



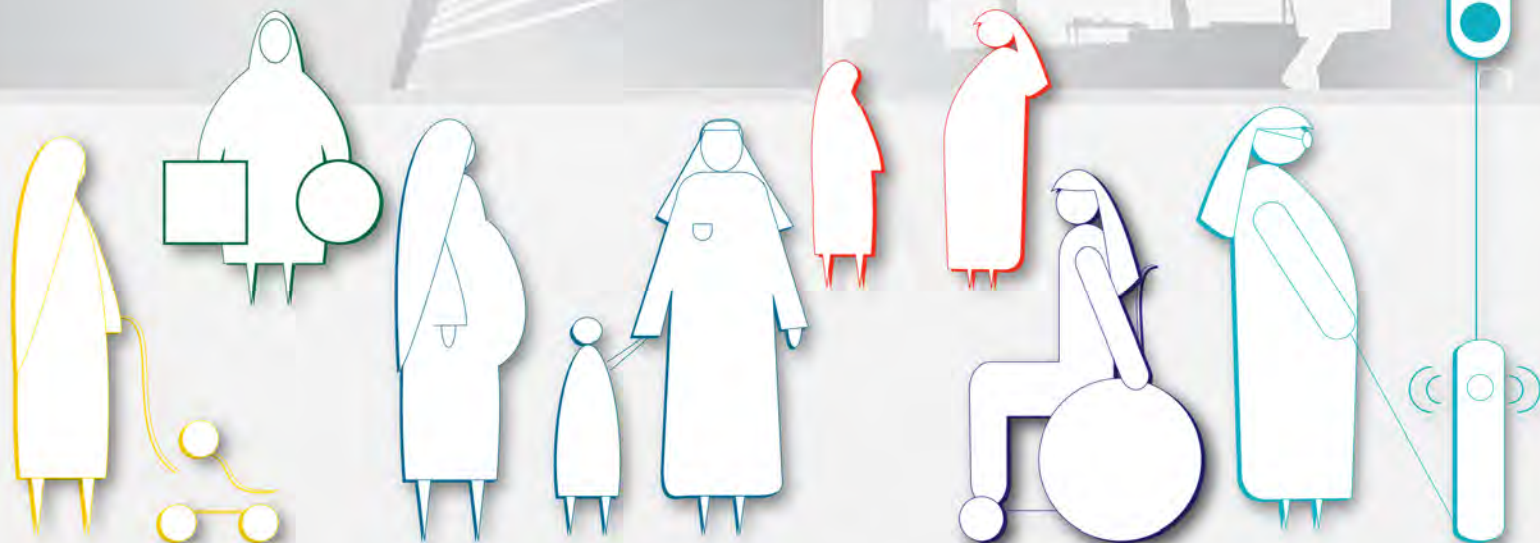
مركز الأمير سلمان لأبحاث الإعاقة
Prince Salman Center For Disability Research
علم ينعف الناس Science Benefiting People
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Universal Accessibility

Marine Transportation Guidelines

Guidelines for the Kingdom of Saudi Arabia



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The Universal Design is
Essential for 15%, Supportive to 40%, and Comfortable to 100%
of the Population





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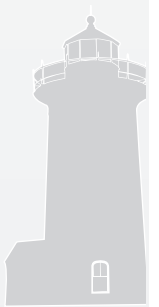
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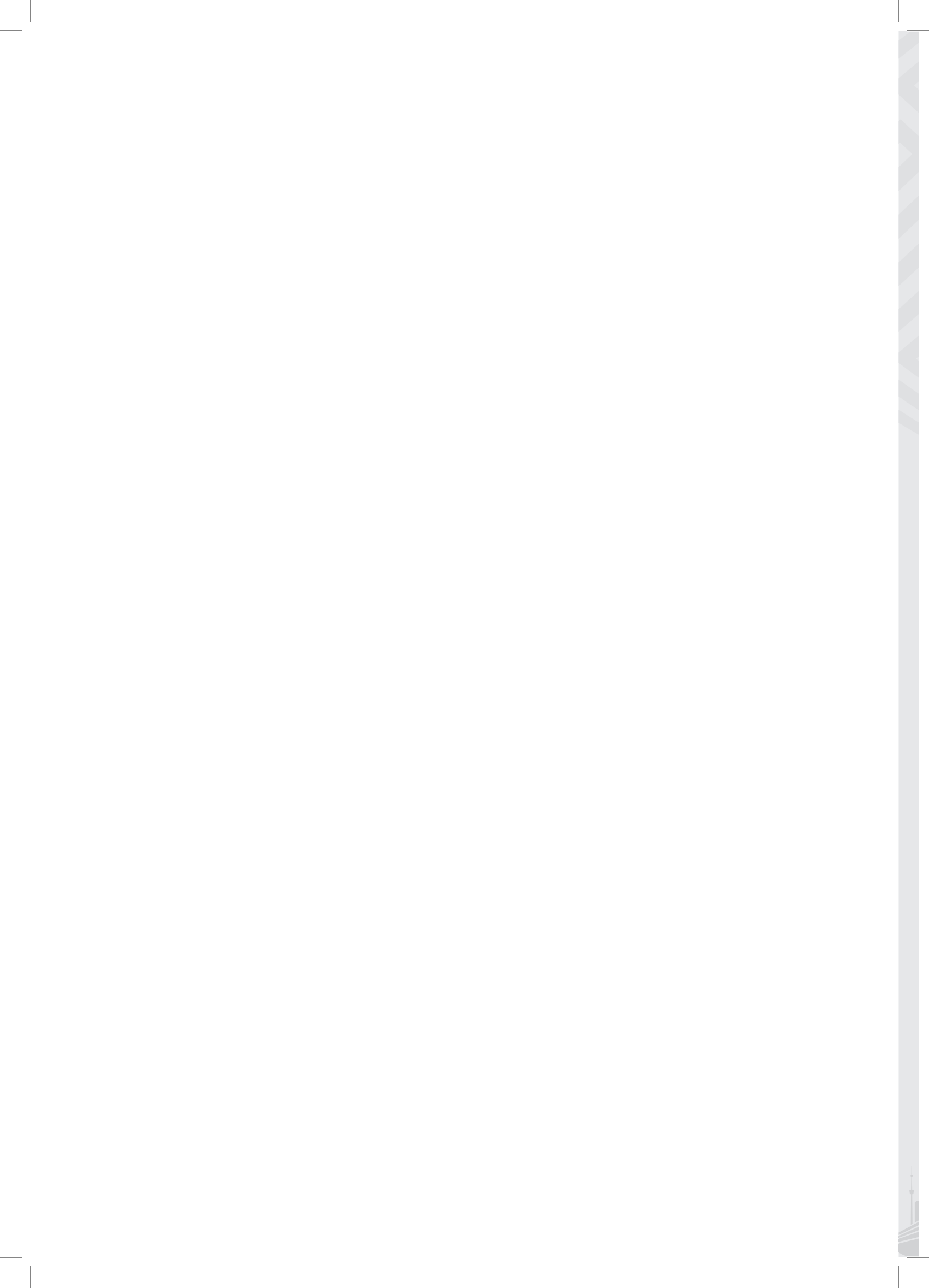


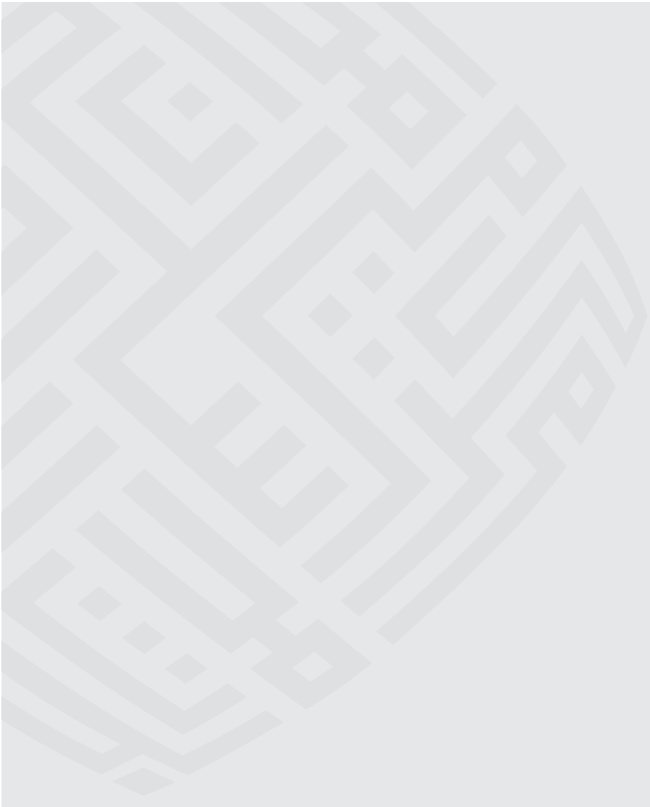


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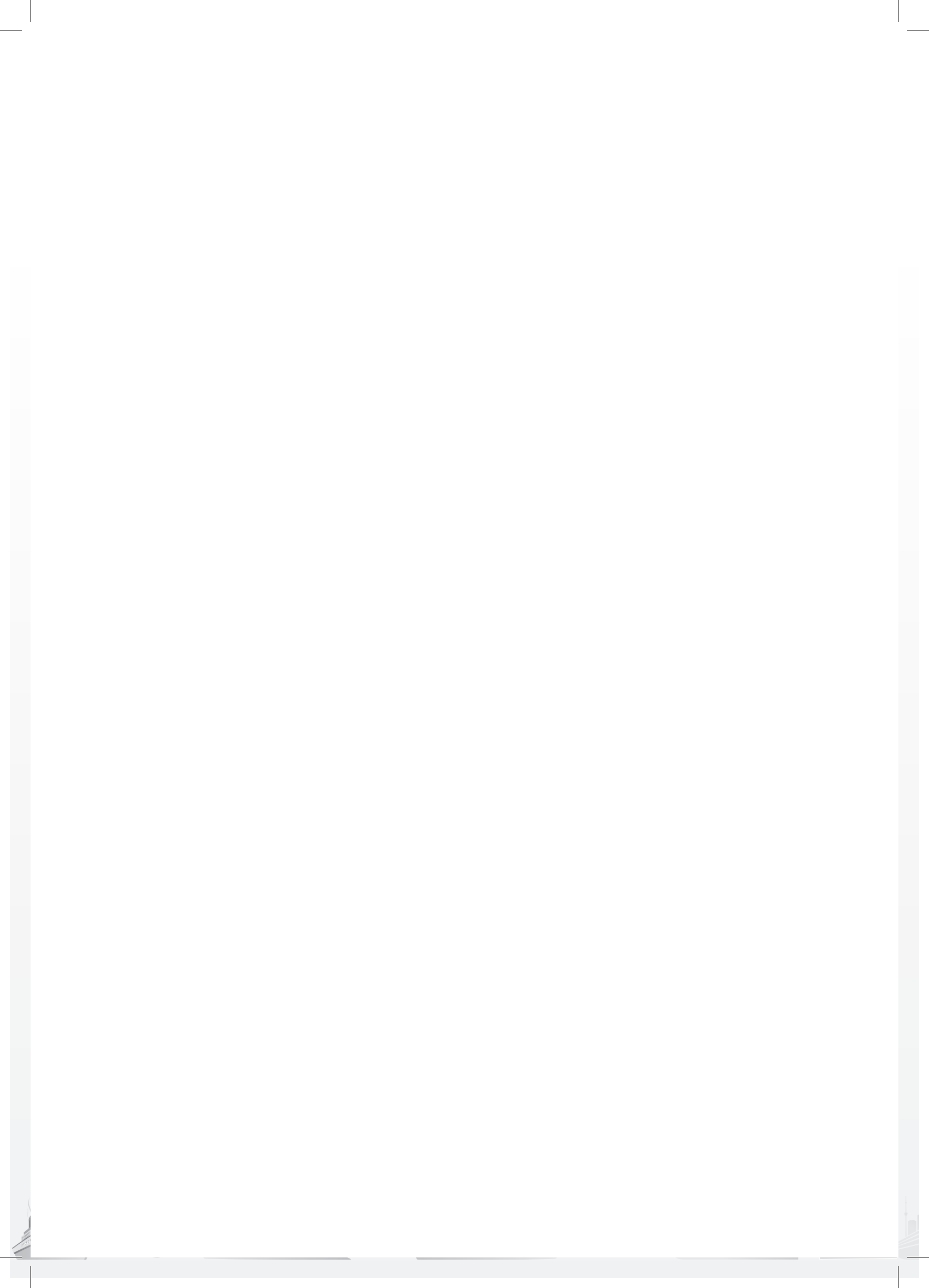






Introduction





In 2007, the PSCDR embarked on the Universal Accessibility Program (UAP) culminating in the completion of the UAP compendium in 2008. This comprehensive resource document evaluates and benchmarks the existing level of universal accessibility within KSA against acceptable standards and international best practices in four areas: built environment, land transportation, marine transportation and destinations and accommodation. Based on the UAP compendium, four stand-alone, user-friendly working manuals are now available: (1) Universal Accessibility Built Environment Guidelines (UABE), (2) Universal Accessibility Land Transportation Guidelines (UALT), (3) Universal Accessibility Destination and Accommodation Guidelines (UADA) and this document (4) Universal Accessibility Marine Transportation Guidelines (UAMT).

The target users of the UAMT Guidelines Manual are planners, architects, naval architects, engineers, interior designers, decision-makers and other practitioners in the public and private sectors in KSA. The technical design guidelines will assist them in applying UAMT principles and specifications to new public marine transportation projects, including shore-based terminal buildings and boats/ships design, and in the renovation/reprovision of these facilities, to accommodate all members of Saudi society – including seniors and persons with disabilities.

The UAMT guidelines in this manual are prescriptive rather than performance-based. They are structured in a way to include considerations of the current conditions and unique cultural and administrative characteristics of the Kingdom of Saudi Arabia (KSA). The scope encompasses all passenger vessels and associated boarding equipment used in the family of all passenger vessel transportation systems; ranging from small ferries (with one or two decks), multi-deck ferries (with and without car decks), cruise vessels and tenders, and terminal access. Emergency evacuation, on-board facility access and the interface between vessels with gangways, piers, passenger bridges, platforms, car ramps, tenders and terminals are also discussed.

The guidelines are to be contributory to the marine transportation design process, which will in itself be a developing field of work, and not a substitute for the inevitable further design advances, particularly as regards naval architecture and the design of ships, from small service ferries to large and complex cruise liners. The Content (of the Marine Transportation Manual) for 'Space Requirements' as regards mobility, accessibility and materials choices has both wide application and little variation between vessel types (from Ferries to Cruise Liners). Further study on ascertaining where there are or may be significant differing requirements depending upon Vessel types would be the subject of follow-on work by Naval Architects/Naval Design specialists.





The initial chapters of the UAMT Guidelines Manual set the scene for the entire body of work, and explain the concept evolution and key terms that lay the foundations of UAMT. It is followed by the development of detailed technical design guidelines for general domestic and international marine transportation modes based on known best practices and expert opinions. The appendices contain the supporting documentations. To facilitate practitioners in applying the UAMT guidelines, checklists have been compiled to facilitate on-site verification across KSA. In support of this validation process, users of the Checklists are encouraged to provide comments and suggestions to the Prince Salman Centre for Disability Research using the Feedback Form(s) to be found at Appendix F of this Manual.

“The issue of disability and its social and economic repercussions constitutes one of the most important challenges facing contemporary societies at present . . . (including) overcoming obstacles that constrain people with disabilities and limit their productivity and independence in society . . .”

**His Royal Highness Prince Sultan Bin Salman Bin Abdul-Aziz Al Saud,
Chairman of the Board
Prince Salman Center for Disability Research**



1.1 Purpose of the UALT Manual

As noted in the Executive Summary, the UAMT Guidelines Manual includes information on passenger vessels and terminals. This information will benefit planners, interior designers, architects, naval architects, information providers, engineers, manufacturers and vessel modifiers. The guidelines will assist in the importation of accessible passenger vessels, applying UAMT principles and specifications to the development of new accessible passenger vessels, and renovating existing vessels and terminals to accommodate all members of society in Saudi Arabia – including seniors and persons with disabilities.

