of the train or both. They should be placed above the standing height of passengers noting that platform height may vary. Character size should be as large as practicable and shall meet the requirements of 5.3.2 for size, font and contrast.

## Controls

Place signs and symbols explaining control function adjacent to or on the control. Individual controls should be identified as per 7.2.3. Where possible, symbols should be used consistently throughout the network. For example, carriage door-open and door-close symbols should be consistent with symbols that convey the same message in lift cars. Tactile door-open symbols are illustrated on the buttons of Figure 7.2.3.a.



Figure 7.3.2. Examples of visual and visual / tactile sign location (dimensions in millimetres). Note: Sign text may be sentence or title case.

### 7.3.3 Colour and luminance contrast

Many fixtures and components in a rail carriage must, and others should, provide strong colour and luminance contrast with their surroundings. This ensures that people with low vision can detect potential obstacles and locate controls, handrails, stair treads and grabrails and read signs.

For a fuller discussion of colour and luminance contrast refer to 5.3.3.

References to colour and luminance contrast in carriages can be found in:

- 7.1.1 Doors
- 7.1.2 Access paths
- 7.1.4 Steps / stairs
- 7.1.5 Surfaces
- 7.2.1 Seating
- 7.2.2 Hand and grabrails
- 7.2.3 Passenger controls
- 7.2.5 Toilets

Some components and fixtures of a carriage require colour and luminance contrast with their surroundings:

- stair treads,
- door handles,
- signs and symbols,
- allocated space boundaries.

As good practice other components and fixtures should colour and luminance contrast with their surroundings:

- train floor to wall surface,
- doors and door frames,
- interior glazing that might be mistaken for a clear access path,
- toilet seats, shelves and vanities,
- handrails,
- grabrails,
- entrance door tread plates, and,
- controls.

### 7.3.4 Hearing augmentation

If a public address system is installed, people who are deaf or hearing impaired should be able to receive a message equivalent to that received by other passengers. This may be achieved through:

- hearing augmentation,
- providing a visual equivalent, or
- directly informing individuals.

Effective and compliant hearing augmentation is difficult to achieve inside a rail car. Technical barriers primarily related to electrical interference associated with powering and air-conditioning the train need to be overcome before this is a viable enhancement of public address system announcements in most rail cars.

Visual information provides information that is equivalent to simple audio information but is unable to exactly replicate more complex messages. It has the advantage over hearing augmentation in that it informs people who are totally deaf as well as those who are hearing impaired. Electronic visual information shall meet the requirements of 5.3.1, except that the minimum height of the display above floor level may be lowered to 1800 mm. Visual displays shall not project into access paths. An example of a visual information display is illustrated in Figure 7.3.1.

Any visual information should be viewable by the maximum number of passengers including those in the allocated spaces and priority seats. Where practicable, provide hearing augmentation at allocated spaces and priority seats.

On booked services, other forms of equivalent access may be used to supplement audio and/or visual service-related information. For example, detailed instructions relating to safety could be directly communicated to passengers who are deaf or hearing impaired.

## 7.4 Booked train services and facilities

### 7.4.1 Seating

#### *New carriages*

Provide at least two allocated wheelchair spaces per train. Operators may determine the location and orientation of allocated spaces on the train. An allocated space may be used for other purposes if it is not required for use by a passenger in a wheelchair or similar mobility aid.

It is good practice to assign at least two fixed, accessible seats per train for passengers with disabilities. However, a higher number of accessible seats may be required subject to demand. Hold accessible seating until all standard seating is taken before booking for other passengers. Allocated wheelchair spaces and assigned accessible seats may be located together in one car of a set to enable friends and carers to travel together.

Signs designating wheelchair spaces and assigned accessible seats are not mandatory on booked services.

Connect accessible seats and allocated wheelchair spaces to essential facilities and accessible entrances via an access path (refer 7.1.2).

Removable seats may occupy allocated spaces provided that they are removed when the allocated space is booked. Advanced notice of 48 hours may be required prior to seat removal as per 4.4.3.

Where practicable, carers and assistants shall occupy seats in close proximity to wheelchair users who are positioned in allocated spaces, and preferably should be in a seat adjoining or opposite.

#### **Specifications for allocated spaces and assigned accessible seats**

Allocated spaces have the same dimensional and operational requirements as prescribed in 7.2.1. Wheelchairs, or wheelchairs and occupants are not required to be restrained on trains but restraints may be provided if deemed appropriate. If employed, any restraint system should require minimal staff time and effort to release and re-secure in order to permit necessary movement to other parts of the train or carriage. Restraint systems should not put passengers in wheelchairs, carers or staff assisting them at risk during emergency evacuations. An example of an allocated space and associated call button is illustrated in Figure 7.4.1.a.

Good practice dimensions for assigned accessible seats are:

- The front edge of the seat should be 450-520 mm above floor level.
- The seat cushion should be 400-450 mm deep.
- The rear of the seat cushion should be not more than 20 mm lower than the front.
- Armrests, if provided, should be 220-300 mm above the highest part of the seat cushion.
- The top of the backrest should be at least 750 mm above floor level, although headrest style seating, if used, would exceed this figure.
- The seat to backrest included angle should not exceed 105 degrees.

Accessible seat dimensions not covered by Australian Standards but which may be considered are:

- 450 mm width for the seat cushion,
- 600 mm clear legroom space between the fronts of cushions when two seats face each other,
- 680 mm from the back of the front seat to the rear of the seat cushion on the rear seat when seats face the same direction and one is located behind another, and,
- 230 mm legroom from the back of the front seat to the front of the seat cushion on the rear seat when seats face the same direction and one is located behind another.

For reclining seats, the above dimensions are applicable when the seats are fully upright.

Assistance dogs are permitted to stay with their owner during travel but shall not encroach onto access paths. The recommended 230 mm minimum of legroom between or in front of seats, and any space available beneath the seat, accommodates a reclining dog of up to the size of a trained, accredited assistance dog.

Aisle-side and centre armrests on transverse seats should be moveable to allow transfer across seats or, to and from a mobility aid positioned beside the seat in the access path. Controls for armrests should be operable with a single hand by a person with poor manual dexterity and not require grasping, pinching, or twisting of the wrist. An example of an assigned accessible seat is illustrated in Figure 7.4.1.b.

#### *Existing carriages*

During the refurbishment cycle of the carriage, existing carriages should be made compliant wherever practicable with the requirements and recommendations for new carriages. However, where legitimate structural constraints prevent compliance, a practicable alternative solution shall apply. For example, if two wheelchair spaces cannot be provided, passengers using manual wheelchairs should be given the option of transferring to an assigned accessible seat. With the manual wheelchair stored elsewhere, the passenger may be taken to essential areas in an onboard carriage wheelchair or have food and drink brought to them.

If there is insufficient space for assistance dogs under priority seats, consider leaving the seat adjacent free so that the dog can occupy the available leg space.

Access path width to wheelchair spaces and assigned accessible seats may need to be reduced from 850 mm in order to maximise space and seating dimensions but should not be less than 760 mm (refer 7.1.2).