1.2 Context

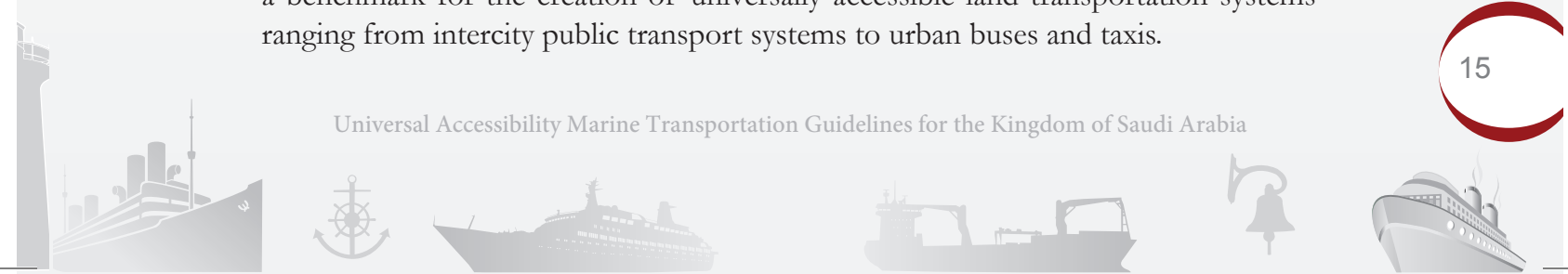
The Universal Accessibility Marine Transportation Guidelines Manual is one of four manuals developed as part of a larger accessibility initiative within the Kingdom of Saudi Arabia to implement the universal accessibility program.

In 2007, the PSCDR engaged an international consortium of universal accessibility experts to undertake a review of the current status of accessibility for persons with disabilities within the Kingdom, related to three focus areas: the **Built Environment; Transportation; and Tourism**. More specifically, the international experts reviewed existing Saudi legislation, policies, codes and standards and prepared a strategy for implementing universal accessibility across the Kingdom. A comprehensive report entitled *Universal Accessibility Framework and Guidelines* (the ‘compendium’) was completed in September 2008.

A critical component of the universal accessibility implementation strategy is the provision of appropriate technical information to the legislators, ministries, architects, naval architects, engineers and other designers that will be responsible for developing projects that address the needs of everyone in Saudi Arabia. The subject *Universal Accessibility Marine Transportation Guidelines Manual* provides technical design guidelines and application criteria as a benchmark for the creation of universally accessible marine transportation systems.

A second manual is available titled *Universal Accessibility Built Environment Guidelines Manual*. It provides technical design guidelines and application criteria as a benchmark for the creation of universally accessible buildings and other built-environments.

A third manual titled *Universal Accessibility Land Transportation Guidelines Manual* is also available. It provides technical design guidelines and application criteria as a benchmark for the creation of universally accessible land transportation systems ranging from intercity public transport systems to urban buses and taxis.





The fourth manual is entitled *Universal Accessibility Destination and Accommodation Guidelines Manual*. It provides technical design guidelines and application criteria as a benchmark for the creation of universally accessible land transportation and other built-environments, such as transportation terminals and its environmental infrastructure.

Note: Exclusions. The range of UA Manuals prepared in this programme do not cover specific building types, or building environments, that fall under the responsibility of particular and separate authorities within the KSA, and these include Air Terminals, Rail Terminals and Road Transport Interchanges (Bus/Taxi) with other transport modes. That said, the UD principles covered in the Manuals have applicability in contexts other than the specific subject headings, and may be useful references in further work on these facilities.



1.3 Scope

The UAMT guidelines in this Manual covers general passenger vessels and associated boarding equipment used in the family of local and international marine transportation systems ranging from small ferries (with one or two decks), multi-deck ferries (with and without car decks), cruise vessels and tenders, and terminal access. Emergency evacuation, on-board facility access and the interface between vessels with gangways, piers, passenger bridges, platforms, car ramps, tenders (ship-to-shore transit vessels) and terminals are also discussed.

Note that the guidelines were developed based on known best practices and expert opinions. They would need to be validated through accessibility audits and feedback from KSA practitioners.

1.4 How to use the Manual

The UAMT guidelines in this manual are prescriptive rather than performance-based. They are structured in a way that includes considerations of the current conditions and unique cultural and administrative characteristics of the Kingdom of Saudi Arabia (KSA).

Practitioners are encouraged to familiarize themselves with the key concepts of UAMT as outlined in Chapter 2 as well as the overall structure and organization of the Manual. This will give the reader an overview of the principal concepts and comprehensiveness of the technical design requirements for universally accessible marine transportation systems and facilities in general. The Manual can also be used as a reference throughout the design, development and implementation phases of a project. It is emphasized that practitioners should apply the UAMT principles right from the start of the design process. Thereafter, for the detailed design of terminal buildings, specific passenger vessel and boarding equipment elements, they should consult the subject index for guidance throughout the lifespan of the development and implementation stages. The checklists in Appendix E will facilitate this process.

The UAMT Guidelines are organized as follows:

Chapter 1 sets the scene for the entire body of work.

Chapter 2 explains the concept evolution and key terms that lay the foundations of UAMT. The anthropometric measurements for human reach and space requirements are specified and illustrated.

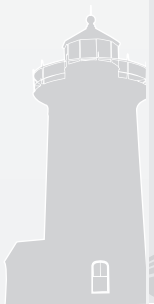




Chapters 3-6 present the detailed design guidelines for all marine transportation modes under these six headings:

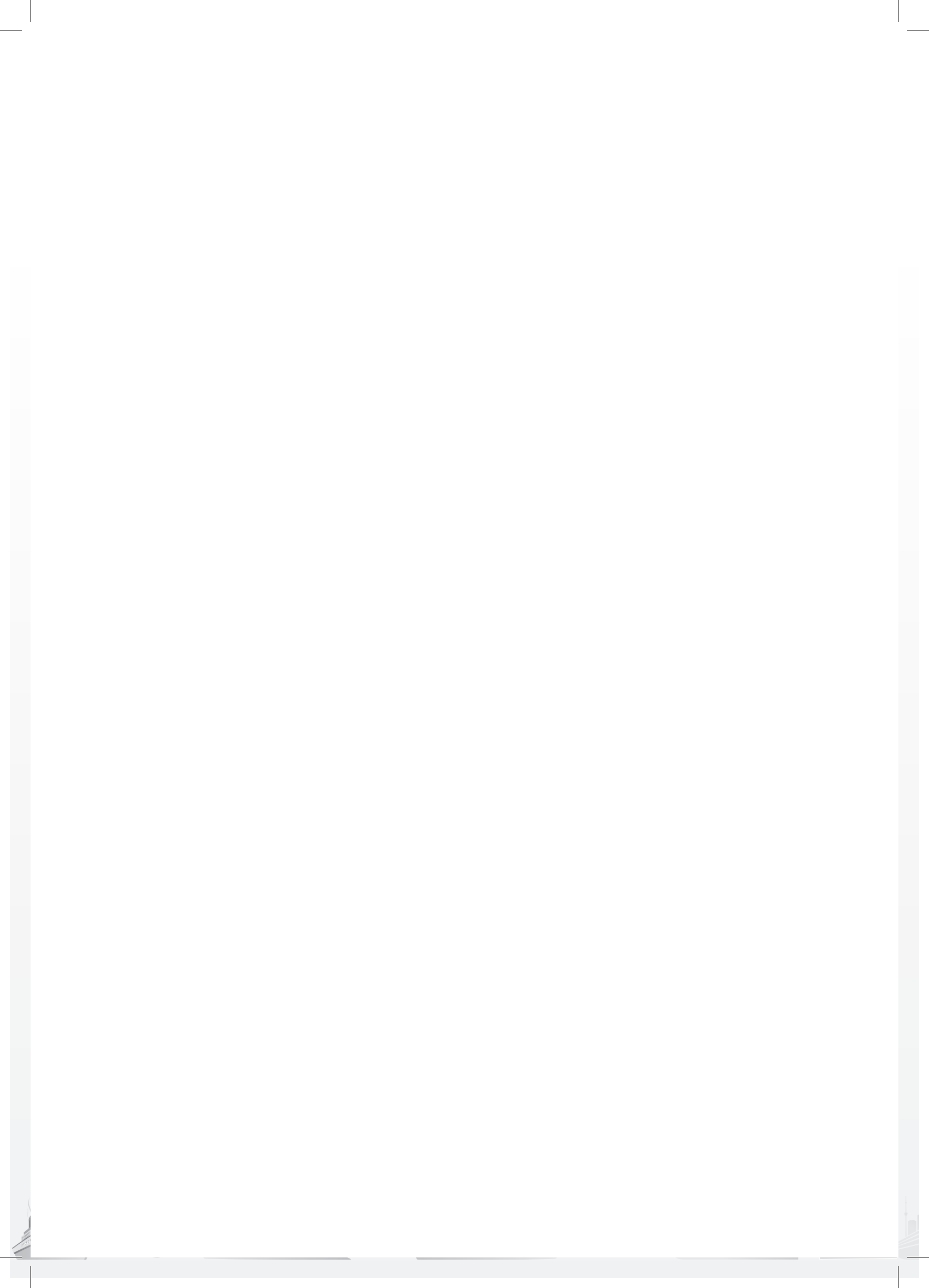
- ‘Title’ of the transport element in question (i.e. WHAT);
- ‘Design considerations’ for developing the guidelines (i.e. WHY);
- ‘Application guidelines’ (i.e. WHERE, WHEN and HOW MANY and exceptions)
- ‘Technical guidelines’ for accessible elements (i.e. HOW to make them accessible).
- ‘Illustrations’ of the technical guidelines (i.e. HOW the design can be implemented). Unless otherwise noted, all dimensions are in millimeters.
- ‘Other considerations’ contains cross-references information from each element with other relevant sections of the UAMT guidelines.

Appendices contain additional relevant information.



Basic Concepts in UAMT





2.0 Basic Concepts in UAMT

2.1 UAMT Concept Evolution

A transportation network is the circulatory system of a community. Marine transport may play a vital role in the principle categories of community endeavour, trade, commerce, and leisure. Obstacles which can impede a seamless flow from arrival at passenger vessel terminals to the passenger vessels themselves are detrimental to the whole community that uses the service.

Transport planners define a ‘trip’ as having an origin and a destination. The ‘trip’ events in a journey involving marine facilities are typically the Terminal (which may be a transport interchange, bus or train station interchange) and other on-shore buildings, and the external approaches to these buildings, then the piers and gangways, and finally the facilities on-board the vessel itself, the car decks, passenger outer decks, and internal planning arrangements all subject to the scale of the vessel involved.

“Accessibility” means different things to different people. In order to ensure that disabled people can participate and have the same choices as non-disabled community members, community services should be rendered accessible to all. This includes: access to built environments, land and marine transportation, the electoral process, clean water, sanitation, technology, information and communication, etc. An ideal transportation system should provide all travelers with a pleasant and safe experience. Its attributes are: universality, reliability, convenience, affordability, safety and security. The UAMT goal is “Seamless Marine Transportation for All.”

Western countries usually consider accessible transportation for Persons with Functional Limitations (PFL’s) as a human right. This is reflected in basic human rights legislation that prohibits discrimination against PFL’s in the provision of all goods and services, implicitly including transportation. In KSA, it is contained in Article 26 of the Basic Law of Governance. Other nations have additional specific legislation to require that all transportation services are universally accessible. A combination of both approaches is the most effective in promoting the goal of UAMT.





2.1.1 The following paragraphs derive data from international sources, and are included to illustrate other national and international processes that have been followed to establish Universal Design criteria, guidelines and standards.

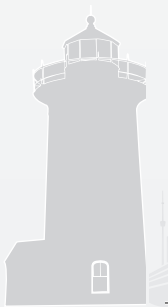
2.1.1.1 Americans with Disabilities Act and the Passenger Vessel Access Advisory Committee

When guidelines for transit vehicles originally were issued under the Americans with Disabilities Act of 1990 (ADA), the United States Access Board (Access Board) and the United States Department of Transportation (DOT) decided that further study was needed before guidelines could be developed for passenger vessels. The agencies sponsored a study that examined the impact of access to vessels and shore facilities. This project was completed in July 1996 and provided valuable information for rulemaking. The Access Board and DOT also held an information meeting with organizations representing people with disabilities and the marine industry to determine the scope and complexity of the rulemaking.

Rulemaking History: In August 12, 1998 the Access Board created the Passenger Vessel Access Advisory Committee (PVAAC). The purpose of the PVAAC was to develop guidelines under the ADA for access to ferries, cruise ships, excursion boats, and other passenger vessels. These guidelines will supplement the Access Board's ADA Accessibility Guidelines for Transportation Vehicles.

In December 2000, the PVAAC presented its final report to the Access Board. On August 20, 2003, the Access Board held a public meeting in New Orleans on the embarkation and disembarkation of passenger vessels by persons with disabilities. On September 9, 2003, the Access Board held a public meeting in Seattle on the embarkation and disembarkation of passenger vessels by persons with disabilities. On November 26, 2004, the Access Board issued draft guidelines for large vessels and a notice concerning guidelines for small vessels that was available for comment until July 28, 2005:

- Draft Guidelines for Large Passenger Vessels;
- Notice of Availability – Large Vessels;
- Draft Regulatory Assessment Plan (Large Vessels);



- Advance Notice of Proposed Rulemaking – Small Vessels;
 - Public Comments on the Draft Guidelines and Notices.
 - On July 7, 2006, the Access Board issued revised draft guidelines for large vessels, ferries, and tenders that were available for public comment up until November 13, 2006:
 - Revised Draft Passenger Vessel Accessibility Guidelines and Related Material (July 7, 2006)
 - Notice of Availability
 - Notice Extending the Comment Period (to November 13, 2006)
 - Public Comments on the Revised Guidelines
- (United States Access Board, website accessed 09-07-09)*

- On June 25, 2007, the Access Board published a notice of intent to establish an advisory committee to make recommendations on issues related to the effectiveness of emergency alarm systems for individuals with hearing loss or deafness on passenger vessels. (Federal Register, 2007). The notice identified the following interests that are likely to be significantly affected by this rulemaking:
 - Individuals with hearing loss or deafness, and other individuals with disabilities concerned about emergency alarm systems on passenger vessels;
 - Passenger vessel operators;
 - Manufacturers and designers of emergency alarm systems on passenger vessels; and
 - Voluntary codes and standards groups which address emergency alarms on passenger vessels.
- (United States Access Board, site accessed 10-07-09)*

2.1.1.2 Disabled Persons Transport Advisory Committee

The Disabled Persons Transport Advisory Committee (DPTAC) is an independent body established by the Transport Act 1985 to advise the Government of the United Kingdom on the transport needs of disabled people. DPTAC's aim is that disabled people should have the same access to transport as everybody else. DPTAC works to apply applicable sections of The Disability Discrimination Act (DDA) 1995.

DPTAC has developed Guidances relating specifically to the accessible design of passenger vessels:





Design of Large Passenger Ships and Passenger Infrastructure: Guidance on Meeting the Needs of Disabled People, 2000

Review of Guidance: Large Passenger Ships and Passenger Infrastructure, (final report) 2006 which evaluated the degree to which the shipping industry has complied with the voluntary guidance.

DPTAC are currently developing a guidance document for industry on the Designing of passenger vessels and passenger shore infrastructure: Guidance on meeting the needs of persons with reduced mobility. They are also developing a passenger guide for disabled people when traveling on passenger vessels.
(DPTAC, *site accessed 09-07-09*)

2.1.1.3 European Conference of Ministers of Transport

The European Conference of Ministers of Transport (ECMT) is an intergovernmental organization established by a Protocol signed in Brussels on 17 October 1953. It comprises the Ministers of Transport of 43 Full Member countries.

The ECMT is a forum in which Ministers responsible for transport can cooperate on policy. Within this forum, Ministers can openly discuss current problems and agree upon joint approaches aimed at improving the utilization and at ensuring the rational development of European transport systems of international importance. This includes marine transportation.

An important publication relating the ferries and ships is Improving Transport Accessibility for All: Guide to Good Practice, 2006.
(ECMT, 2006)

2.1.1.4 Safety of Life at Sea

Of all international conventions dealing with maritime safety, the most important is the International Convention for the Safety of Life at Sea (SOLAS).

It is also one of the oldest, the first version having been adopted at a conference held in London in 1914. Since then there have been four other SOLAS conventions: the second was adopted in 1929 and entered into force in 1933;



the third was adopted in 1948 and entered into force in 1952; the fourth was adopted (under the auspices of IMO) in 1960 and entered into force in 1965; and the present version was adopted in 1974 and entered into force in 1980. The SOLAS Conventions have all covered many aspects of safety at sea. The 1914 version, for example, included chapters on safety of navigation, construction, radiotelegraphy, life-saving appliances and fire protection. These subjects are still dealt with in separate chapters in the 1974 version. The sinking of the Titanic led to the convening of the 1914 international SOLAS conference.
(IMO, 1998)

2.1.1.5 International Maritime Organization

The SOLAS Convention established the International Maritime Organization (IMO) which was adopted in Geneva in 1948 and IMO first met in 1959. IMO's main task has been to develop and maintain a comprehensive regulatory framework for shipping and its remit today includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping. IMO is a specialized agency of the United Nations, and is based in the United Kingdom.

IMO works to update existing legislation and develops or adopts new regulations, with meetings attended by maritime experts from Member Governments, together with those from interested intergovernmental and non-governmental organizations.

The result is a comprehensive body of international conventions, supported by hundreds of recommendations governing every facet of shipping. IMO is undertaking a global consideration of the safety issues pertaining to passenger ships.

IMO plays a key role in ensuring that the key issues of safe design and operation keep updated so that lives at sea are not put at risk.

They have published numerous guidelines for passenger vessels including Guidelines for Evacuation Analysis for New and Existing Passenger Ships, 30 October 2007.
(IMO, 2002)





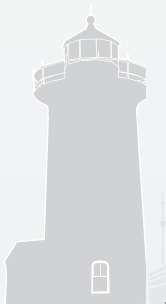
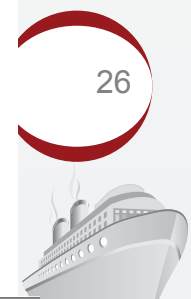
2.1.1.6 Cruise Lines International Association (CLIA) and the International Council of Cruise Lines (ICCL)

Cruise Lines International Association was formed in 1975 in response to a need for an association to promote the special benefits of cruising and in 2006 merged with the International Council of Cruise Lines (ICCL), a sister entity created in 1990 dedicated to participating in the regulatory and policy development process of the cruise industry. CLIA exists to promote all measures that foster a safe, secure and healthy cruise ship environment, educate, train its travel agent members, and promote and explain the value, desirability and affordability of the cruise vacation experience.

CLIA is the world's largest cruise association and is dedicated to the promotion and growth of the cruise industry. CLIA is composed of 24 of the major cruise lines serving North America and is an organization that operates pursuant to an agreement filed with the Federal Maritime Commission under the Shipping Act of 1984 and serves as a non-governmental consultative organization to the International Maritime Organization, an agency of the United Nations. (Cruise Lines International Association, Inc., 2009)

The provision of accessible public transportation services began in the 1970s in North America and Europe in the form of specialized services exclusively for people with mobility impairments [Mitchell, Christopher (Kit) & Smith, Trevor, 1998]. Thirty years later, we have accessible passenger terminals, passenger vessels, tactile guide ways, curb cuts, and electronic trip-planning and announcement systems in Europe, North America and parts of Asia and Latin America. A combination of local, national and international public-private sector initiatives, together with the application of technological innovations, have transformed ideas into action.

The findings of the research on marine guidelines to date are not as fully developed as the accessible land transport guidelines. More research must be conducted globally.



1. Barrier-Free Design

There are four types of travel barriers in the trip chain: environmental (weather), attitudinal (being treated differently), inadvertent (lack of knowledge, education, understanding, or effort) and physical (heavy doors, level changes, lack of visual or auditory warnings, etc.) [Pivik, McComas, & LaFlamme, M. 2002]. The original focus of disability campaigners and architects was on barrier-free access to buildings and public environments – curb cuts, textured paving, ramped entry, wider doorways, corridors and accessible toilets – all denoted by a wheelchair symbol [Coleman, Roger, 2008], i.e. design without any limitations to a sensory, cognitive or mobility-impaired individual.

Over the past 30 years, the barrier-free design approach has evolved to overcome these obstacles. With regard to the physical aspects, the results were reasonably good. Nevertheless, it was a reactive measure aimed primarily towards the removal of existing impediments to the use of public transport. Proponents of barrier-free design tend to focus on meeting needs of persons with mobility impairments, often overlooking the needs of persons with cognitive and sensory impairments [Suen, Ouellet & Blais, 2002].

2. Universal Design (UD)

As a way of overcoming the limitations of the barrier-free design approach, Universal Design (UD) emerged in the mid-1990s. The UD philosophy is based on designing products and environments to be usable by all people, to the greatest extent possible, without the needs of adaptation or specialized design, at little or no extra cost [Center for Universal Design, 2008]. This approach aims to simplify life for everyone regardless of their functional abilities, including everyone, as shown in Figure 1: the Universal Design Pyramid. In the transportation context, the entire trip chain, including access to travel information, access to passenger vessels, on-board facilities, transfers, stops and terminals, must all be considered for universal accessibility [Suen, Ouellet & Blais, 2002].

It should be stressed that the aim of UD is not that, for example, every toilet cubicle should be designed for wheelchair accessibility, but that every wheelchair user should have access to a toilet cubicle that is usable by them – it is therefore a matter of proportional design: all design should be undertaken in proportion to the anticipated or forecast incidence of disability in the design context.





Legend

Row-8 (the top of the pyramid) shows those users who require two or more assistants when they venture out..

Row-7 shows people who drive electric scooters and wheelchair users who need the assistance and supervision of a companion.

Row-6 shows independent wheelchair users. (This group is generally catered for in areas where legislation has been enacted, however the accommodation of this group is usually very specific, i.e. lifting devices, elevators, etc.)

Row-5 introduces ambulant people with disabilities.

Row-4 includes people with strollers / pushchairs. (This group can be limited in access by lack of turning space in confined areas such as toilets, as well as the placement of stairwells, narrow doors, etc.)

Row-3 introduces children and women – this is the beginning of difficulties for users. (The architectural issues at this point may include limited numbers of toilet stalls, small stalls limiting movement for mothers with children, etc.)

Row-2 denotes those users to whom regular architectural fixtures (stairs etc...) pose no problem.

Row-1 (from bottom up) denotes users who are completely able-bodied and have no trouble running, jumping and climbing ladders.



Figure 1. The Universal Design Pyramid, Source: Preiser and Ostroff, 2001

The European Union uses the term ‘Design for All’ which is equivalent to universal design, but with more emphasis on accessible information. Seven Principles that illustrate Universal Design / Design for All are:

- Equitable Use
- Flexibility in Use
- Simple and Intuitive Use



- Perceptible Information
 - Tolerance for Error
 - Low Physical Effort
 - Size and Space for Approach and Use
- [Coleman, Roger, 2008]

3. Inclusive Design

The term “inclusive design” is often used interchangeably with “universal design” but is less well-defined in literature. Inclusiveness means right to access, right to use and enjoy, without special status or burden [Ministry of Municipal Affairs and Housing (Ontario, Canada), 2005]. It is a process-driven approach by designers and industry to ensure that products and services address the needs of the widest possible consumer base, regardless of age or ability [Coleman, Roger, 2008]. It embodies the process of inclusion, i.e. bringing different user groups into the fold. It does not necessarily require uniform treatment and allows for viable options with choice, e.g. complementary paratransit provisions under the American with Disabilities Act (ADA) [Suen, Ling S., Varigonda, Meera Ashtakala, and Ouellet, Luc, 2001].

It is strongly recommended that the KSA create/elect their own Passenger Vessel Access Advisory Committee which would be responsible for drafting guidelines for accessible passenger vessels. Cruise lines companies should employ a full-time Access Compliance Manager or Access Advisor whose job is dedicated to monitoring and expanding onboard accessibility. (Miller, W. 2002)

4. Process to Make Transportation Accessible

The process of making transportation systems more user-friendly has evolved through four distinct stages: awareness, understanding, development, and finally, implementation. Milestones include the International Year of the Disabled Person (1981), the United Nations Global Decade for Persons with Disabilities (1983-1992), and the International Conference on Mobility and Transport for Elderly and Disabled Persons (TRANSED) (1978 – present) series. These landmark turning points in the genesis of accessible transportation have contributed to the development of policy and projects in many parts of the world.





Mobility

Mobility is a quality of life goal. True mobility is reached when connectivity and accessibility are achieved throughout the trip chain “curb to terminal, terminal to vessel, vessel to terminal, terminal to curb”. This involves terminal access, and access to/on vessels ranging from small ferries to large cruise ships. For persons with reduced mobility, canes, crutches, manual wheelchairs and motorized mobility aides are used to attain mobility [Suen, Ling S., D’Souza, Alana, and Blais, Daniel. 2007].

Occupant Restraint Systems

The purpose of the system is to ensure the safety of the passenger in the wheelchair during rapid acceleration or deceleration or rough seas in passenger vessels. The passenger in the wheelchair/scooter is restrained by an occupant restraint system, typically a three-point belt system similar to those used in cars, with a lap and a shoulder belt. The belt system should be anchored to the vessel, not to the wheelchair/scooter.

Persons with Functional Limitations

Persons with functional limitations refer to individuals with restricted or limited abilities to perform within the perceived normal range of activities. [World Health Organization, 1980].

Persons with Transportation Disabilities

A subset of persons with functional limitations defined as, “individuals who, because of their health problems or condition, are unable to use transportation services, or use transportation services with more difficulty than those in the general population” [Health and Activity Limitation (HALS) Questionnaire, 1991]. The following describes various disability groups and their requirements while traveling [Meriläinen, A. and Helaakoski, R., 2001]:



a) Physical Disability

This group includes people who have locomotor disabilities, which affect agility and mobility. The two subgroups include: 1) ambulatory people able to walk with human assistance or mobility aids, such as crutches, sticks, braces or walkers, and 2) people who cannot move without the use of wheeled equipment for mobility such as wheelchairs, tricycles, push carts, etc. For either type, lack of agility impacts the ability to handle fares and to maintain stability while boarding and within passenger vessels. For individuals with mobility restrictions, the barrier to overcome is level change (as pedestrians and as passengers in vessels).

b) Sensory Disability

This group includes people who, as a consequence of visual or hearing impairment, may be restricted or inconvenienced in their use of transportation modes. The two subgroups include: 1) visually-impaired/blind persons, who rely on their sense of hearing, touch and smell; hence, as a traveler, the issue is orientation and wayfinding. 2) hearing/speech-impaired persons, who rely on their sense of sight, touch and written information; hence, as a traveler, the issue is communication and information.

c) Cognitive Disability

This group includes people who have a mental illness, a developmental or a learning disability. Hence, as a traveler, the issue is safe, independent travel.

Transportable Mobility Aids

Transportable mobility aids refer to devices with the dimension, weight, degree of maneuverability, and turning radius of devices that can be accommodated and secured in a transit or moving passenger vessel.

Transportation System

A transportation system is composed of three elements: right-of-way (path), terminal (origin, destination), and passenger vessel [Suen, Ling S., D'Souza, Alana, and Blais, Daniel, 2007].



Trip Chain

The links (gangway/pier, passenger vessel) and nodes (stops, transfers to tender) that a traveler experiences in a trip in order to travel from Point A to Point B; “curb to terminal, terminal to vessel, vessel to terminal, terminal to curb”.

Wheelchair Securement Systems

When a wheelchair is used as a seat on marine transportation, as appropriate, it should be fastened in some fashion to the transporting vessel such as that the wheelchair is secure and safe as a permanent seat on the vessel. Wheelchair securement systems are primarily mechanical devices designed to hold the wheelchair in place during rapid acceleration or deceleration, or during bad weather. There are two type of securement systems used in vessels: forward-facing and rear-facing [Hunter-Zaworski, K.M. and Zaworski, J.R, 2001].

A wheelchair securement system may be counter productive to accessibility on some large cruise vessels, where wide circulation is generally available and expected between public areas and program areas. Another factor is that because the decks are so large and accessible, it is not always practical to provide tie-downs at every possible location so the question would become where they would be placed.

Concerning vessels that merely transport passengers from point to point, and where seats are provided, securement in the form of tie downs may be appropriate. However, on a cruise vessel where one of the purposes is to promote circulation throughout the vessel, securement devices may be less appropriate.

Vessel Types: Illustrative Data

The following illustrations are included to give a basis for the consideration of vessel UD issues, and not to illustrate either effective or deficient UD. They are not vessels that have been subjected to UD scrutiny, or which have achieved any UD Compliance or Certification. These vessels nonetheless are equipped with basic access facilities such as accessible toilets; and are currently operating off the shores of KSA.



a) Example of a 69m High Speed Vehicle-Passenger Catamaran

Capacities: Passengers 650

Crew: 18

Vehicles: 50 Cars plus 15 x 7 tonne trucks



Figure 2: High Speed Vehicle-Passenger Catamaran



Figure 3: Internal seating



Figure 4: High Speed Vehicle-Passenger Catamaran

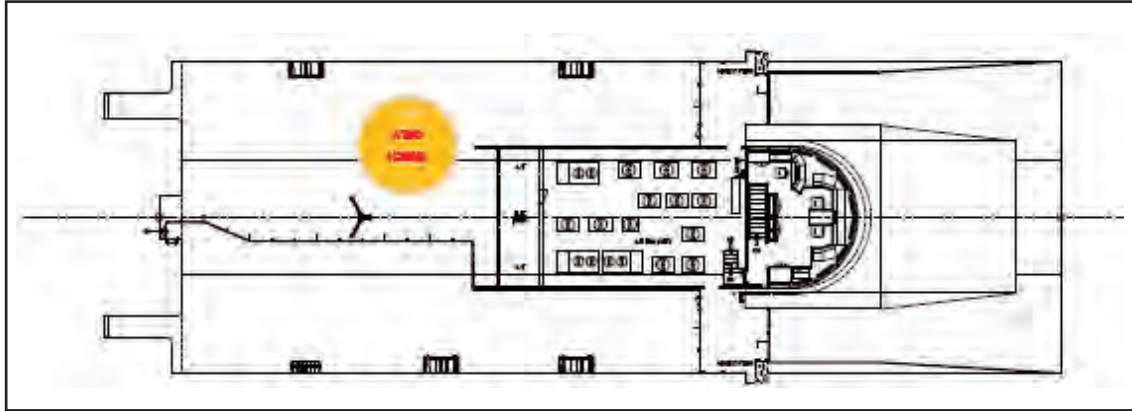
(Source: www.austral.com, Western Australia, Accessed 13-07-09)