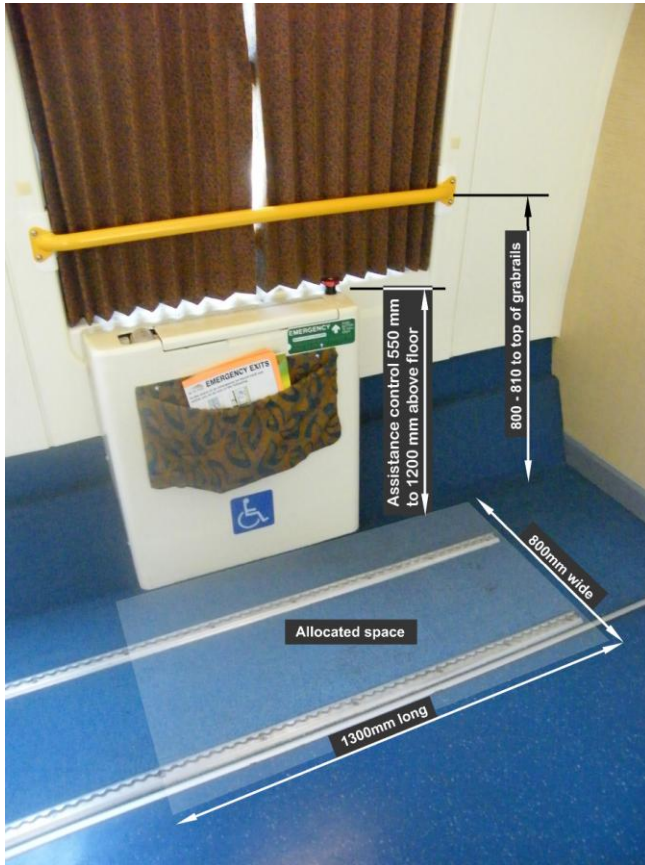


Figure 7.4.1.a. Examples of allocated space and call button dimensions and specifications (dimensions in millimetres).



Figure 7.4.1.b. Examples of accessible seating dimensions and specifications (dimensions in millimetres).



## 7.4.2 Food and drink

### *New carriages*

Operators and providers shall ensure that any food or drink service that is provided as part of a public transport service is equally available to all passengers. This may be achieved by providing space for passengers using mobility aids in food and drink service areas, or by providing the same convenience of service in passenger seating areas or sleeping berths. If passengers with disabilities have to dine separately from other passengers, as much as is practicable, the same menu and level of service shall be provided.

### **Allocated spaces and accessible seating at tables**

Passengers using mobility aids, who independently use access paths to reach food and drink areas, may require allocated spaces at tables, or if they transfer to standard seating will need a suitable storage place to safely locate their mobility aid. If the storage place is distant from the table, the person shall be able to have their mobility aid retrieved when it is required.

Allocated spaces at tables may have removable seats fixed in them when not required by users of mobility aids. Dining, or other accessible tables, may intrude into part of the allocated space associated with them. Ideally, table height should be adjustable through the range of 700-850 mm above floor level. If adjustable tables are not an option, three-dimensional knee clearances space beneath a table should be:

- 800-840 mm high if a single accessible table is provided,
- 710-750 mm for the first unit and 800-840 mm high for the second accessible unit if two units are provided, with this pattern continuing for the number of accessible units provided,
- 620-640 mm long, and,
- 800 mm minimum width between legs or other table supports.

For a seat to be accessible at a table, a 230 mm horizontal gap should be provided between the front edge of the seat cushion and the edge of the table.

If an onboard carriage wheelchair is the only viable option used to give passengers access to food and drink areas, the width and clearance of access spaces at tables may be reduced to suit the size of the onboard carriage wheelchair. Alternatively, the option to transfer to standard seating at the table should be offered (refer 7.4.7).

### **Dining in passenger seating carriages**

If passengers in a carriage usually dine in their seats, staff may attach a folding table or tray to the wall of an allocated space, meeting the clearance and overhang dimensions above if practicable. Alternatively, staff may deploy a removable tray or table. In both instances, the contours and area of the tray or table provided should equal that of trays or tables provided to other passengers.

If passengers in a carriage usually dine in their seats, fold-down trays or tables attached to the back of the seat in front are acceptable for assigned accessible seats, provided that controls to unlock the tray or table comply with 7.2.3. Alternatively, staff may provide and deploy a removable tray or table.

### **Vending machines**

If provided, food or drink vending machines should have controls as per 5.2.5.

### *Existing carriages*

Access path to dining or club cars will be difficult to achieve on many existing trains. In these cases, equivalent access may be achieved through direct assistance via onboard carriage wheelchairs, or by serving food and drink to the allocated spaces or assigned accessible seats.

### 7.4.3 Bathroom amenities

If regular sleeping berths have shower facilities, accessible sleeping berths should also have shower facilities. Where more than one accessible berth with shower recess is provided, at least one recess should be of the opposite hand for seat location, although left and right hand seats in equal proportions would be preferred.

The dimensions of bathroom amenities achievable on booked trains are limited by the rail gauge, the internal width of the train and the requirement for an access path to/from the accessible facility. Dimensions should be maximised as far as practicable against the recommended dimensions below.

#### *New carriages*

##### **Shower recess dimensions**

Showers, toilets and sleeping areas may share a circulation space. Shower recesses may occupy any of the four corners of a larger, rectangular, shared circulation space or may form a discrete three side space adjoining and accessed from a larger, rectangular, shared circulation space.

A two-sided shower recess forms part of a rectangular circulation space that should have minimum horizontal dimensions of 2350 mm by 1600 mm.

- The wall supporting taps, soap holder and showerhead should be 1160 mm minimum width.
- The tap, soap holder and showerhead wall forms part of the 1600 mm minimum dimension of the circulation space.
- The wall supporting the folding seat should be 1100 mm minimum width.
- The folding seat wall forms part of the 2350 mm minimum dimension of the circulation space.

A three-sided shower recess adjoins a circulation space that should have minimum horizontal dimensions of 1400 mm by 1600 mm.

- The wall supporting taps, soap holder and showerhead should be 1160 mm minimum width.
- The tap, soap holder and showerhead wall is parallel to the 1600 mm minimum dimension of the circulation space.
- The wall supporting the folding seat should be 1100 mm minimum width.
- The folding seat wall is parallel to the 1400 mm minimum dimension of the circulation space.

All the above dimensions shall be consistent from floor level to 900 mm above the floor.

##### **Shower screens**

If shower recess screens are provided they should be as below:

- Screens should be curtains, sliding doors or outward-opening hinged doors.
- Doors should allow removal or opening from the outside in emergencies.
- Curtains should be weighted on the bottom hem.
- In the open position, screens should not compromise the open side or sides of the shower recess.
- Floor tracks for sliding screens should be flush across the shower recess opening.
- When open sliding doors shall not obstruct the shower seat.
- Hinged doors should be hinged from the side opposite the seat.

## Grabrails

Grabrails should comply with 7.2.2 except that taps, soap holders, showerhead and showerhead support grabrails may encroach into the 600 mm clear space required above the grabrail.

Vertical and horizontal grabrails should be located on the wall adjacent to the folding seat.

The horizontal grabrail on the wall adjacent to the folding seat should be located 800-810 mm above floor level. The horizontal grabrail should commence 390-400 mm from the wall behind the folding seat and extend 800-1010 mm (with 1010 preferred) from the wall behind folding seat.