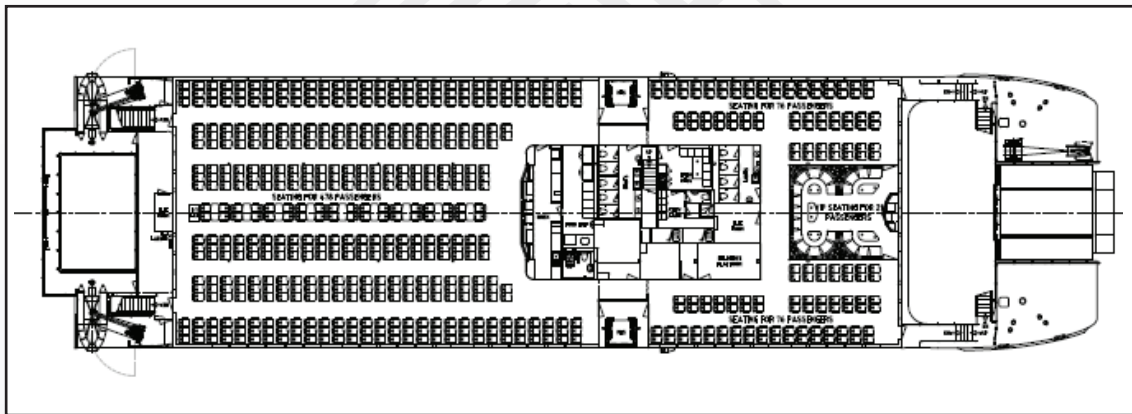


Vessel Plans:

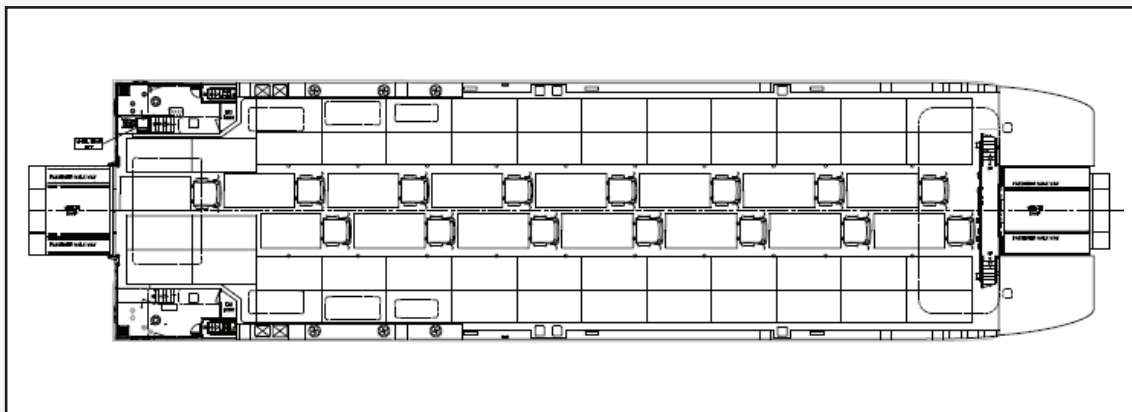
Bridge Deck



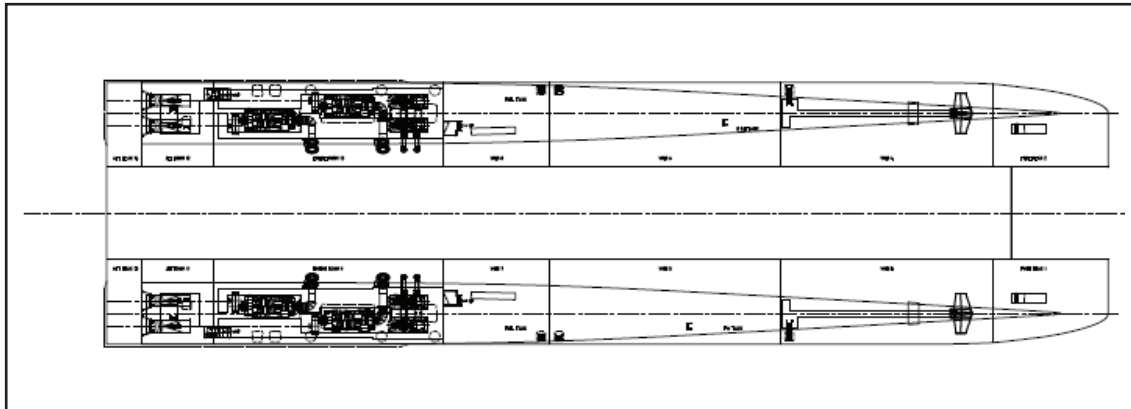
Upper Deck



Main Deck



Hulls



*Figure 5: Vessel Plans of High Speed Vehicle-Passenger Catamaran
(SOURCE: www.austral.com, Western Australia, Accessed 13-07-09)*





b) Example of an 88m High Speed Vehicle-Passenger Catamaran

Capacities: Passengers 1,200

Crew: 18

Vehicles: 120 cars plus 15 x 15 tonne trucks



Figure 6: High Speed Vehicle-Passenger Catamaran

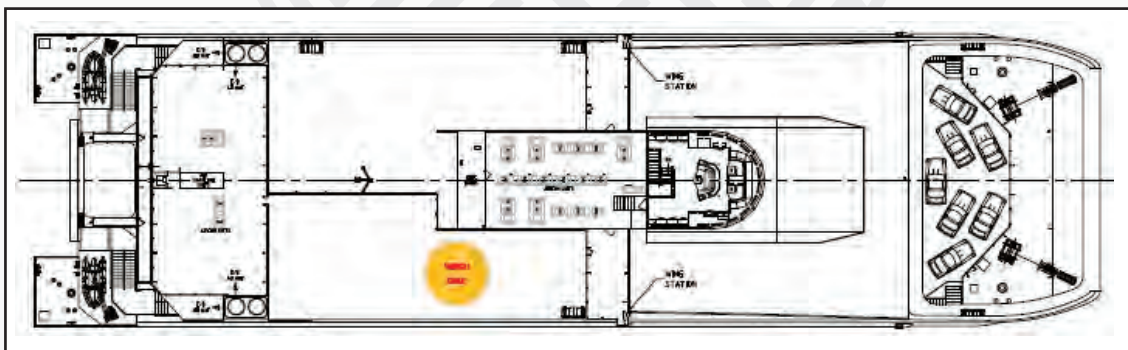


Figure 7: Internal seating with tables

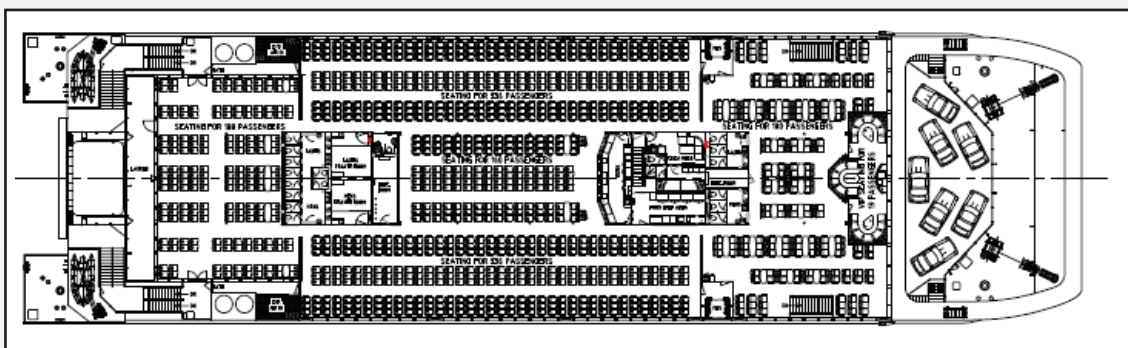
(Source: www.austral.com, Western Australia, Accessed 13-07-09)

Vessel Plans:

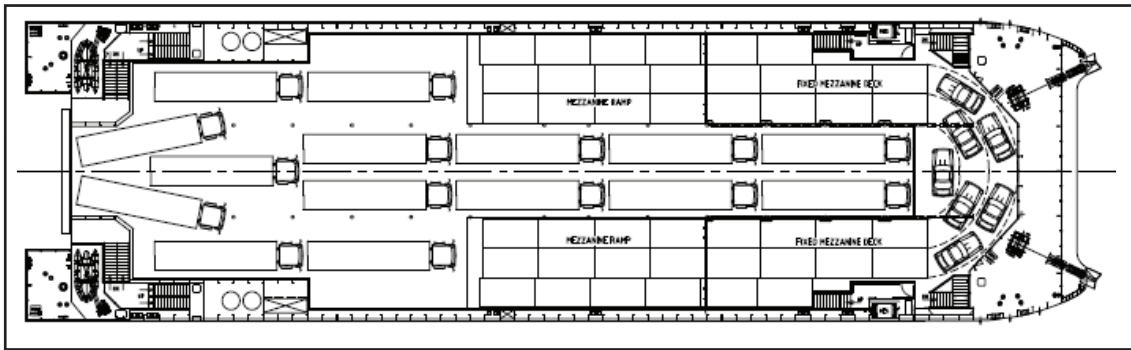
Bridge Deck



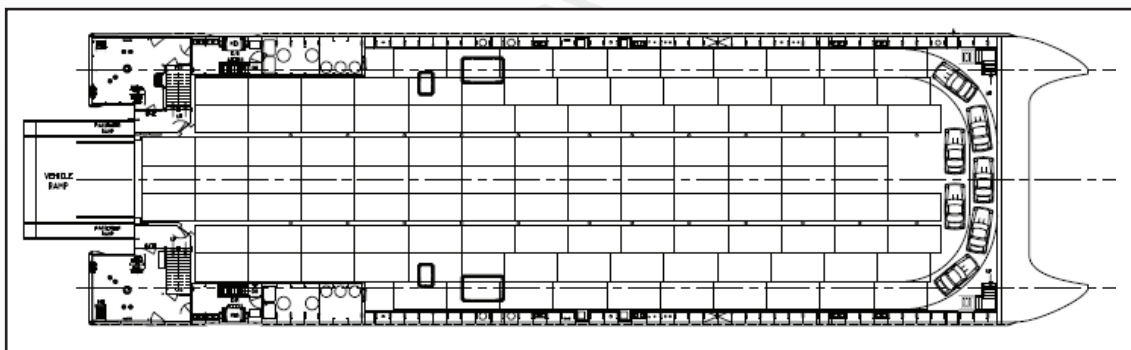
Upper Deck



Mezzanine Deck



Main Deck



Hulls

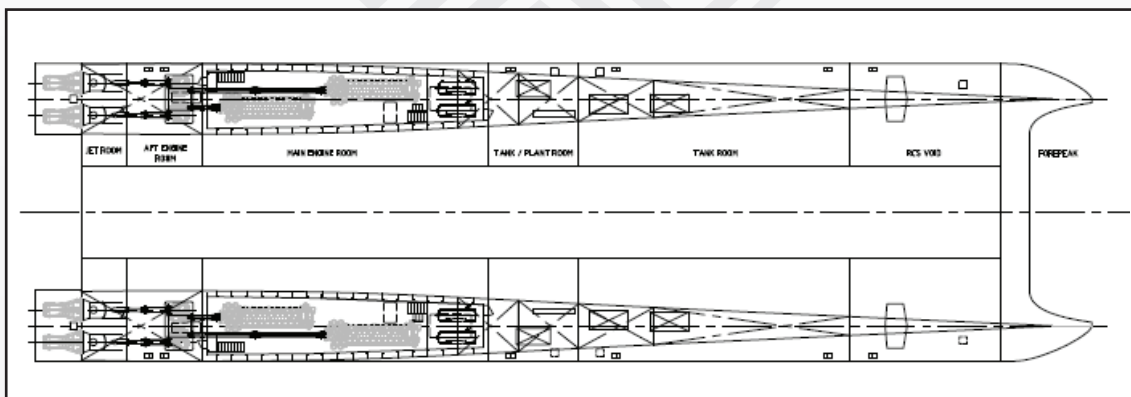


Figure 8: Vessel Plans of High Speed Vehicle-Passenger Catamaran
 (Source: www.austral.com, Western Australia, Accessed 13-07-09)





Context: Summary of Operations at the level of the Ports Authority of Saudi Arabia

Note: It is outside the scope of this programme to conduct any UD/Accessibility review of the shore-based facilities of these ports: the information is provided so as to 'flag up' the need for further and future review of UD application for Port and Shore-based Facilities. The percentages provided in the following tables of passengers that have a disability are derived from data provided by the KSA Ports Authority, and the extrapolation of quotas of PwDs may be subject to upward revision depending upon the coverage of target groups.

The Saudi Ports Authority is responsible for providing port and shipping facilities to meet the current and forecasted needs of KSA.

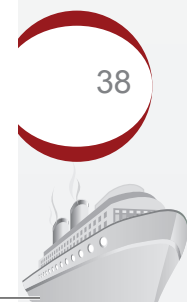
There are six principal commercial ports in Saudi Arabia; however, only three are ports for passenger vessels. These are Jeddah, Yanbu and Dhiba. (The other ports of Dammam, Jubail and Gazan are industrial ports without passenger facilities).

Number of Passengers	2007	2008
Arrived	721,166	650,269
Departed	751,973	664,667
Total	1,473,139	1,314,936

Figure 9: Overall Passenger Details - Source: www.ports.gov.sa

Assuming an average of 1 – 2% of passengers are people with disabilities (PwD), this means that we may derive the total number of passengers with disabilities for these periods as:

Number of Passengers	2007	2008
Arrived	10,818	9,754
Departed	11,280	9,970
Total	22,098	19,724



Jeddah Islamic Port

This Port is located roughly mid-way up the Arabian Peninsula and has 58 berths. It is Saudi Arabia's principal port serving the Holy Cities of Makkah and Medina. The port serves the commercial centers through which 59% of the Saudi Arabia's imports by sea are being handled. There are 58 berths of international status in service today. There is a separate passenger terminal here. (Wikipedia, http://en.wikipedia.org/wiki/Jeddah_Seaport)



Figure 10: Map of Jeddah Islamic Port - Source: www.ports.gov.sa

Number of Passengers	2007	2008
Arrived	246,117	195,705
Departed	357,399	252,344
Total	603,516	448,049

Figure 11: Jeddah Passengers Details - Source: www.ports.gov.sa





Assuming an average of 1 – 2% of passengers are PwD, this means that we may derive the total number of passengers with disabilities for these periods as:

Number of Passengers	2007	2008
Arrived	3,692	2,936
Departed	5,361	3,785
Total	9,053	6,721

Yanbu Commercial Port

Passenger ships use this facility. Pilgrims traveling to Medina disembark here. Yanbu Commercial Port is strategically located close to Medina and would be used for many people during the Hajj.

Number of Passengers	2007	2008
Arrived	49,912	82,166
Departed	47,640	62,509
Total	97,552	144,675

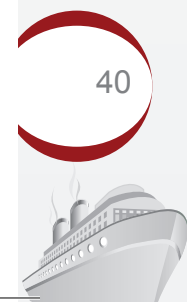
Figure 12: Yanbu Passengers Details - Source: www.ports.gov.sa

Assuming an average of 1 – 2% of passengers are PwD, this means that we may derive the total number of passengers for these periods as:

Number of Passengers	2007	2008
Arrived	749	1,233
Departed	715	938
Total	1,464	2,171

Dhiba Port

Dhiba Port is strategically located at the north end of the Red Sea coast of Saudi Arabia. It is the nearest Saudi port to the Suez Canal and other Egyptian ports.



Dhiba is the latest Saudi port - developed to serve the north west region of the Kingdom. There are three berths, which are supplied with fresh water either by shore installations or by barge. A hotel with boarding and lodging facility, a supermarket and a bank are under construction inside the Port area. A fuel station, a supermarket and lodging are also being built outside the Port. This is located near the Suez canal, and is mainly a commercial port.



Figure 13: Dhiba Port Map - Source: www.ports.gov.sa

Number of Passengers	2007	2008
Arrived	425,137	372,398
Departed	346,934	349,814
Total	772,071	722,212

Figure 14: Dhiba Passengers Details - Source: www.ports.gov.sa

Assuming an average of 1 – 2% of passengers are PwDs, this means that we may derive the total number of passengers with disabilities for these periods as:

Number of Passengers	2007	2008
Arrived	6,377	5,586
Departed	5,204	5,247
Total	11,581	10,833





2.3

Anthropometric Data

2.3.1 Design Considerations

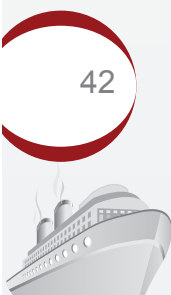
The spatial requirements and movement profiles of persons using wheelchairs, mobility scooters and other mobility devices, as well as persons with luggage, prams or strollers are as varied as the individuals themselves. Traditional approaches to accessibility have been conservative in nature, catering to the needs of physically strong individuals using manual wheelchairs – which is an exceptionally narrow characterisation. True universal accessibility should address the needs of all users, including those with limited strength, those using larger mobility devices, as well as people who use other wheeled mobility devices such as prams, strollers and wheeled-luggage. This manual aims to more accurately reflect the vast array of equipment that is used by persons to access and use facilities, as well as the diverse range of user ability. Emphasis is placed on appropriate space allowances that accommodate the dynamic movements of people using wheelchairs, mobility scooters, or other assistive devices.

2.3.2 Application Guidelines

Space and reach requirements for persons who use wheelchairs, mobility scooters, and other wheeled mobility devices, including strollers and luggage on wheels, should comply with this section.

2.3.3 Technical Guidelines

- a. General:** All pedestrian access routes and areas should provide sufficient space to accommodate all people.
- b. Clear Floor Space:** Figure 15 outlines the minimum requirements for clear floor space or ground space.
- c. The minimum clear floor space or ground space for wheelchairs or mobility scooters** should be designed for a forward or parallel approach to objects.
- d. The knee space required under some objects** may be incorporated into the clear floor space or ground space requirements.



Type of User	Clear Floor Space Requirements	Figure Reference
Person with a pram or stroller	Clear floor area at least 1650 mm long and 650 mm wide	Figure 16
Person with luggage	Clear floor area at least 1500 mm long and 700 mm wide	Figure 17
Person using crutches	Clear floor area 810-920 mm wide	Figure 18
Person using a walker	Clear floor area at least 710 mm wide	Figure 19
Person using a long cane	Clear floor area 900-1500 mm wide	Figure 20
Person using a manual wheelchair	Clear floor area at least 1300 mm long and 800 mm wide	Figure 21
Person using a power wheelchair	Clear floor area at least 1360 mm long and 800 mm wide	Figure 22
Person using a mobility scooter	Clear floor area at least 1400 mm long and 800 mm wide	Figure 23

Figure 15: Clear Floor Space Requirements

f. One full side of a clear floor space for a wheelchair or mobility scooter should adjoin, or may overlap an accessible route or may adjoin another wheelchair clear floor space.

g. Additional manoeuvring clearances should be provided as shown in Figures 26-29 for clear floor space that is located in an alcove or otherwise confined on all or part of three sides.

h. 360 and 180 Degree Turn: 2100 mm in diameter of clear floor space is required for most wheelchairs and mobility scooters to make a 180 or 360-degree turn (Figure 24).

i. 3-Point Turn: A T-shaped space as shown in Figure 25 is required for most wheelchairs and mobility scooters to make a 3-point turn.





j. Side Reach: When a parallel approach to an object is used, the maximum high side reach should be 1350 mm, and the low side reach should be no lower than 250 mm above the floor (Figure 30). All reach and clearances should be as shown in Figures 31 and 34 if the side reach is over an obstruction.

k. Forward Reach: When a forward approach to an object is used, the maximum high forward reach should be 1200 mm, and the low forward reach should be no lower than 450 mm above the floor (Figure 32). All reach and clearances should be as shown in Figures 33 and 35 if the forward reach is over an obstruction.

Knee Space, Toe Clearance and Lap Space for Seated Persons: A clear knee space at least 685 mm high and 280 mm deep should be provided, as well as a further clear toe space at least 300 mm high and 250 mm deep (Figure 37). Lap clearance should be at least 700 mm high and 600 mm deep (Figure 38).

2.3.4 Illustrations

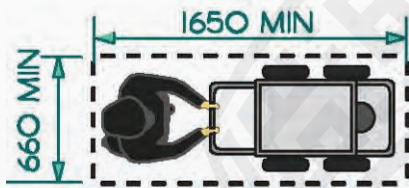


Figure 16. Clear Floor Space for a Person with a Typical Pram/ Stroller (see also Figures 26-31)

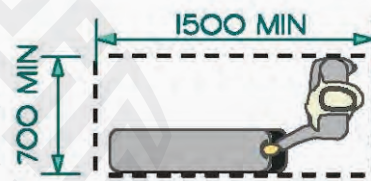


Figure 17. Clear Floor Space for a Person with Luggage

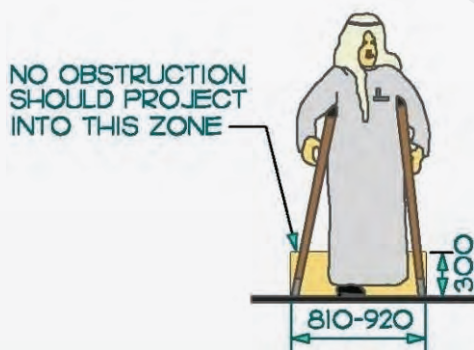


Figure 18. Clear Floor Space for a Person using Crutches



Figure 19. Clear Floor Space for a Person using a Walker





Figure 20. Clear Floor Space for a Person using a Long White Cane

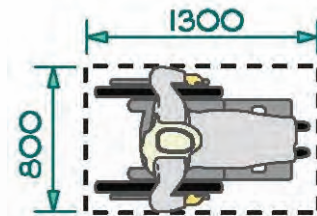


Figure 21. Clear Floor Space for a Person using a Manual Wheelchair

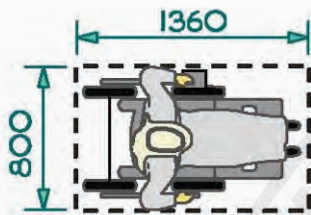


Figure 22. Clear Floor Space for a Person using a Power Wheelchair

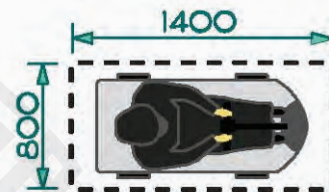


Figure 23. Clear Floor Space for a Person using a Mobility Scooter

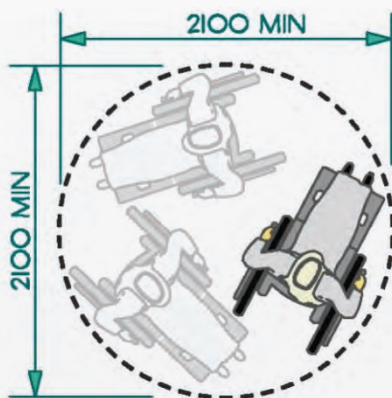


Figure 24. 360° Turning Space for Wheelchair

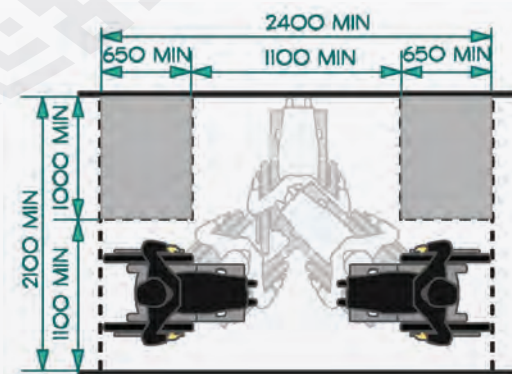
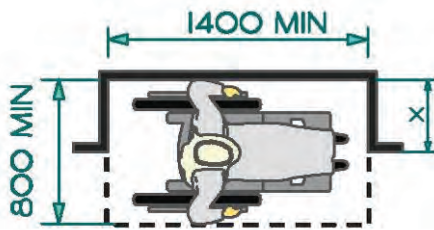


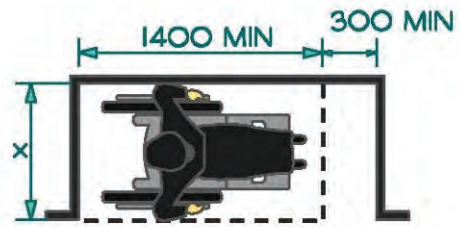
Figure 25. 180° Turning Space for Wheelchair or Mobility Scooter





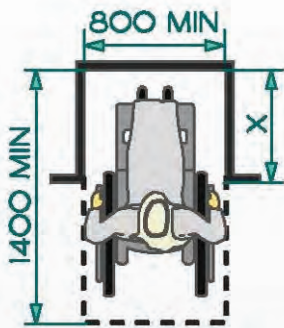
PARALLEL APPROACH - WHERE X IS 400 OR LESS

Figure 26. Clearances at Alcove



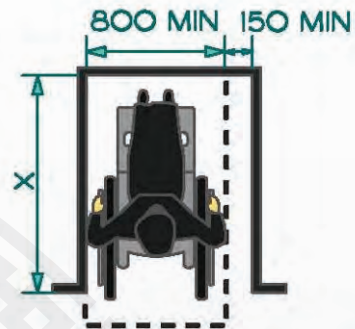
PARALLEL APPROACH - WHERE X IS MORE THAN 400

Figure 27. Clearances at Alcove



FRONTAL APPROACH - WHERE X IS 600 OR LESS

Figure 28. Clearances at Alcove



FRONTAL APPROACH - WHERE X IS MORE THAN 600

Figure 29. Clearances at Alcove

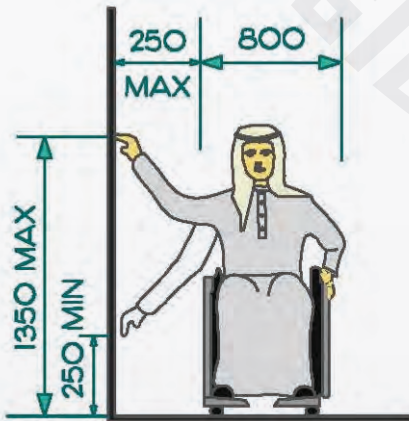


Figure 30. Side Reach

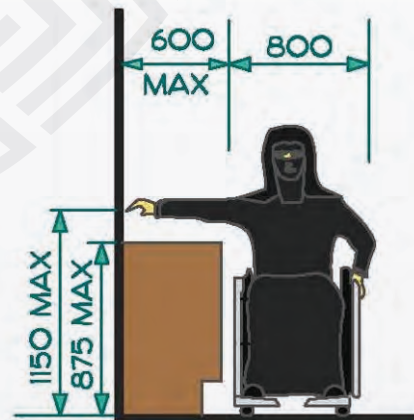


Figure 31. Side Reach over an Obstruction

Notes: In Figures 20 and 22

- X should be less than or equal to 625 mm: Z should be greater than or equal to X.
- When X is less than 500 mm, then Y should be 1200 mm maximum
- When X is 500 to 625 mm, then Y should be 1100 mm maximum



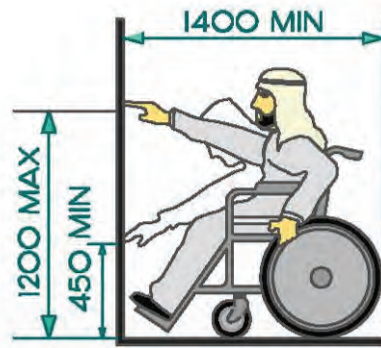


Figure 32. Forward Reach



Figure 33. Forward Reach over an Obstruction

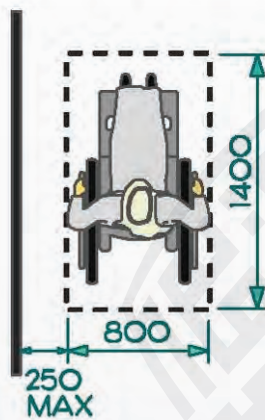


Figure 34. Side Reach - Maximum Distance to Wheelchair

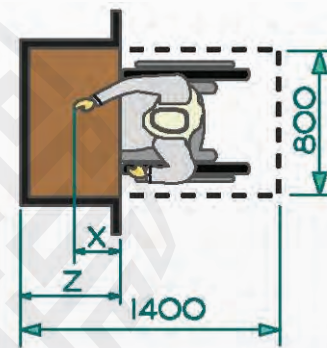


Figure 35. Forward Reach over an Obstruction

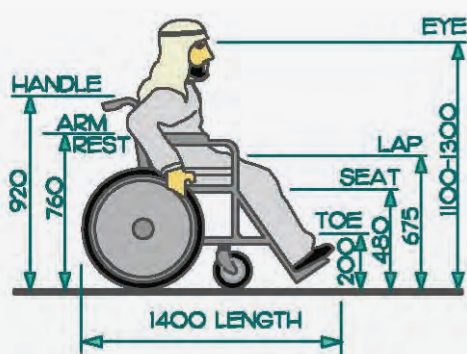


Figure 36. Typical Dimensions of an Adult Manual Wheelchair

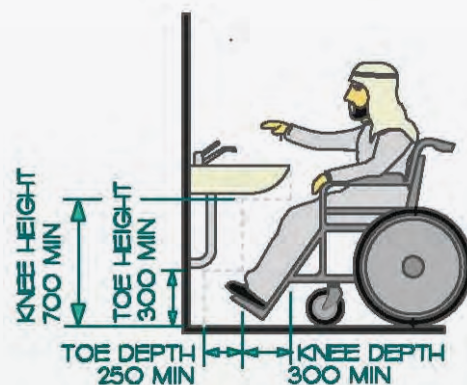


Figure 37. Knee and Toe Clearances



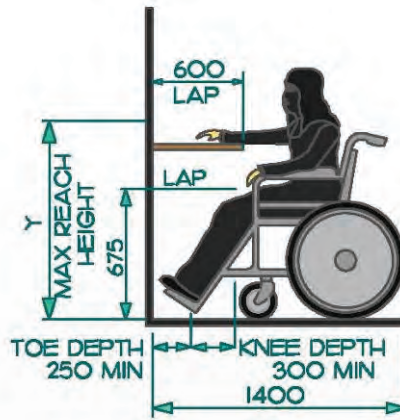


Figure 38. Lap Clearances

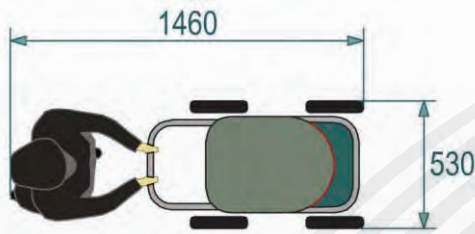


Figure 39. Clear Floor Space for a Single Regular Stroller



Figure 40. Clear Floor Space for a Single Jogger Stroller

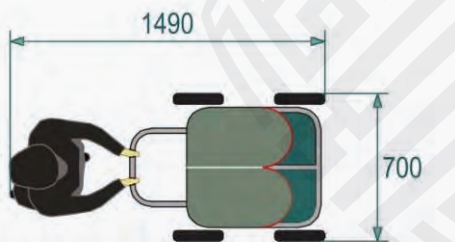


Figure 41. Clear Floor Space for a Twin Side-by-Side Stroller

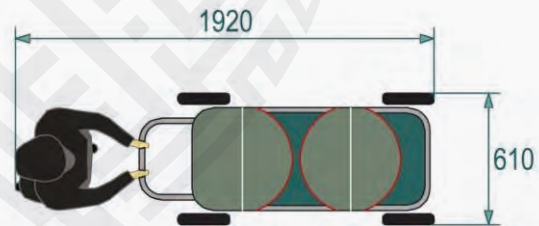


Figure 42. Clear Floor Space for a Twin Tandem Stroller

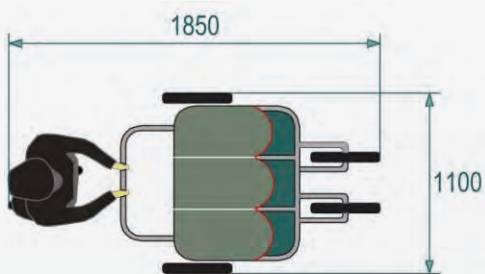


Figure 43. Clear Floor Space for a Triple Side-by-Side Stroller

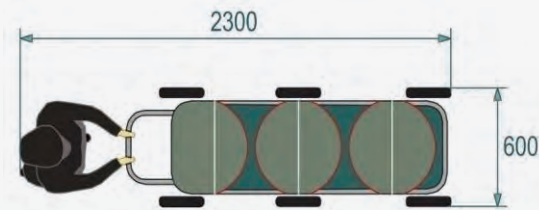


Figure 44. Clear Floor Space for a Triple Tandem Stroller

Source: Fig. 16 – 20, 39 – 44 UDA & Associates

Fig. 21 – 38 City of London, (2007) The technical content and illustrations have been adapted from the City of London Facility Accessibility Design Standards, Designable Environments Inc., 2007; and the City of Winnipeg Accessibility Design Standards, Designable Environments Inc., 2007.