If a shower recess has three walls, horizontal grabrails should be provided on the walls opposite and adjacent to the folding seat. The horizontal grabrail may continue without break along the wall adjacent to the seat and across the wall opposite the seat, terminating within 100 mm of the outer edge of the wall opposite the seat. Alternatively in a shower recess with three walls, if the horizontal grabrail is broken, the grabrail on the wall opposite the seat should commence less than 100 mm from the outer corner of the opposite wall and extend into the shower recess at least 600 mm from its point of commencement.

The vertical showerhead support grabrail should be located 580-600 mm from the wall behind the folding seat. The vertical range of the vertical showerhead support grabrail should be 1000-1900 mm but not less than 1100-1880 mm above floor level.

## Folding seat and shower chair

A shower seat fixed on one wall of the shower recess should be:

- fold-away,
- self-draining,
- slip-resistant, and
- have rounded edges.

The seat's fastenings, materials and framework should withstand a 1100 N force applied at any point and in any direction without failing, visibly deforming or the fastenings becoming loose.

The seat should have:

- a space of 40 mm or less between the seat and the adjacent and rear walls,
- 1000 mm minimum length along the wall to which it attaches, terminating 100 mm or less from the end of the recess wall to which it attaches, and,
- 390-400 mm depth from its rear to its front,

and its top should be located:

- 470-480 mm above the floor when it is folded out for use.

When the seat is in the folded position it should:

- not present a hazard through sharp edges on hinges or attachments,
- have secure locking mechanisms,
- allow clear access to the grabrails on the wall adjacent to the seat, and,
- allow at least 1000 mm clear space between the folded seat and the opposite wall or any other fixture or obstruction.

As an addition to the folding seat, a mobile shower chair of a type supplied by retailers of surgical engineering products may be provided.

### **Water taps**

Shower taps should be either levers or capstan handles with levers preferred. If separate taps are provided for hot and cold water, place the hot water tap to the left of, or above, the cold water tap.

Shower taps should be placed in one or both of two zones located on the wall on either side of the vertical showerhead support grabrail. Horizontally, both zones commence at a point 50 mm from the vertical grabrail and extend along the wall to a point:

- 300 mm from the vertical grabrail on the folding seat side, and,
- 200 mm from the vertical grabrail on the side away from the folding seat.

Vertically, the zones should extend between 900-1100 mm above the floor.

### **Showerhead**

Accessible showers should be usable by people who are either seated or standing. Detachable showerheads on flexible hoses should be installed on the showerhead support grabrail. The fitting for the showerhead should allow the showerhead to be adjusted through various angles both vertically and horizontally, and allow the showerhead to be adjustably positioned at heights of 1000-1900 mm above floor level.

The detachable showerhead should be returned to a position accessible to a seated person after use. This may be achieved by ensuring that the showerhead is positioned at heights of less than 1350 mm above floor level prior to the passenger's occupation of the sleeping berth.

### **Floor design and waste outlet**

Shower recess:

- floors shall be slip-resistant (refer 7.1.5) and should self drain,
- entrances should not have steps or kerbs,
- floor wastes should be centrally located, and,
- floor grade should be 1:50-1:60.

### **Clothes and towel hanging fixtures**

At least two clothes or towel-hanging fixtures should be located on the walls outside the shower recess. Where possible, one should be located within 600 mm of the outer edge of the shower seat.

Where possible, clothes or towel-hanging fixtures should be located:

- 1200 mm to 1350 mm above the finished floor, and,
- 500 mm or greater from any internal corner.

### **Soap holder**

The soap holder may be located on either side of the vertical grabrail and should be:

- 900-1100 mm above the floor,
- 300-550 mm from the wall supporting the folding seat, or,
- 630-800 mm from the wall supporting the folding seat, and,
- in both these ranges, more than 50 mm from the vertical grabrail.

The soap holder should protrude rather than being recessed, and should withstand a force of 1100 N applied at any point and in any direction without loosening or deformation.

### **Emergency call button**

At least one emergency call button should be installed in each shower circulation area near the shower recess. If practicable, emergency call buttons for showers may be shared with the emergency call buttons associated with accessible toilets whose circulation space overlaps that of the shower.

Locate any emergency call button in the vicinity of the shower entrance as most falls and accidents will occur while transferring between folding seat, shower chair and wheelchair or vice versa. One button should be located at not more than 450 mm above floor to allow operation by a person collapsed to the floor. If installed, a second should be located 900-1250 mm above the floor to allow use from a wheelchair. Where practicable, locate call buttons on different walls.

### *Existing carriages*

Where legitimate structural constraints prevent existing showers being modified to meet the dimensional recommendations for new units, operators should maximise circulation space and minimise reach ranges to the full extent practicable.

For legitimately undersized shower recesses, wheeled shower chairs give the option of transfer into the chair in the berth's general circulation space and then wheeling into the shower recess.

Elimination of existing steps or kerbs at the shower entrance is preferred and allows shower chairs to be wheeled into the shower, making access to smaller shower recesses or areas possible for some people who rely on mobility aids.

To accommodate a shower chair, a minimum footprint within a shower recess of at least 800 mm width between the folding seat when it is folded against the wall, and the wall opposite or any other obstruction would be necessary.

#### 7.4.4 Sleeping accommodation

There are two service levels on booked train services – sleeper and seating. Any sleeping accommodation provided, whether in sleeping berths or reclining chairs, shall offer passengers who use mobility aids equivalent level of service to other passengers.

Accessible berths shall be connected to essential facilities on the train via an access path complying with 7.1.2. If this is not practicable, operators shall provide equivalent access to berths by direct assistance.

##### *New carriages*

If a train has sleeping berths, at least one compartment with two sleeping berths shall be accessible to passengers using compliant mobility aids on each train.

Where reclined seating is provided, assigned accessible seating should provide the same level of amenity as other seating in the same compartment.

##### **Circulation space**

Passengers using wheelchairs or mobility aids compliant with the size and performance requirements of this Code shall be able to enter and exit the berth, and position their aids, so that they can get into the bed or bunk.

A clear space of at least 1000 mm width, running from the foot of the bed or bunk to approximately 500 mm from the head of the bed or bunk, should be available on both sides of a bed or one side of a wall-attached bunk to accommodate wheelchairs, mobility aids or hoists. To permit one hundred and eighty degree turns by wheelchairs a circulation space 2070 x 1540 mm should be provided in the berth. This may overlap circulation spaces for beds, toilets or showers.

Reclining seats that are assigned as accessible shall meet the requirements of 7.4.1 and be connected to entrances and essential facilities via access paths meeting 7.1.2.

##### **Beds and bunks**

Beds and bunks in accessible sleeping berths shall have a clear space of at least 150 mm between the floor and the base of the bunk or bed. This clear space allows deployment of hoists beside the bed or bunk.

The bed or bunk's mattress top shall be 480-500 mm above floor level when compressed by a weight of 90 kg. The 90 kg weight approximates a person sitting on the edge of the mattress either preparing to transfer to, or having transferred from, a wheelchair.

##### **Switches and controls**

Wall mounted light and other switches should be located as per 5.2.5.