Access of Ferries (one/two decks)





3.0 Access of Ferries (one/two decks)

3.1 Boarding via Platforms, Gangways, Floating Piers

3.1.1 Accessibility of Passenger Vessels: General

3.1.1.1 Design Considerations

Passenger vessels should be accessible to the widest and most universal user group possible.

3.1.1.2 Application Guidelines

This part shall apply to all marine vessels intended for passenger use, including passenger vessels, ferries and ‘roll-on, roll-off’ (ro-ro) vessels. Access for all persons on and off a passenger vessel must be a responsibility that is shared between the ship and the port. Safety is the primary concern for passengers and crew when embarking and disembarking under all weather and tidal conditions.

3.1.1.3 Technical Guidelines

- All areas of newly designed and newly constructed passenger vessels, as well as altered or modified portions of existing passenger vessels should comply with the requirements.
- Passenger vessels permitted to carry more than 150 passengers or more than 49 overnight passengers should comply.
- It is expected that all ferries should comply.
- Where a facility, room or space on a passenger vessel contains more than one use, each portion should comply with the applicable requirements for that use.
- These requirements should apply to temporary and permanent facilities on passenger vessels.
- At least one of each type of element, space and facility covered by these requirements and used by passengers should be on an entry deck or connected by an onboard accessible route to an entry deck.
- As much as possible of the walkway between the passenger terminal and vessel should be protected and covered from the weather. It should also have appropriate lighting (DPTAC, 2000).





Figure 45: Covered walkway between terminal and ferry. Star Ferry Terminal, Hong Kong
Source: UDA & Associates

Exceptions:

- Spaces accessed only by ladders, catwalks, crawl spaces, manholes, hatches or very narrow passageways should not be required to comply, or engineering or mechanical spaces serviced by trained specialist personnel.
- Where necessary to meet the camber and sheer needs of the vessel, running slopes and cross slopes should comply with this document to the maximum extent feasible.
- Water slides should not be required to comply.
- Raised diving boards and diving platforms should not be required to comply.

3.1.1.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.5 Ramps
- 3.2.6 Stairways



3.1.2 Access to the Vessel

3.1.2.1 Design Considerations

Access to marine vessels is often problematic for users of mobility aids, and persons with functional visual limitations.

3.1.2.2 Application Guidelines

This part shall apply to all marine vessels intended for passenger use, including passenger vessels, ferries and ro-ro vessels.



Figure 46: Boarding a small passenger ferry in a wheelchair

Source: UDA & Associates

3.1.2.3 Technical Guidelines

- a. Where passenger vessels are embarking or disembarking passengers from fixed piers, floating piers or landside structures, at least one passenger boarding system that is accessible should connect an entry deck to fixed piers, floating piers or landside structures.
- b. This can be either from the car deck (if applicable) or through the passenger gangway.
- c. Where vessels operate in tidal waters care should be taken to ensure that slopes on access gangways do not become too steep for wheelchair users as tides ebb and flow. The Gangways should wherever possible conform with the general requirements for ramps, as described in 3.2.5 (ECMT, 2006)

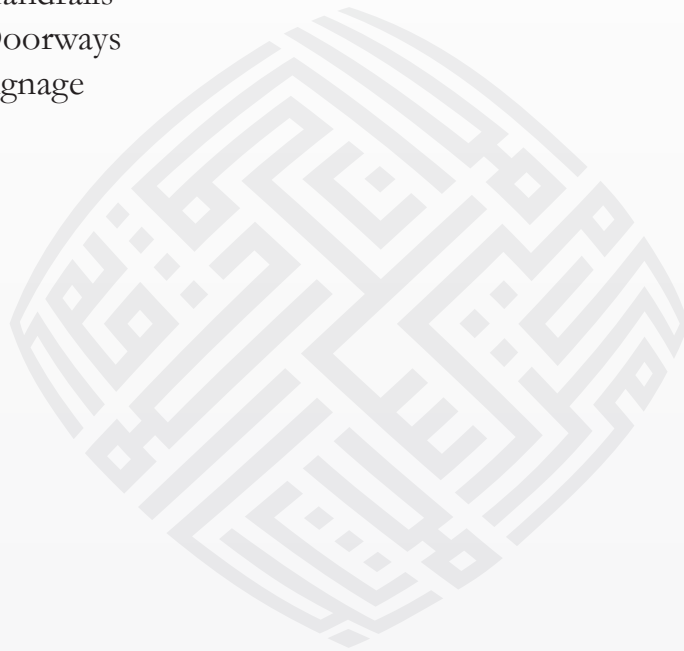




d. Entrance Protection: Accessible pedestrian entrances should be protected from the weather; the use of canopies or recessed entrances should be considered.

3.1.2.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Surfaces/Floors/Walking Surfaces /Decks and Floors
- 3.2.5 Ramps
- 3.2.6 Stairways
- 3.2.7 Handrails
- 3.2.8 Doorways
- 3.2.9 Signage



3.1.3 Access via Passenger Gangway

3.1.3.1 Design Considerations

Passenger gangways are often the most effective and efficient method of boarding and disembarking from a marine vessel. Where provided, some consideration should be given to how accessible these are.



Figure 47: Passenger Gangway
Source: UDA & Associates

3.1.3.2 Application Guidelines

This part shall apply to all marine vessels intended for passenger use, including passenger vessels, ferries and ro-ro vessels.

3.1.3.3 Technical Guidelines

a. Gangway and ship interface: The interface between the gangway and the ship where the gangway-end comes into the ship should be as near to level as possible, should be hazard-free and covered with a non-slip surface, and the gangway itself should be provided with a handrail on both sides wherever possible. A crew member should be stationed at the entrance, primarily for security and boarding-card or ticketing procedures, but also to assist passengers with functional limitations if required. The crew member should be able to request back-up, so it is implicit that such gangway supervision be equipped with communication devices. (DPTAC, 2000).





b. Mean Accessible Low Water (MALW): This is the lowest water level designated for designing accessible paths of travel connecting vessels with piers. MALW is to be established for each location based on an annual compliance percentage that is to be established for water level change categories. (PVAAC, 2000).

c. Mean Accessible High Water (MAHW): This is the highest water level designated for designing accessible paths of travel connecting vessels with piers or undeveloped shore landings. MAHW is to be established for each location based on an annual compliance percentage that is to be established for water level change categories. (PVAAC, 2000)

d. Gangway running slope: Gangway runs should have a running slope not steeper than 1:12. Gangways should not, wherever possible, exceed five meters between horizontal landings. If at high or low tide, a ramp steeper than 1:12 is unavoidable it should not be longer than three meters, landings should be provided except where the gangway itself is subject to tidal movement, and assistance should be offered to anyone using a wheelchair, or other persons with functional mobility limitations. As many people cannot negotiate ramps such as gangways without assistance – particularly when descending – the provision of a separate flight of steps, where possible, can be beneficial. Stepped ramps should never be used. The allowable slope of gangways should be related to the allowable length, such that shorter gangways may be steeper than longer gangways. Vessel operators should make reasonable efforts to use shore locations that will result in the least gangway slope feasible. (PVAAC, 2000)

e. Gangway cross-slopes: Cross-slopes of gangway runs should not be steeper than 1:48.

f. Clear width of gangway: The clear width of a gangway run and, where handrails are provided, the clear width between handrails should be 900 mm (36 Inches) minimum. (PVAAC, 2000)

g. Transition plates: Transition plates provided at the ends of the gangway runs should contrast visually with adjacent passenger walkways either light-on-dark or dark-on-light.

h. Landings: Gangways should have landings at the top and bottom of each gangway run, and such landings should comply with the following regulations



- **Slope:** there should be no changes in the pitch of the slope;
- **Width:** the landing clear width should be at least as wide as the widest gangway run leading to the landing;
- **Length:** the landing clear length should be 1500 mm (60 Inches) long minimum;
- **Change in Direction:** gangways that change direction between runs at landings should have a clear landing 1500 mm (60 Inches) minimum by 1500 mm (60 Inches) minimum; (PVAAC, 2000)
- **Doorways:** where doorways are located adjacent to a gangway landing, maneuvering clearances should be permitted to overlap the required landing area.

i. Landings subject to wet conditions should be designed to prevent the accumulation of water. As much as possible of any walkway from the passenger terminal to the vessel should be covered and protected from the weather. It should have good lighting at all times, whether natural or artificial.

j. Gangway handrails: Gangway runs with a rise greater than 150 mm should have handrails. Rails should be brightly-colored epoxy or plastic-coated tubular metal with a diameter of 45-50 mm and be set at a height of 800 – 900 mm. Gangway handrails may be subject to marine wave spray or storm water, so it should be noted that a stainless steel finish is difficult to grip and is cold, particularly when wet, and should not be used unless special design can be shown to mitigate the disadvantages.

k. Edge protection: Edge protection should be provided on each side of gangway runs and at each side of gangway landings (ADA, 2006):

- The deck surface of the gangway run or landing should extend 300 mm (12 inches) minimum beyond the inside face of a handrail;
- A kerb or barrier should be provided to gangway edges such that no opening in any such kerb or barrier is greater than 100mm. in either height or width.

l. Pedestrian crossing areas: The points where pedestrians have to cross the path of vehicles to gain access to Gangways should be kept to a minimum, consistent with ease of pedestrian access and other movements. Crossings should be well lit and clearly marked for both drivers and pedestrians, with the roadway marked in alternate color bands and with dropped kerbs and tactile surfaces.





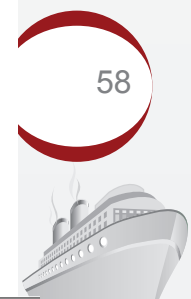
m. In the case that terminals are owned or operated by transportation service providers and boarding equipment is available for use at that terminal, it is to be used in an appropriate manner to provide the safe and dignified boarding and disembarking of persons with disabilities (CTA Code of Practice, 2007).

n. Alternative accessible route: Where the regular route of travel for boarding or disembarking is not accessible because of the use of stairs for example, an accessible alternate route ought to be available and adequately kept in good condition (CTA Code of Practice, 2007).

o. An accessible alternate route may require direct assistance from vessel operators involving the use of boarding devices. Refer to Boarding Devices.

p. Boarding Devices:

- **Firm and level surface:** Boarding points should be from firm and level surface from which a boarding device can be deployed. If a kerb is installed, it should be at least 150 mm higher than the ground surface. (Australian Disability Standards, 2002)
- **Circulation space:** There should be appropriate circulation space for a 180 degree wheelchair turn.
- **Manual or power assisted devices:** Boarding devices either manual or power-assisted, should be provided, in good working order, at a designated accessible entrance that has a vertical rise or gap exceeding 15 mm; or a horizontal gap exceeding 40 mm. (Australian Disability Standards, 2002)
- **Trained staff:** The boarding device should be available for use at each designated stop by staff well trained and competent in its use.
- **A boarding device should:**
 - i. be a minimum of 800 mm wide; and
 - ii. have a slip-resistant surface. (Australian Disability Standards, 2002)
 - iii. **Maximum weight:** A boarding device should be able to support a total passenger and mobility aid weight of up to 200 kg. The device and a designated spot adjacent to the accessible entrance should be clearly labeled with this maximum load (Australian Disability Standards, 2002).
 - iv. **Notification of staff:** A passenger should be able to notify staff that they require a boarding device.



3.2 Pathways to Sitting Areas, Cabins, and/or other Vessel Facilities (Corridors, Stairs, Ramps)

3.2.1 Accessible Routes, Access Paths and Corridors

3.2.1.1 Design Considerations

The provision of accessible routes onboard a passenger vessel is an essential consideration for the accessibility of internal areas for PwDs. The provisions outlined here should, if applied, represent an important contribution towards insuring maximum accessibility of pedestrian routes. Routes of travel through a passenger vessel should address the full range of individuals that may use them. They must provide the clear width necessary for persons using wheelchairs, mobility scooters, those pushing strollers, or those traveling in pairs. Consideration should be given not just to the width of items, such as wheelchairs and mobility scooters, but also to their maneuverability.

While a corridor may be wide enough for a person to drive a mobility scooter in a straight line, it may not be possible to make a turn around a corner. The preferred minimum width for accessible routes is 1800 mm.

Strong colour contrasts and/or tactile pathways set into floors may be used to assist individuals with a visual impairment to negotiate an environment. Edge protection that guards a change in level is an important safety feature for all users.



Figure 48: Ship Corridors



Figure 49: Ship Decking

Source: UDA & Associates





3.2.1.2 Application Guidelines

This part should apply to all passenger vessel pedestrian routes, paths and corridors.

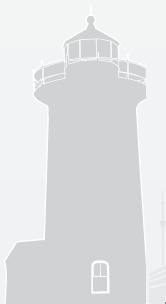
Accessible routes shall consist of one or more of the following components:

- Walking surfaces;
- Doorways;
- Ramps;
- Elevators; and
- Platform (wheelchair) lifts.

All components of an accessible route shall comply with the applicable portions of this chapter. (PVAAC, 2000)

Exceptions: The provision of an accessible route does not apply:

- to service rooms of all kinds (Machine rooms, Engine rooms, electrical switching rooms, pump rooms, and the like – It may, however be appropriate for Control Rooms and Communication Rooms to have provision for full accessibility, so that operational opportunities are maintained for certain service personnel;
- to elevator machine rooms;
- to janitor rooms, laundries and linen management (for cabins) areas, kitchens and local food prep (for cabins) areas;
- to service spaces (as distinct from Service Rooms);
- to crawl spaces;
- to high-hazard engineering spaces within portions of a floor area with fixed seats in an assembly occupancy where these portions are not part of an accessible route to spaces designated for wheelchair use.
- Note that on a high speed ferry with only two passenger decks, where all types of passenger facilities are available on the accessible deck, an accessible route is not required between decks. (PVAAC, 2000)



3.2.1.3 Technical Guidelines

a. Floor surfaces: Fixed, level, matt and slip-resistant floor finishes. Any surface, which is not fixed or is extremely smooth or slippery or even very rough, can be a hazard to persons with functional visual limitations. This measure is also a precautionary one, which applies to almost all people with functional mobility limitations. With and without a mobility aid, there is a potential of being out-balance as a result of functional physical limitation or the way that the physical environment is organized. Refer to Decks and Floors. 3.2.4

b. Clear Width: A clear headroom of 1980 mm minimum is required from the deck; a clear width of 1800 mm to allow two wheelchair users to pass each other at passing spaces; a width of 1200 mm minimum; and a turning circle of 1800 mm diameter at a corridor junction which acts as a passing place and allows a wheelchair user to turn and return in the other direction. (DPTAC, 2007)

c. End of a corridor highlighted by colour, tone or light contrast between walls and floor coverings. In order to prevent confusion or accidents of misjudgment of length or depth caused by all the colors being the same, it is important to clearly demarcate the end of a corridor by using a contrasting color or piece of furniture. To avoid glare, use tinted glass or blinds.

d. Colour contrast: All critical surfaces (such as between wall and floor) need to be demarcated with contrasting colors so that passengers with functional visual limitations may clearly identify the direction in which they need to move.

e. Obstructing or protruding objects: Protruding objects should not reduce the required clear width. Any obstructions or projecting features in a corridor may present a hazard to passengers with functional visual or physical limitations who need to negotiate their way independently. Any barriers, obstacles or projections should be colour contrasted from their surrounding area. Refer to 3.2.3.

f. Routes which are accessible should be located in the same area as a general circulation path. For example where the circulation path is internal, the accessible route should also be internal. (PVAAC, 2000)

g. Accessible Routes: Accessible routes should have a running slope not steeper than 1:25 (4%), and have a cross slope not steeper than 1:50 (2%).





h. Access path: An access path that allows unhindered and continuous passage should be provided along a walkway, ramp or landing. (Australian Disability Standards, 2002). If an access path branches into two (2) or more parallel tracks:

- the ends of each track should be on the main pedestrian traffic routes; and
- the parallel tracks should have equal convenience and be located as close as practicable to the main pedestrian branch. (Australian Disability Standards, 2002)

i. Ramps: There should be

- **Gradients no greater than 1:12.** It is difficult for passengers with functional visual limitations to negotiate slopes that exceed this gradient, especially in a downward direction.
- **Continuous handrails of a contrasting color,** on both sides, with 300 mm extensions at the top and bottom of ramp to provide important navigational cues.
- **100 mm high kerbs or tapping rails on the open sides of the ramp.**
- **Contrasting colour and texture at the transitions of the ramp.** It is important to identify the beginning and the end of the ramp to assist passengers with functional visual limitations with safe transition off and on the ramp. Refer to 3.2.5.

j. Steps: should have

- Contrasting color at top, bottom and landings of steps. Passengers with functional visual limitations need to have the start of the step identified;
- Tonal contrast on all nosing. Each step in a flight of stairs needs to be identified.
- Square closed riser to all stairs. Each step needs to have a solid edge as it provides passengers with functional visual limitations with an indicator for the next step. Steps need to have closed risers to prevent injury.
- Protected soffits to underside of the stairs below the height of 2100 mm. This is to prevent passengers with functional visual limitations from walking into the sloping underside of the stairs.
- Uniform height levels between landings on staircases. There should be an equal number of steps on each flight of stairs as passengers with functional visual limitations will count the steps and expect each flight of stairs to be the same.



- Continuous handrail on both sides of the staircase with 300 mm extensions before and beyond the end of the stair. At a height of 850 mm and 1000 mm above floor surface. Ideally a tapping rail should also be provided at the lower level. While walking, often the force of gravity pulls people with functional mobility limitations forward and without anything to hold onto to steady themselves, one can find himself/herself seriously injured. Refer to 3.2.6 and 3.2.7.

k. Double Doors/Doors/Openings: The wider leaf of double doors of unequal widths must all be located on the same side throughout the length of the corridor. There should be a clear understanding of which is the opening section of the double doors and all doors should be orientated in one direction to avoid confusion. There should be no raised thresholds on accessible routes: this will require detailed consideration of these routes such that storm-water hazard areas are bypassed, and this requirement will also apply to any routes where floor hatches may be protected from storm water by coamings. (See also detailed Section 3.2.8 on Doors/Doorways)

l. Door handles and Ironmongery: Pull handle on doors en-route should be a “D”-shaped handle, at least 120 mm in length and easy to grasp. Special design attention is required for all locking devices, such that operability for arthritic or reduced manual capacity is maintained; special design attention is required to determine the resistance force required to open against self-closing devices: naval design will determine the location of closing devices subject to storm weather pressures, therefore compartmentation of design routes is necessary to ensure that no disabled interfaces are effected. (See also detailed Section at 3.2.8 on Doors/Doorways)

m. Height of emergency equipment, switches and controls located between 600 and 1200 mm from finished floor level. This is essential to enable the wheelchair user to reach the switches and controls from the wheelchair.

n. Holding area for passengers with disabilities in emergencies. To assure that in the case of emergency evacuation, assistance and/or help are available at a predetermined location.

o. Change of Direction Signage: Where there is a change in direction along an accessible route and the intended destination of the route is not evident, directional signage should be provided. (See Section 3.2.9)





p. Illumination: All portions of an accessible route should be equipped to provide a minimum level of illumination of 50 lux on interior accessible routes and 30 lux on exterior accessible routes that is uniform along the route. Exception: In outdoor park settings where routes are not normally illuminated, additional illumination is not required. Consideration should be given to the use of lighting along ceilings to help orientate and direct persons along walkways.

q. Rest Areas: Accessible routes should incorporate level rest areas in compliance with Section 3.2.1, 3.2.2. spaced no more than 30 m apart.

r. Waiting and Queuing Areas: Line-up and queuing areas should comply with Section 6.3.2.

3.2.1.4 Illustrations

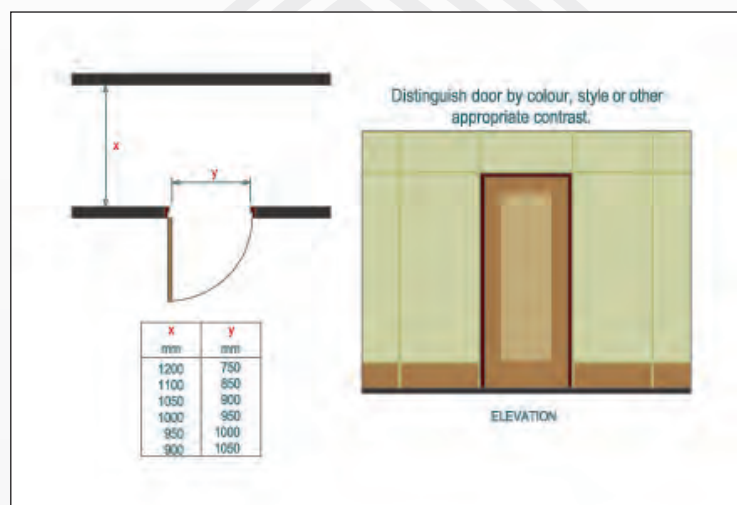
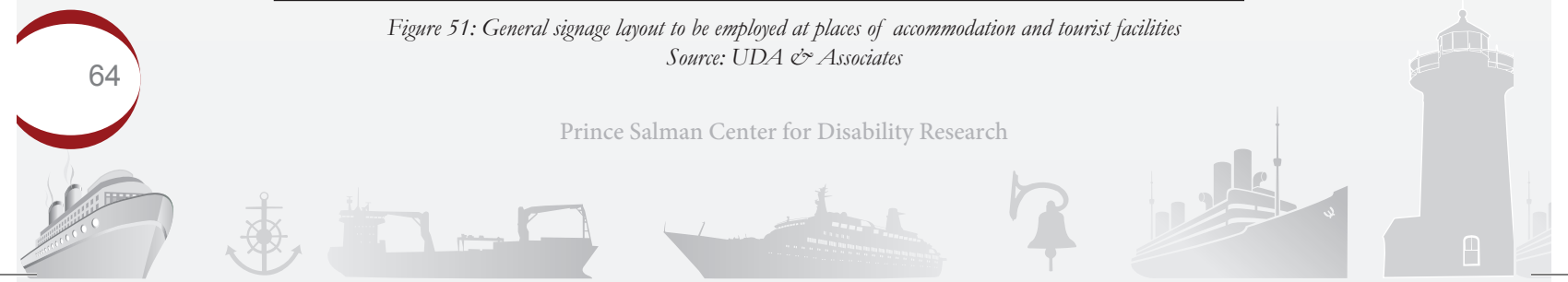


Figure 50: Minimum requirements in terms of relationship between passage width and door size
Source: UDA & Associates



Figure 51: General signage layout to be employed at places of accommodation and tourist facilities
Source: UDA & Associates



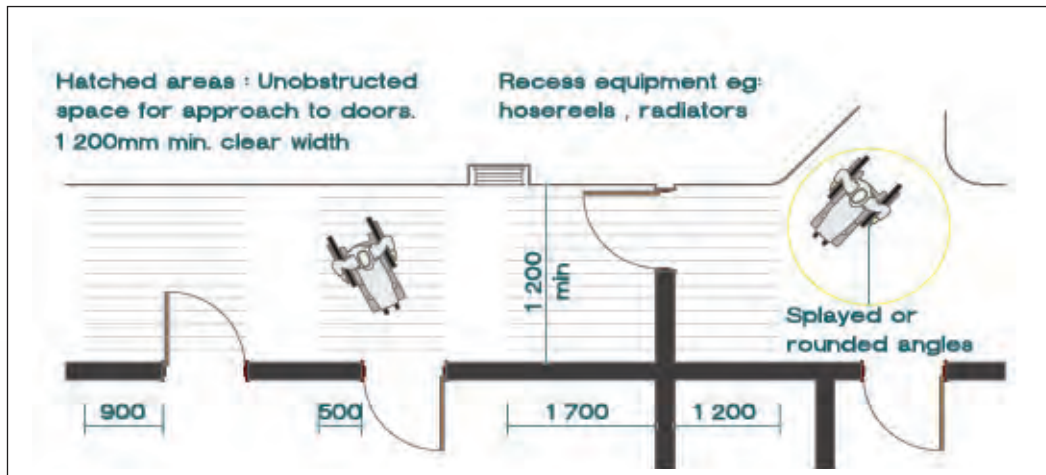


Figure 52: Areas of obstruction and best practice in terms of accessible routes
Source: UDA & Associates

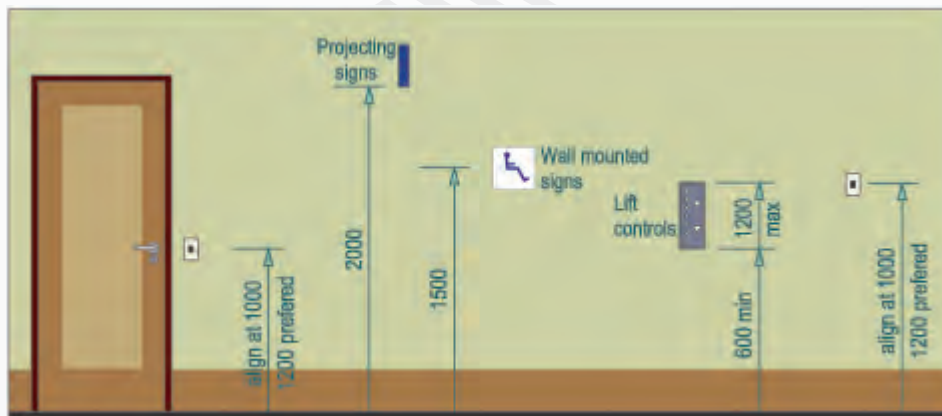


Figure 53: Height of controls, signage etc
Source: UDA & Associates

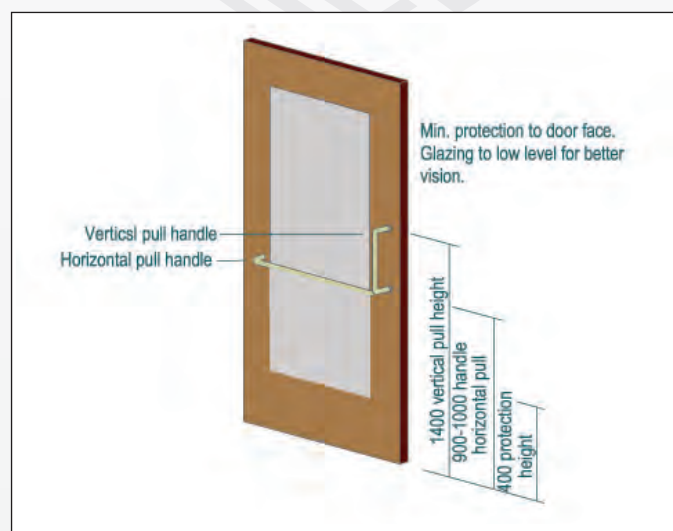


Figure 54: Preferred format for doors on accessible routes
Source: UDA & Associates



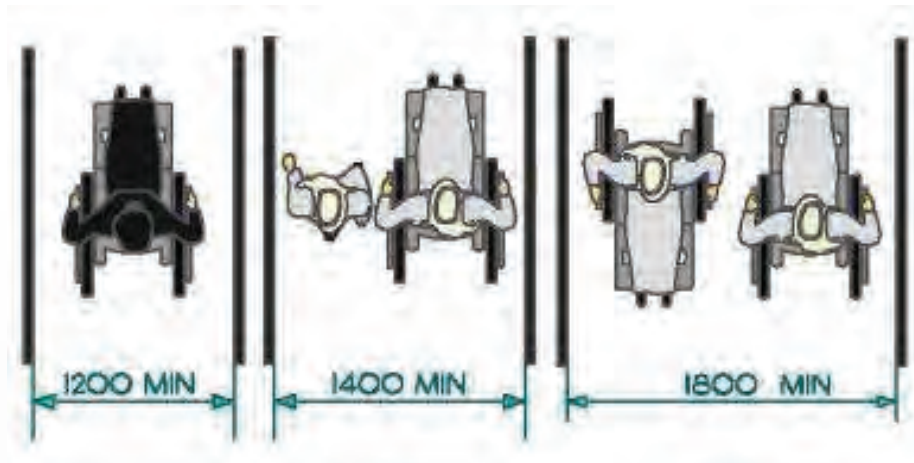


Figure 55: Access Widths
Source: UDA & Associates

3.2.1.5 Other Considerations

- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Surfaces/Floors/Walking Surfaces /Decks and Floors
- 3.2.5 Ramps
- 3.2.6 Stairways
- 3.2.7 Handrails
- 3.2.8 Doorways
- 3.2.9 Signage
- 3.2.10 Symbols, Graphics and Pictograms
- 3.2.11 Lighting



3.2.2 On-Board Accessible Routes

3.2.2.1 Design Considerations

It is crucial that consideration be given to how accessible environments be created on-board ships.

3.2.2.2 Application Guidelines

This part shall apply to all marine vessels intended for passenger use, including passenger vessels, ferries and ro-ro vessels.

3.2.2.3 Technical Guidelines

a. Passenger deck and mezzanine to be connected: At least one onboard accessible route should connect each passenger deck and mezzanine in multi-deck passenger vessels. Where passenger vessels have multiple entry-decks, at least one onboard accessible route should connect each entry deck.

b. Within a deck, at least one onboard accessible route should connect all spaces and elements within the passenger vessel required to comply with these regulations which are otherwise connected by a circulation path.

c. General circulation paths: Onboard accessible routes should coincide with or be located in the same area as general circulation paths. Where circulation paths are interior, required onboard accessible routes should also be internal. An onboard accessible route connecting any two spaces should not be more than 90m longer than the shortest general circulation path connecting the same two spaces.

d. Entry and departure point: Each entry and departure point used by passengers should be an onboard accessible route.

e. Doors, doorways and gates providing user passage should be provided in accordance with the following:

- Where doors, doorways or gates are provided at 'Entry' and 'Departure' points that are required to be accessible, at least one door, doorway or gate shall be accessible;





- Within a passenger vessel, at least one door, doorway or gate serving each accessible room or space complying with these requirements should be accessible.

f. Elevators provided for passengers should be accessible. Where multiple elevators are provided, each elevator should be accessible.

g. Platforms lifts should be accessible. Platforms lifts could be permitted as a component of an onboard accessible route in new construction. Furthermore:

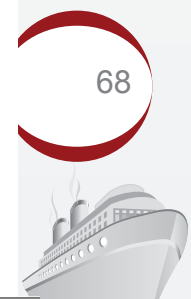
- Platform lifts should be permitted to provide onboard accessible routes to performance areas and speaker's platforms for on-board entertainment and/or lecture facilities.
- Platform lifts should be permitted where vertical clearance constraints on a route a passenger vessel operates makes the use of an elevator infeasible.
- Platform lifts should be permitted to connect different levels within Cabins/ Cabin suites required to have mobility features.

h. Security barriers, including but not limited to security bollards and security check points shall not obstruct a required onboard accessible route or accessible means of escape.

i. Restaurants and cafeterias: In all onboard restaurants and cafeterias, at least one onboard accessible route should be provided to all dining areas, including raised or sunken dining areas, and open deck dining areas.