If provided in a sleeping berth, at least one of each control for intercoms, radios, emergency alarm, TVs, air-conditioners, lights and signals shall be accessible from the bed. For controls to be reachable from a bed they should be located less than:

- 600 mm from the bed, and,
- 600-800 mm above the floor.

### *Existing carriages*

If a train has sleeping berths, at least one berth accessible to a passenger using a compliant wheelchair or mobility aid should be provided per train when the sleeping accommodation is upgraded. While minimum numbers of sleeping berths for existing trains – those in service and old cars refurbished – are less than those for new, they should be exceeded if practicable, and compliance with numbers for new trains met where practicable.

If full compliance with dimensions recommended for new carriages cannot be met, practicable alternative solutions apply. In some cases equivalent access to berths by direct assistance will be required. Passengers should be informed at booking of the dimensions of berths and their amenities and what level of direct assistance can be provided by the operator.

### **7.4.5 Recreation facilities**

Recreation facilities provided by operators are covered by the DDA and consideration for the needs of people with disabilities in the design of common areas used by all passengers is recommended.

#### **In-seat entertainment**

Controls for video screens, radios or entertainment systems associated with seating or allocated spaces should be operable by people who have disabilities and within reach of a person in a priority seat or allocated space (refer 5.2.5). Staff assistance may be required where manually operated or adjusted screens or earplugs are out of the reach range of a seated person. For new carriages, video entertainment should have the potential for captioning for people with hearing impairment.

#### **Recreation and entertainment areas**

Access paths should connect recreation facilities to essential facilities or equivalent access through direct assistance should be provided (refer 7.1.2).

If entertainment areas have a public address or sound system, hearing augmentation should be provided so that people who use hearing aids are able to participate in, or hear, broadcasts, activities or performances (refer 7.3.4).

Accessible seating in entertainment areas should match 7.4.1. Allocation and strict designation of accessible seats or spaces may not be necessary if seating is managed to ensure access to seats or spaces for people who have mobility impairments.

Counter heights should be 830-870 mm above floor level over at least 900 mm of their length, or equivalent access through table or other forms of direct service provided.

Tables should meet the requirements of 7.4.2, or equivalent service as per 7.4.2 should be provided.

## 7.4.6 Luggage

Passengers with disabilities who require disability aids in order to travel shall not be disadvantaged, relative to other passengers, in the amount of luggage that may be carried on a train.

Disability aids (refer 4.2) shall be carried in addition to normal baggage allowances. Disability aids include equipment and apparatus such as mobility, technical and medical aids. Only mobility aids that comply with 4.2 may be carried on public transport conveyances.

If practicable, disability aids are to be treated in the same way as cabin or accompanied baggage.

Disability aids that are transported in the luggage compartment shall comply with the operator's size limitations for passenger luggage. Operators are not required to carry mobility aids as priority / additional baggage in the luggage compartment if:

- allocated space for a mobility aid is provided in the seating area / sleeping berth, or,
- all allocated spaces in the seating area / sleeping berths are already booked on the required service.

Motorised wheelchairs and scooters cannot be carried in the luggage compartment.

Operators are not responsible for the assembly / disassembly or operation of disability aids that are carried in luggage compartments or as cabin or accompanied baggage. However, normal customer service applies where manageably sized items are stored in lockers, cupboards, or other storage areas.



## 7.4.7 Staff assistance

Direct assistance by staff may form an important part of equivalent access to rail services for people who have disabilities. References to staff assistance in carriages can be found in:

- 6.3 Staff assistance (boarding)
  - 7.1.1 Doors
  - 7.1.2 Access paths
  - 7.1.3 Passing and manoeuvring spaces
  - 7.2.1 Seating
  - 7.2.3 Passenger controls
  - 7.3.1 Passenger information
  - 7.3.2 Signs and symbols
  - 7.4.2 Food and drink
  - 7.4.5 Recreation facilities
  - 7.4.6 Luggage

The safety and dignity of passengers and staff is paramount in the provision of customer service at all times. Therefore, passengers with disabilities requiring assistance to transfer between mobility aid and seats, or with feeding, personal hygiene / toileting, medication, lifting, carrying or the assembly or disassembly, operation and repair of disability aids shall travel with a carer able to perform these tasks. For passenger responsibilities refer to 4.1.2.

Seating carers in close proximity to passengers with disability (refer 7.4.1) allows assistance to be conveniently provided.

Staff may assist with normal customer service by, for example, folding and storing a manual wheelchair in the luggage compartment, or by storing a manual wheelchair near the passenger in the seating compartment or sleeping berth. Manageable items may also be stored in lockers, cupboards, or other storage areas. However, operators are not responsible for the assembly / disassembly, operation or repair of disability aids, scooters, power wheelchairs, respiratory or medical aids that are brought onto the train. Operators require that passengers provide clear written instructions if requesting staff to assist in handling these disability aids.

Onboard carriage wheelchairs may be used to assist passengers who have mobility impairments to reach locations to which access paths cannot be extended. Staff should be trained in the safe manoeuvring of the units. Whilst offering assistance to passengers, staff are not assigned to them. Rather, staff will assist passengers to a location, and then return at an agreed time to assist in moving to other accessible locations. Staff shall assist passengers to board if required as per 6.3.

Operators of booked services may request reasonable advance notice of requirements for accessible travel. A minimum of 48 hours notice may be required by operators to accommodate access needs which are identified on booking and are in line with the commitments of this Code. At the time of booking, passengers shall notify operators of their needs and operators shall determine how and whether passengers require assistance. Booking systems and procedures must support notification of access needs from people with disabilities.

## 7.5 Emergency egress

Emergency plans are to be developed by rail operators under the National Model Rail Safety Legislation. Emergency egress from carriages for people with disabilities shall therefore also be provided in the context of relevant State Rail Safety Legislation.

### 7.5.1 Communications

Passengers with disabilities shall be informed of an emergency. Emergency evacuation of passengers with disabilities may require direct assistance from emergency services and /or rail staff.

#### *Passenger information*

The emergency procedures for passengers, should be displayed on signs (refer 7.3.2) or on printed passenger safety information leaflets (refer 7.3.1) within each passenger compartment.

#### *Signage / symbols*

People with a disability shall be able to locate the exit path in the event of an emergency. Emergency routes and exits should be clearly signed (refer 7.3.2) and well lit, with direct assistance provided to passengers unable to comprehend signs or symbols, for example people who have vision impairments or cognitive disabilities.

Emergency exits, and door release controls for use in emergencies, should be identified by a sign at the exit or at the control. Within new carriages these signs should meet the following:

- Emergency exit and emergency door release signage should combine pictorial and text instructions (refer 7.3.2).
- Emergency exit and emergency door release signs should be photo-luminescent.

These emergency exit and emergency door release sign identification requirements are also regarded as good practice in existing carriages.

#### *Alarms*

Any emergency warning system installed shall alert people who have sensory disabilities. When installed, both visual and audio components are necessary. Direct assistance to people who have sensory impairments shall be offered if required.

If installed, audible alarms require an intensity and frequency sufficient to alert people with hearing impairments. Audible alarms shall exceed background noise, averaged over a period of 60 seconds, by 15 dB(A), with minimum permitted level of 75 dB(A). Sound frequencies exceeding 6000 Hz may not be audible to older people and shall not be used.

Any visual alarms used should be located so that they are directly visible or their light clearly penetrates all areas of the carriage or sleeping berth. Visual alarms shall flash in conjunction with audible alarms and do so at approximately 1 Hz frequency. Alarm light colours should be amber for alert and red for evacuation. A proportion of sleeping berths should have alarms capable of waking people who are deaf or hearing impaired. In a darkened berth, a 150-watt flashing bulb can be effective in this regard.

Direct assistance should be provided through staff checking that passengers who are known to have sensory disabilities have been alerted to the emergency and are clear as to the egress procedure.

## 7.5.2 Controls

As far as practicable, people with disabilities should be able to independently operate emergency egress controls that are intended for passenger use as per 7.2.3. Compliance with specification for controls is in most (if not all) cases not feasible for technical reasons and the configuration and associated space constraints of trains. For example depending on the type of door, the forces required to open the door prevent their operation under 20 N.

Emergency door release controls should be located beside the doors that they operate. Clearly differentiate emergency door release controls from door opening controls to prevent unintended use.

Wherever practicable, emergency door release controls should be 500 mm or further from internal corners, weather-shields and the like. All other operations and characteristics of door release controls should be as per 7.2.3.

Where emergency door release controls do not meet the above recommendations, direct assistance shall be provided.

Signs for emergency door release controls should have text, symbols and tactile components as per 7.3.2, and be photo-luminescent as per 7.5.1.

## 7.5.3 Lighting

In the event of an emergency evacuation, access paths should maintain sufficient illumination to allow safe egress. In the event of power failure, emergency lighting should have an independent power supply.

People who are vision-impaired and unaccompanied may be able to hear the warnings, but may not know where they should go, and may become disorientated. This necessitates direct assistance.

Refer to AS7531.3-2007 (Australian Rolling Stock Standards) for full requirements on emergency lighting.

## 7.5.4 Emergency evacuation from railcars

Passengers with disabilities shall be informed of the need to evacuate (refer 7.5.1) and be provided a means of evacuation.

If evacuation is necessary while a train is standing at a platform, normal boarding and alighting procedures apply (refer 6.1).

Where carriage evacuation occurs away from platforms, other options, such as lifts or hoist (refer 6.2.2) can be used to safely evacuate people who have mobility impairments and who cannot use portable emergency ladders or the like. These options may be self-propelled emergency response trolleys or equivalent. If these are not considered as options or a carriage is located in an area that is inaccessible to lifts or hoists, direct assistance should be provided to evacuate people who have mobility impairments. Only emergency personnel who are trained and accredited in safe lifting and carrying should give direct assistance in this manner.

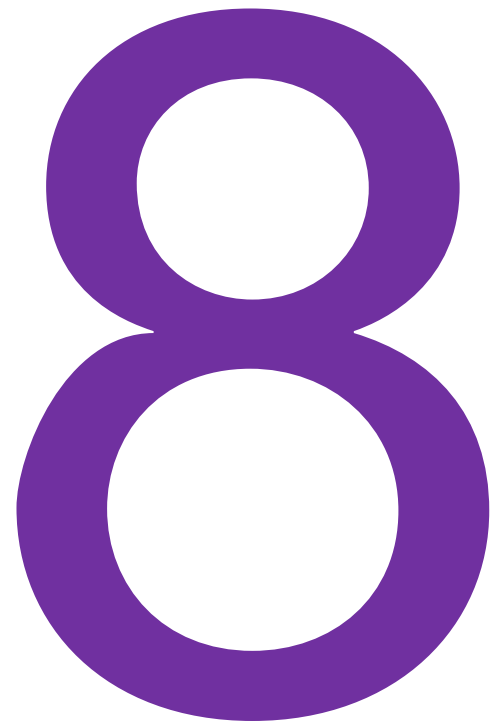
In emergencies, standard evacuation procedures by emergency services personnel of injured or immobilised people apply.

## Journey completion

If as a result of disruption to train services, operators provide an alternative means of transport, it should be accessible for passengers who have disabilities. This alternative may be another train, a wheelchair accessible bus or taxi, or similar.

Operators should ensure that as far as practicable, alternative accessible transport will carry assistance dogs and mobility aids at no extra charge to the owner.

# Customer complaints / feedback



## 8 Customer complaints / feedback

Passenger rail service operators should have a means of enabling customers to make comments and provide feedback or suggestions. Customers who have disabilities should be able to raise their issues as part of this mainstream complaints / feedback process. Passengers with disabilities should be encouraged to use operators' complaints processes prior to considering an approach to the Australian Human Rights Commission. To instil customer confidence in the complaints / feedback process matters raised should be properly and effectively dealt with, the complainant being appropriately informed as to progress and resolution of the matter.

People with disabilities should be able to obtain accessible information on the process (refer 4.3.1) and also be able to submit their complaints and feedback in their preferred format. Operators should therefore ensure that they are able to receive complaints / feedback in a range of formats (refer 4.3.1), for example by telephone, SMS text message, audio tape, e-mail, computer disk and person to person.

# Customer service



## 9 Customer service

### 9.1 Staff education

#### 9.1.1 Disability and discrimination awareness

The objective of disability and discrimination awareness training for staff is to ensure that passengers with disabilities have equal access dignity, and amenity in rail travel.

All staff should understand people with disabilities' customer service needs and their rights in a rail environment. Disability and discrimination awareness training should therefore not be restricted to only those staff who regularly encounter passengers or whose role is in the area of customer service. Rather, training that targets responsibilities and roles will benefit all, from platform staff through to senior management. Regular revision should be provided to maintain currency of skills, knowledge and attitudes.

#### **Senior and middle management**

Managers should be aware of the rights and provisions conferred to people with disabilities by the relevant legislative and regulatory framework.

Managers should be informed and aware of the systemic barriers to incrementally implementing a rail system that allows equal facility and amenity of travel and service for all potential passengers. They need to understand how to go about dismantling these barriers by changing culture, policy and practices.

#### **Design, construction and systems development staff**

Design, construction and systems development staff should be made aware of the physical and communication barriers that people with disabilities encounter in the rail environment and how to avoid or remove them. They should be familiar with this Code of Practice and shall understand:

- how to arrange compliant features and facilities in an integrated, coherent manner,
- the formats in which people with sensory disabilities access information and communicate.

Understanding the legislative imperative of non discriminatory design and that associated costs shall be factored into future budgets is essential.

### **Customer contact staff**

In addition to an overview of the legislative requirements and the rights of people with disabilities, staff who are in contact with passengers require training in:

- good communication and good customer service to passengers with disabilities,
- mobility issues facing people with disabilities,
- use of special equipment such as hearing loops, boarding ramps or platform lifts.

Staff should fully understand the network, and how passengers with disabilities must negotiate it, in order to explain any stage of the journey to a passenger who has a disability. Understanding the system and the needs of passengers with disabilities enables staff to support passengers more effectively in the event of service disruptions or failures.

Staff should be given training in, and opportunity to practice, skills including:

- communicating with people who are deaf or who have hearing impairments,
- assisting people with learning difficulties,
- guiding people with vision impairments,
- flexibility in the ways that people with disabilities prefer to be assisted,
- appropriate behaviour and language when assisting passengers with disabilities,
- deploying boarding devices, and
- pushing onboard wheelchairs if operators provide these and offer this type of assistance.

### **Other assistance**

Reference information should be readily available to staff to allow clarification of their responsibilities, operation of equipment, and the disability access components of the rail system.

Staff will benefit if allowed to meet, interact with, and hear the perspective of people with disabilities during training.



### 9.1.2 Customer contact

Personal contact and dialogue with people who have disabilities will greatly benefit staff:

- managers can identify systemic problems,
- designers can be informed of how their designs are used,
- customer contact staff will feel more comfortable in offering assistance.

People with disabilities will also be far better informed as to the issues facing staff and in a position to convey these to their peers and associations, making for better relations between operators and people with disabilities.

Involving key people with disabilities in the design and / or delivery of staff training will convey credibility to both the efforts of the rail operator and provider and the outcome of the training.

#### **Network / system orientation**

People with disabilities frequently research and plan well ahead when travelling. To assist this, operators might organise or allow supervised orientation visits to stations or trains at times convenient to the operator. If operators conduct or permit network / system orientation, people with disabilities are able to assess if rail travel is a feasible option for them. For example, people with oversized mobility aids can gauge the performance of their aid prior to travel and plan their journey accordingly or make other travel arrangements.

If operators permit network / system orientation it would allow people with disability:

- better understanding of how people with disability are catered for in the network / system,
- which features are fully accessible and which are not,
- more confidence to use the rail network / system.

### 9.1.3 Operations and maintenance

Assistive equipment shall be functional and staff competent in its use for it to deliver services as required by this Code of Practice.

Staff should have ongoing training in the use of, and / or maintenance of, equipment such as boarding ramps, wheelchair lifts and hearing loops.

Staff should be trained in how to recognise malfunctions in equipment, and what to do about them. A strict maintenance regime and quick repair timeframe is required for all assistive equipment. Should equipment malfunction, alternative arrangements should be suggested. For example, if a lift to a platform is out of service a passenger may be advised to use a functioning lift to another platform. From there they can catch a train to the nearest accessible station that permits them to catch their regular service. Where practicable, various forms of media should be used to inform relevant stakeholders of any planned major upgrades and renovations.

## 9.2 Community relations

Rail operators and providers should identify, and maintain good relations with, disability organisations that have a stake in rail passenger transport. These organisations will vary between States. Their terms of reference or areas of expertise should be noted so that communication on various issues can be better targeted.

Channels of communication should be established with disability organisations that allow operators and providers to acknowledge issues raised and provide feedback on those issues. The same acknowledgement and feedback system applies to individuals who have a disability so that they can be assured that their issues are taken seriously.

Where possible, this communication function should be part of the normal community relations process so that it is seen as core business rather than a separate process.

Good working relations with disability organisations produce tangible benefits beyond goodwill. For example, representatives of disability organisations may be available locally to assist with disability awareness training of staff. Further, sound advice from people living with the various disabilities will enhance and add value to the decision process for operators and/or providers regarding disability issues.

Regular updates sent out well in advance of scheduled alterations or changes are very well received. Updates appropriate to disability organisations and interested individuals include:

- construction alerts where normal access paths are closed or rerouted,
- new services or products,
- changes to existing services,
- changes to fares.

This information is usually widely disseminated by the recipients, who often have sophisticated communication networks.

# Consultation

10

## **10 Consultation**

### **10.1 Stakeholder consultation**

#### **10.1.1 Code Development Group**

This Code of Practice is the product of a development group of subject matter experts (the Accessible Rail Development Group) operating under the accredited Standards / Code development process and governance framework of the Rail Industry Safety and Standards Board (RISSB). The Development Group consists of members from the various rail operators, providers, manufacturers and the Australian Federation of Disability Organisations, as well as the participation of the Australian Human Rights Commission as an observer.

Revision of this Code of Practice is the responsibility of the RISSB (refer 10.2.2) via its accredited processes. Key stakeholders (including rail organizations or affected parties) should engage with the RISSB by ensuring that they are represented at any future reconvening of the Accessible Rail Development Group and that issues can be tabled or advice sought, or through submitting comment at public consultation rounds.

#### **10.1.2 Government consultation**

Rail operators and providers will need to liaise with all three levels of government in order to fully implement this Code. Federal and State Government Departments of Transport control policy direction and funding while local governments usually control the infrastructure surrounding rail stations and access paths leading to stations and linking to other modes of transport. Establishing a regular regime of meeting and consultation with these government bodies will ensure a cooperative, coordinated approach to the upgrade of the rail network and the surrounding access paths. Further, timetabling of other modalities to complement the rail service schedule shall be negotiated. Trans-modal fares / ticketing allows easy passenger transfer between modalities and will require negotiation with the regulators of the other modalities.

Government is often the regulator, operator or provider of public transport services. Better coordination of these services with the rail network will be achieved through regular consultation and liaison. Particularly, planning of future services should maximise the number of co-located transport nodes and complimentary scheduling of different transport modalities.

### 10.1.3 Community consultation

Community consultation on proposals affecting rail services and systems ensures acceptable outcomes for rail operators and / or providers that are also acceptable to people with disabilities. These outcomes could be technical in nature or identify the disability community's priorities in the upgrade of particular facilities.

Proposal for equivalent access can be derived from consultation with passengers with disabilities who use the service, or with organisations representing people with disabilities. Equivalent access solutions in this Code of Practice, with its recognition of constraints to some modifications on existing infrastructure and rolling stock, undergo a strict process of public review and comment.

To facilitate consultation, operators and / or providers are encouraged to appoint staff designated to liaise and consult with existing disability networks and to draw on the expertise of disability access groups and local disability organisations.

While operators and providers may decide the order in which their existing rolling stock, premises and infrastructure are upgraded to meet this Code of Practice, they may give priority to main routes, key facilities or other strategic priorities to maximise community and commercial benefits. Operators will be better informed as to the disability community's priorities through targeted consultation before making these decisions.

#### **Reference and focus groups**

Operators and / or providers should consider establishing reference groups that meet regularly to discuss systemic and operational issues and running focus groups to address particular identified problems on an ad hoc basis. Both would provide operators and / or providers with direct feedback on their network / systems.

## **10.2 Review of Code**

### **10.2.1 Timetable**

RISSB undertakes reviews of its Codes of Practice five years (nominally) from publication. Ad-hoc updates of specific content within a Code may be undertaken where a major safety issue or serious error is identified within that specific content.

### **10.2.2 Scope**

The review covers the full Code of Practice. It takes into account any legislative changes and other relevant safety, technical and operational changes within the rail industry over the 5 year period.

### **10.2.3 Process**

The process for review of this Code is detailed on [www.rissb.com.au](http://www.rissb.com.au) in the RISSB's Admin 4-7 Procedure for Servicing a Standard, Clause 4.2.

During the review period, the relevant Standing Committee (in this case, the Operations and Performance Standing Committee) actively seeks industry commentary on its Standards (or Codes of Practice). Opinions are collated from many different points of view, which allow a diverse range of criticism to emerge.

Informed by this criticism, the Standing Committee, via the Project Manager and a Development Group of subject matter experts, reviews the Standards (or Codes of Practice) considering:

- the recently collated commentary,
- the document's current relevance,
- any industry and / or technological advancements are taken into account that may render the existing Standards/Codes partially or completely obsolete.

The review is then published on the National Standards Office (in the case of Standards only) and RISSB websites.

If a cause for a rewrite of the RISSB document is identified, the document then re-enters the Proposal Stage for redevelopment. In the case that the documents are still regarded as relevant they remain untouched until the next time for review.

# Design references



## II Design references

The documents cited in *II Design references* are those documents that guided the drafting of this Code of Practice.

### II.1 Standards

#### II.1.1 DSAPT 2002

Disability Standards for Accessible Public Transport 2002 as amended (11 May 2005)  
(Internet: [www.comlaw.gov.au/ComLaw/Legislation/LegislativeInstrumentCompilation1.nsf/0/E31CFFB47B7946CBuilding Code of Australia256FFE0015A9A3?OpenDocument](http://www.comlaw.gov.au/ComLaw/Legislation/LegislativeInstrumentCompilation1.nsf/0/E31CFFB47B7946CBuilding%20Code%20of%20Australia256FFE0015A9A3?OpenDocument))

Disability Standards for Accessible Public Transport Guidelines 2004 (No. 3)  
(Internet: [www.comlaw.gov.au/ComLaw/Legislation/LegislativeInstrument1.nsf/0/617AEF1A18E5D654CA256FC40009B824?OpenDocument&VIEWCAT=attachment&COUNT=500&START=1](http://www.comlaw.gov.au/ComLaw/Legislation/LegislativeInstrument1.nsf/0/617AEF1A18E5D654CA256FC40009B824?OpenDocument&VIEWCAT=attachment&COUNT=500&START=1))

Disability Standards for Accessible Public Transport Australasian Railway Association Exemption Application: Revised proposal submitted by the Australasian Rail Association (24 February 2006)  
(Internet: [www.humanrights.gov.au/disability\\_rights/exemptions/ara/revised.doc](http://www.humanrights.gov.au/disability_rights/exemptions/ara/revised.doc))

Outcome of national meeting: Tactile ground surface indicators and access paths on railway platforms  
(Internet: [www.humanrights.gov.au/disability\\_rights/transport/tgsi1202.htm](http://www.humanrights.gov.au/disability_rights/transport/tgsi1202.htm))

QANTAS Dangerous Goods Policy  
(Internet: [www.qantas.com.au/travel/airlines/dangerous-goods/global/en](http://www.qantas.com.au/travel/airlines/dangerous-goods/global/en))



### 11.1.2 Australian Standards

- AS1158.3.1-2005. *Lighting for roads and public spaces. Part 3: Pedestrian areas (Category P) lighting — Performance and design requirements.*
- AS1428.1-2001. *Design for access and mobility. Part 1: General requirements for access — New building work*
- AS1428.1-2009. *Design for access and mobility - Part 1- General requirements for access — New building work*
- AS1428.1 *Supplement 1 Design for access and mobility. Part 1: General requirements for access — Buildings — Commentary, 1993.*
- AS1428.2-1992. *Design for access and mobility. Part 2: Enhanced and additional requirements — Buildings and facilities*
- AS1428.4-1992. *Design for access and mobility. Part 4: Tactile indicators.*
- AS1680.0-1998. *Interior lighting. Part 0: Safe movement.*
- AS1680.1-2006. *Interior and workplace lighting Part 1: General principles and recommendations.*
- AS1680.2.1-1993. *Interior lighting. Part 2.1: Circulation spaces and other general areas.*
- AS1735.12-1999. *Lifts, escalators and moving walks. Part 12: Facilities for persons with disabilities, as amended by Amendment No. 1 to AS 1735.12 — 1999.*
- AS1742.7-2007. *Manual of uniform traffic control devices Part 7: Railway crossings.*
- AS2220.1-1989. *Emergency warning and intercommunication systems in buildings. Part 1: Equipment design and manufacture.*
- AS2220.2-1989. *Emergency warning and intercommunication systems in buildings. Part 2: System design, installation and commissioning.*
- AS3696.13-1991. *Wheelchairs. Part 13: Determination of coefficient of friction of test surfaces.*
- AS3856.1-1998. *Hoists and ramps for people with disabilities — Vehicle-mounted. Part 1: Product requirements.*
- AS4586-2004. *Slip resistance classification of new pedestrian surface materials.*
- ISO7001-2007. *Graphical symbols - Public information symbols*

### 11.1.3 RISBB rolling stock standards

- AS 7531.3-2007 Australian Standard - *Railway Rolling Stock Lighting and Rolling Stock Visibility - Part 3: Passenger Rolling Stock*
- ROLL 22.3. *Access and Egress - Passenger Rolling Stock*

### 11.1.4 International standards

- The Rail Vehicle Accessibility Regulations Guidance 1998  
(Internet: [www.dft.gov.uk/162259/259428/pdfrailaccessregs1998](http://www.dft.gov.uk/162259/259428/pdfrailaccessregs1998))
- COST 335 Report, *Passengers' Accessibility of Heavy Rail Systems*, European Commission (1999)  
(Internet: <ftp://ftp.cordis.europa.eu/pub/cost-transport/docs/335-02.pdf>)
- The Strategic Rail Authority (UK). 2005. *Train and Station Services for Disabled Passengers: A Code of Practice*  
(Internet: [www.dft.gov.uk/transportforyou/access/rail/railstations/codeofpractice/sracodeofpractice](http://www.dft.gov.uk/transportforyou/access/rail/railstations/codeofpractice/sracodeofpractice))

## **11.2 Specifications**

### **11.2.1 Building Code of Australia**

Disability (Access to Premises — Buildings) Standards 2010

(Internet:

[www.comlaw.gov.au/ComLaw/legislation/LegislativeInstrument1.nsf/0/943923505EFF5F51CA2576E40008FFF9/\\$file/F2010L00668.pdf](http://www.comlaw.gov.au/ComLaw/legislation/LegislativeInstrument1.nsf/0/943923505EFF5F51CA2576E40008FFF9/$file/F2010L00668.pdf))

The Disability (Access to Premises — Buildings) Standards 2010 sits within the Building Code of Australia 2011 and is expected to be in force in May 2011. The Disability Standards for Accessible Public Transport will be split at that time with the Premises clauses moving to Part H of the Building Code of Australia. No requirements or specifications for public transport premises will alter in this migration.

# Glossary

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## **I2 Glossary**

### **I2.1 Definitions**

#### **Access path**

An access path is a path that permits independent travel for all passengers within public transport premises, infrastructure or carriages. An access path may include a compliant walkway, ramp or lift.

#### **Allocated space**

An allocated space is a three dimensional space 1300 mm long, 800 mm wide and, in premises and infrastructure, with 2000 mm overhead clearance that can accommodate a wheelchair or similar mobility aid.

#### **Assistance dog**

An assistance dog is a dog that is trained by an accredited organisation to alleviate the effects of a person's disability on public transport.

#### **Best Practice**

For the purposes of the Australian Rail Industry, 'best practice' represents those practices, which, when evaluated across the whole of industry have the highest possible performance against the following criteria as applicable within the context of the practice:

- a. Safety,
- b. Efficiency,
- c. Cost Effectiveness,
- d. Accessibility,
- e. Equity,
- f. Environment,
- g. Reliability,
- h. Legal defensibility, and
- i. Innovation.

#### **Boarding point**

A boarding point is any point on a platform or elsewhere from which passengers are permitted to board or alight from a train.

#### **Booked services**

Booked services are long distance passenger train services where prior booking is required to purchase a berth, seat and/or allocated space.

#### **Direct assistance**

Direct assistance is help given by an operator or provider to make public transport accessible to a person with a disability when premises, infrastructure or carriages do not fully comply with this Code; or to provide non-discriminatory access on request.

### **Disability aid**

A disability aid is a device designed to be used by a person with a disability to alleviate the effects of that disability. Disability aids include mobility aids, prosthetic and medical equipment, but do not include mobility aids designed for use by more than one person at a time. Examples of prosthetic and medical aids include hearing aids, communication devices, prostheses and breathing equipment, personal hygiene and security devices.

Constraints that are part of providing safe and effective public transport services and operations may limit the types of aids that can be accommodated on transport services, premises and infrastructure.

### **Equivalent access**

Equivalent access is a process, often involving the provision of direct assistance, under which an operator or provider is permitted to vary the equipment or facilities that give access to a passenger rail service, so long as an equivalent standard of amenity, availability, comfort, convenience, dignity, price and safety is maintained. Equivalent access does not include a segregated or parallel service.

### **Essential facilities**

Essential facilities are primarily boarding points, ticketing machines, information areas and other assistance areas, and may include toilets or other defined areas as appropriate depending on the station / platform.

### **Existing rolling stock**

Any rolling stock the design or construction of which is encumbered by previously constructed floor plans, seating plans, door types, bulkheads or partition positions. Existing rolling stock may be already in operational use, or may be stored awaiting restoration/maintenance. Additionally, rolling stock which is deliberately built to be a replica of a historical design for the purposes of historical preservation or study (i.e. heritage rolling stock) is considered existing rolling stock for the purposes of this code of practice as such rolling stock.

### **Existing station**

A railway station that is either in operation, or a station on which construction yet to commence but which is located in an existing rail corridor, at the time of publication of the Accessible Rail Services: Code of Practice.

### **Good Practice**

For the purposes of the Australian Rail Industry, represents a distillation of those practices across the whole of industry which have optimised performance against the following criteria, so far as reasonably practicable within the context of the practice:

- a. Safety,
- b. Efficiency,
- c. Cost Effectiveness,
- d. Accessibility,
- e. Equity,
- f. Environment,
- g. Reliability, and
- h. Legal defensibility.

### **Grabrail**

Rails that steady or stabilize people while they undertake particular activities, for example transferring onto toilets, remaining stable while travelling in allocated spaces or purchasing tickets. Grabrails may intrude into required circulation spaces.

### **Handrail**

Rails located along access paths, such as walkways, ramps, stairs and lift cars, and which give support and guidance to pedestrians in transit. Handrails shall not intrude into required circulation spaces.

### **Infrastructure**

Infrastructure is any structure or facility that is used by passengers to gain direct access to a public transport service. Infrastructure includes boarding points, footbridges, open railway platforms and open shelters.

### **Level crossing**

A level crossing is any vehicular and/or pedestrian crossing of a railway corridor at grade.

### **Manoeuvring area**

A manoeuvring area is a space in which a wheelchair or similar mobility aid that meets the size and performance requirements of this Code is able to turn.

### **Mobility aid**

A mobility aid is designed to be used by a person with a disability to alleviate the effects of their limited mobility. Examples of mobility aids are manual or powered wheelchairs, scooters, braces, white canes, assistance dogs, walking frames, walking sticks and crutches. Mobility aids do not include devices primarily designed for use as recreational vehicles. In the public transport environment mobility aids have expected performance characteristics (refer 4.2).

### **New rolling stock**

Any rolling stock the design and construction of which is undertaken "from the railhead up". Although such rolling stock designs may make use of existing "off-the-shelf" technology or components, they are not encumbered by previously existing floor plans, seating plans, door types, bulkheads or partition positions. In new rolling stock, the designer is free to utilize the space provided by the infrastructure's rolling stock envelope limited only by the overall system requirements of the design and the available technology and materials of the day.

### **New station**

A railway station to be located in a new rail corridor that has yet to be designed or constructed at the time of publication of the Accessible Rail Services: Code of Practice.

### **Preferred accessible boarding point**

A preferred accessible boarding point is a boarding point nominated by the provider or operator for accessible boarding by people with disabilities. It provides a single, coordinated location for providing direct boarding / alighting assistance.

### **Onboard carriage wheelchair**

An onboard wheelchair operated by staff that is small enough to fit through non compliant doors and passageways.

### **Operator**

An operator is a person or organisation (including the staff of the organisation) that provides a public transport service to the public or to sections of the public. A passenger rail service may have more than one operator.

### **Premises**

Premises are structures, buildings or attached facilities that a provider supplies for passenger use as part of a public transport service. Premises are distinct from infrastructure in that they have a building Classification in the Building Code of Australia.

### **Provider**

A provider is a person or organisation that is responsible for the supply or maintenance of public transport infrastructure. A provider need not be an operator.

### **Public transport service**

A public transport service is an enterprise that conveys members of the public by land, water or air.

### **Rail car / rolling stock**

For the purpose of the Code, 'rail car' or 'rolling stock' includes only passenger rail carriages. Coaches, buses or other road vehicles provided as part of a rail service are not defined as 'rail cars' or 'rolling stock'.

### **Rail service**

For the purposes of the Code, a rail service is a service that transports passengers, and may transport passenger luggage of a defined nature, on a railway system. A rail service may be either a booked service or an unbooked service, and includes both commercial and heritage / museum rail services.

### **Railway**

A railway is a guided system designed for the movement of rolling stock that has the capability of transporting passengers or freight or both on a railway track with a railway track gauge of 600 mm or more, together with its rail infrastructure, and includes:

- a. a heavy railway,
- b. a light railway,
- c. a monorail railway,
- d. an inclined railway,
- e. a tramway,
- f. a railway within a marshalling yard or passenger or freight terminal,
- g. a private siding,
- h. a railway that is prescribed by legislation or regulations to be a railway.

Excluded from the Code's definition of a railway are:

- a. a railway in a mine that is underground, or chiefly underground, and that is used in connection with the performance of mining operations; or
- b. a railway that is operated solely within an amusement or theme park.

### **Sleeping berth**

A sleeping berth is a sleeping space which may be in a compartment, or a seat/bed recliner chair in an open area.

### **Unbooked services**

Unbooked services are passenger train services where no seat and/or allocated space is booked or reserved for a specific person.

## **I2.2**      **Terms / acronyms**

**DSAPT**

Disability Standards for Accessible Public Transport 2002

**DDA**

Disability Discrimination Act 1992

**RISSB**

Rail Industry Safety and Standards Board

**ROLL**

Rail Industry Safety and Standards Board draft rolling stock standard.



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