3.2.2.5 Other Considerations

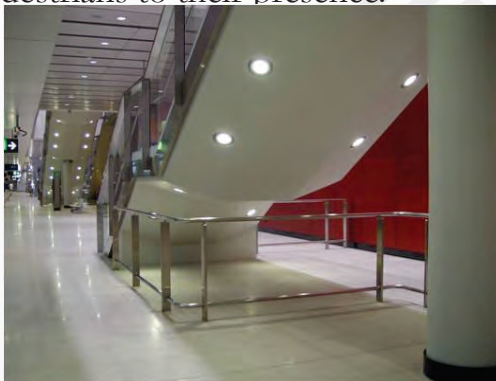
- 2.3 Anthropometric Data
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.3 Protruding and Overhead Objects
- 3.2.5 Ramps
- 3.2.6 Stairways
- 3.2.7 Handrails
- 4.2.1 Elevators
- 4.2.2 Inclined and Vertical Platform Lifts



3.2.3 Protruding and Overhead Objects (including Shore-based Facilities and Terminal Buildings)

3.2.3.1 Design Considerations

Overhead and protruding objects along pedestrian routes and in private and public utilised spaces are hazardous to both sighted and non-sighted people. These areas should be free of protruding objects or freestanding obstacles for the safety of all users. Commonly found design elements positioned above the detection range of a long white cane, such as a light fixture (or an overhanging tree branch, as could be the case in the landscaped areas of on-shore Facilities or Terminal Buildings), pose potential threat of injury. Likewise, protruding objects at low levels also present tripping and injury hazards where they cannot be detected. All freestanding obstacles require warning surfaces to alert all pedestrians to their presence.



*Figure 56: Detectable Barrier
Detectable barrier guards area below stairs where headroom is low - Source: UDA & Associates*



*Figure 57: Detectable Handrail
Handrail extensions are cane detectable. Source: UDA & Associates*

3.2.3.2 Application Guidelines

All objects protruding from walls, ceilings, or other locations should comply with this section.

3.2.3.3 Technical Guidelines

a. Protruding Objects: Any protruding object with a leading edge between 650 mm and 2100 mm from the ground should not extend more than 100 mm into pedestrian areas. An object with a leading edge at or below 650 mm from the ground may protrude any distance (Figures 58 and 59).





b. Freestanding Objects: Where overhanging or protruding elements on freestanding objects are between 650 mm and 2100 mm above the ground, they should not encroach more than 300 mm into pedestrian areas. The bottom edge of a freestanding object, with a space of more than 300 mm between supports, should not be more than 650 mm above the ground.

c. Width Maintenance: The width of accessible routes or manoeuvring space should not be reduced by protruding objects.

d. Headroom: The minimum clear height of headroom in pedestrian areas should be 2100 mm. A doorway clear height of 2100 mm is preferred; however a clear height of 1980 mm at the door is acceptable (Figure 60).

e. Overhead Hazard: Where the headroom of an area, that adjoins an accessible route, is reduced to less than 2100 mm a detectable guard, guardrail or other barrier with a leading edge at or below 650 mm from the floor should be provided. The guard should be firmly fixed and have colour contrasted solid or horizontal railings (Figure 60).

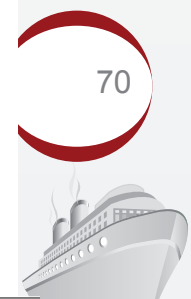
f. Detectable Ground Surface: A tactile and colour contrasted warning surface, located flush with the surrounding walking surface and extending at least 300 mm outward around the entire overhead or protruding hazard, should be provided.

g. Colour Contrast: The leading edge of a protruding or overhanging object should be colour contrasted to its background and surroundings to enhance the visibility of the protruding and overhanging object.

h. Walkway Widths for Persons Using Crutches: Walkways utilised by persons using crutches typically require 810-920 mm clear width. Where walkways are expected to be utilised by persons using crutches, no obstructions or projections should be placed lower than 300 mm above the floor (Figure 18).

i. Detection Space for Persons Using a Long White Cane: Persons who use a long white cane to help them manoeuvre can detect an obstruction within a height range of up to 650 mm from the ground. Depending on the person, the forward detection range can vary from 900-1500 mm (Figure 20).

j. Detection Space for Persons Using a Walker: The typical ground width dimension for a person using a walker is 710 mm (Figure 19).



3.2.3.4 Illustrations



Figure 58: Limits of Protruding Objects



Figure 59: Limits of Protruding and Overhanging Objects

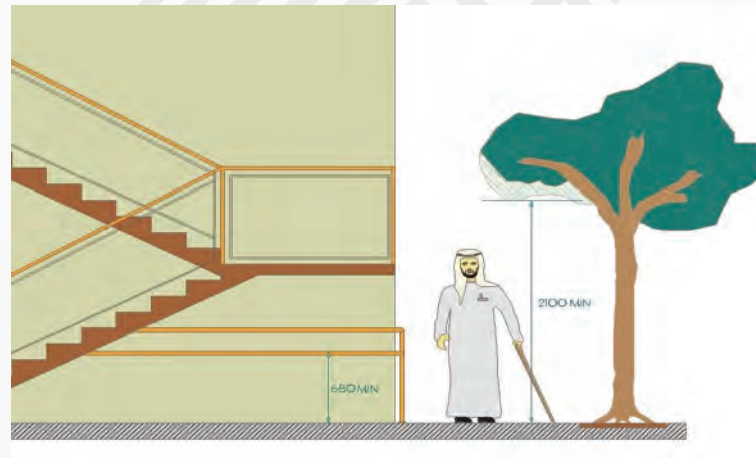


Figure 60: Overhead Obstructions (On-Shore Facilities)
Source: UDA & Associates





3.2.4 Walking Surfaces/Decks and Floors

Decks and Floors

3.2.4.1 Design Considerations

The unique nature of the environment in which passengers operate on marine vessels requires certain treatments of deck-floors.

3.2.4.2 Application Guidelines

All objects protruding from walls, ceilings, or other locations should comply with this section.

3.2.4.3 Technical Guidelines

a. Surfaces: Internal Decks and floors should be level and have slip-resistant surfaces. If steps are necessary, they should be not higher than 30 mm, or a ramp of a fine-masked grid or equivalent and handholds should be arranged at a step. External decks may be required to have cross-falls to throw off storm water, and such cross falls should not be steeper than 1 in 48, subject to specific marine/riparian particular design conditions.

b. Glare from floor surfaces should be reduced as far as practicable.

c. Carpeting if used should be securely attached. It should have a short pile and a firm under-pad or no under-pad at all. (CTA, 1999)

d. Deck surfaces exposed to outdoor elements should be clearly signposted as to the increased possibility that the surfaces will be slippery when wet. All decks and surfaces should be regularly maintained; however, as outdoor surfaces are continually exposed to the weather and salt, extra care must be taken for its maintenance.

e. Detectable warning surfaces: Detectable warning surfaces should be used to define potential hazards. All textured surfaces used as detectable warning surfaces should be clearly detectable by walking upon and be different from the surrounding surface. (Suitable textures on-board are to be subject to further materials research and recommendation. Suitable textures for detectable warning

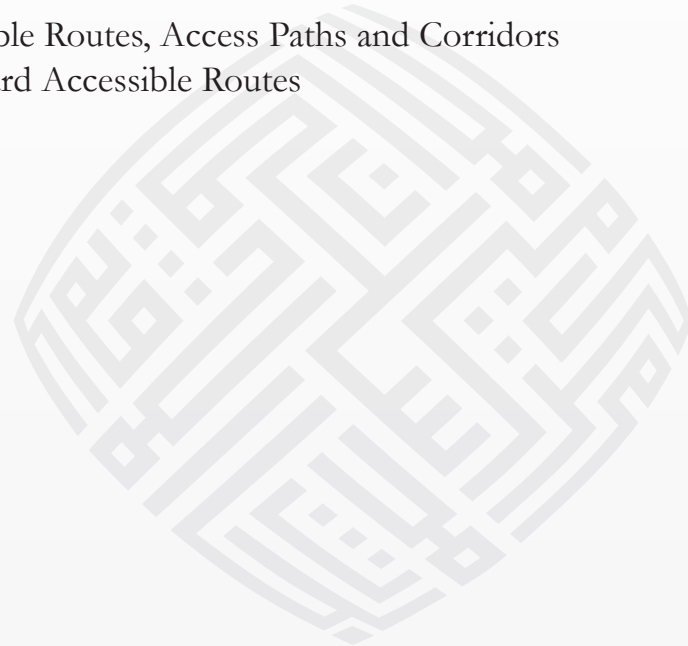


surfaces for Shore-based Facilities and Terminal Buildings could include a 10 mm deep saw-cut concrete with regular grooves, positioned no more than 100 mm apart, commencing no closer than 100 mm from the kerb, grooves should be at right angles to the path of travel for exterior textures. Where this solution is used it should be ensured that the grooves are kept clear of sand and other debris at all times in order for them to be cane detectable. Also appropriate, are raised domes, dots or squares, deeply grooved concrete, terrazzo or other stone-like materials, with closely centered grooves at right angles to the path of travel, or applied carborundum or other non-slip strips for interior textures.)

3.2.4.5 Other Considerations

3.2.1 Accessible Routes, Access Paths and Corridors

3.2.2 On-Board Accessible Routes





3.2.5 Ramps (All contexts, including shore facilities)

3.2.5.1 Design Considerations

Ramps (fixed gradient flooring – as distinct from movable Gangways, which have variable gradients in marine and riparian conditions) as design devices for access to different floor levels without recourse to stairs or mechanical means are covered in this section.

It is, however, self-evident that the impact of Ramps on space planning is considerable, and even on the largest Cruise Vessels this demand (on space planning) except for minor level changes could prove prohibitive.

Even for Shore-based Facilities and Terminal Buildings the space taken up, together with the distance of travel needed in relation to the level change achieved can mean that the provision of ramps is a 'last resort' in design terms.

Furthermore, although ramps have been synonymous with wheelchair accessibility, there are numerous difficult and potentially dangerous design conditions to address. Ramps present access difficulties to many types of disability other than ambulatory disability, therefore it should always be an objective to provide stairways in conjunction with ramps

The space planning, gradient and materials criteria for Ramps which are provided in the following sections are derived from architectural standards, and are recommended to be applicable for consideration in the field of Marine/Naval design. Therefore, as well as putting forward this relevance to marine/naval design (and naval refurbishment and modifications design) the sections also relate directly to built facilities (Shore & Terminals design).

3.2.5.2 Application Guidelines

Any part of an accessible route with a slope steeper than 1:25 should be considered a ramp and should comply with this section.





Figure 61: Boarding Ramp
Source: DeJong & Lebet, Naval Architects, 02/25/2009

3.2.5.3 Technical Guidelines

a. General: Accessible ramps including boarding ramps should be on an accessible route complying with Section 3.2.1. Where ramps are incorporated along an accessible route an adjacent set of steps should also be considered. Windows and doors should not open across a ramp landing surface so that they obstruct circulation on the ramp or landing.

b. Running Slope: Any part of an accessible route with a slope steeper than 1:25 should be considered a ramp. The running slope of a ramp should be between 1:16 and 1:25. In a renovation where it is technically infeasible to provide a ramp with a running slope between 1:16 and 1:25, a running slope not steeper than 1:12 may be used. Shallower slopes are preferred. Ramp runs shall have a running slope not steeper than:

- 1:4 if the rise is 3 inches (75 mm) maximum;
- 1:6 if the rise is 6 inches (150 mm) maximum;
- 1:8 if the rise is 9 inches (230 mm) maximum; or
- 1:12 if the rise is greater than 9 inches (230 mm). (PVAAC, 2000)





c. Boarding ramps: Boarding ramps connected to pontoon wharves must take into account at least 80% of the high and low tide levels listed in standard tide charts. (Australian Disability Standards, 2002)

d. Horizontal Length of a Ramp: The maximum horizontal length between landings on a ramp should not exceed 9 meters.

e. Cross Slope: The maximum cross slope of ramp surfaces should be 1:50.

f. Ramp and Landing Surfaces: Ramp and landing surfaces should be firm, stable, and slip-resistant. Outdoor ramps and their approaches should be designed so that water will not accumulate on walking surfaces.

g. Landing Slopes: Ramps should have level landings at the top and bottom of the ramp, at any intermediate landings, and where the ramp changes direction. The maximum slope in any direction on a landing should be 1:50 to allow for proper drainage.

h. Landings Size at Top and Bottom: Landings should be at least as wide as the widest ramp run leading to it and have a minimum size not less than 2100 x 2100 mm if located at the top or bottom of a ramp or if served by a doorway. In a renovation where creating a suitably sized landing is technically infeasible, the required landing size may be reduced to 1800 x 1800 mm.

i. Intermediate Landings Size: At an intermediate landing at the switchback of a U-shaped ramp, the length of the landing should not be less than 1800 mm and a width not less than 2400 mm. Where an intermediate landing is at the corner of an L-shaped ramp, the length and width of the landing should not be less than 1800 mm and where an intermediate landing occurs on a straight ramp, the length of the landing should not be less than 1800 mm.

j. Curved Ramps: Curved ramps are difficult for wheelchair maneuvering and should be avoided.

k. Edge Protection: Edges of ramps and landings should be protected with a wall or a guard on all sides.

l. Ramp and Landing Guards: Where a guard is provided on a ramp or ramp landing, it should comply with the requirements of the Kingdom of Saudi Arabia Building Code. In addition, there should be provided a curb of at least 75 mm high on any side of the ramp where no solid enclosure or guard is provided; and it should have railings or other barriers that extend to within 50 mm of the finished ramp, or have a curb not less than 75 mm high (See Figure 64).



m. Ramp Handrails: A ramp run with a rise greater than 150 mm should have handrails which are on both sides of the ramp and be of a uniform height above the floor. Handrails should be continuous on the inside of a switchback (U-shaped) or L-shaped ramp. The handrail should extend horizontally at least 300 mm beyond the top and bottom of the ramp and return to the wall, floor, or post. There should be an upper and lower handrail on each side of the ramp. The upper handrail should be 875-925 mm and a lower handrail 600-750 mm above the ramp surface to the top of the handrail and should comply with Section 3.2.7. A tactile indicator in the form of a domed button should be provided on the top of the handrail 140-160 mm from the end of the handrail and before an intermediate landing to indicate an upcoming change in slope and that one is approaching a landing. Handrails should incorporate a pronounced colour contrast, to differentiate them from the surrounding environment (See Figure 63).

n. Distance between Handrails: Ramps should have one set of handrails 950-1100 mm apart. On wide ramps, there should be handrails on both sides and a third set of handrails 950-1100 mm from one side.

o. Handrails in Aisle Way for Fixed Seating: Where a ramp serves as an aisle way for fixed seating, as in on-board conference rooms, or on-board entertainment facilities such as theatres or lecture halls in larger Vessels, a ramp handrail should only be required on the outside, non-seating side of the ramp.

p. Illumination: The full run of the ramp including all landings should be evenly illuminated to at least 100 lux at all interior and exterior ramps and landings.

q. Detectable warning surfaces: A detectable warning surface should be provided at the top of each ramp run. It should begin 300 mm back from the start of the ramp run, 900 deep, and it should extend across the full width of the ramp. The detectable warning surface should have colour, texture, and resiliency contrasting from the surrounding surface and should comply with Section 3.2.4.

r. Colour contrasting strips: Ramps should have a colour contrasting strip 40-60 mm wide across the full width of the ramp at the top and bottom of the ramp and at landings where there is a change in slope.

s. Building Egress: Interior ramps are preferred, where technically feasible, as a means of egress to stairs as they accommodate a wider range of building users, including persons who use wheelchairs.





t. **Signage:** Where a ramp is located in an accessible route serving a building entrance, signage in compliance with Section 3.2.9 should be installed to indicate the location of the accessible ramp and the entrance.

u. **Outdoor Conditions:** Outdoor ramps and outdoor approaches to ramps shall be designed so that water will not accumulate on walking surfaces. (PVAAC, 2000)

3.2.5.4 Illustrations

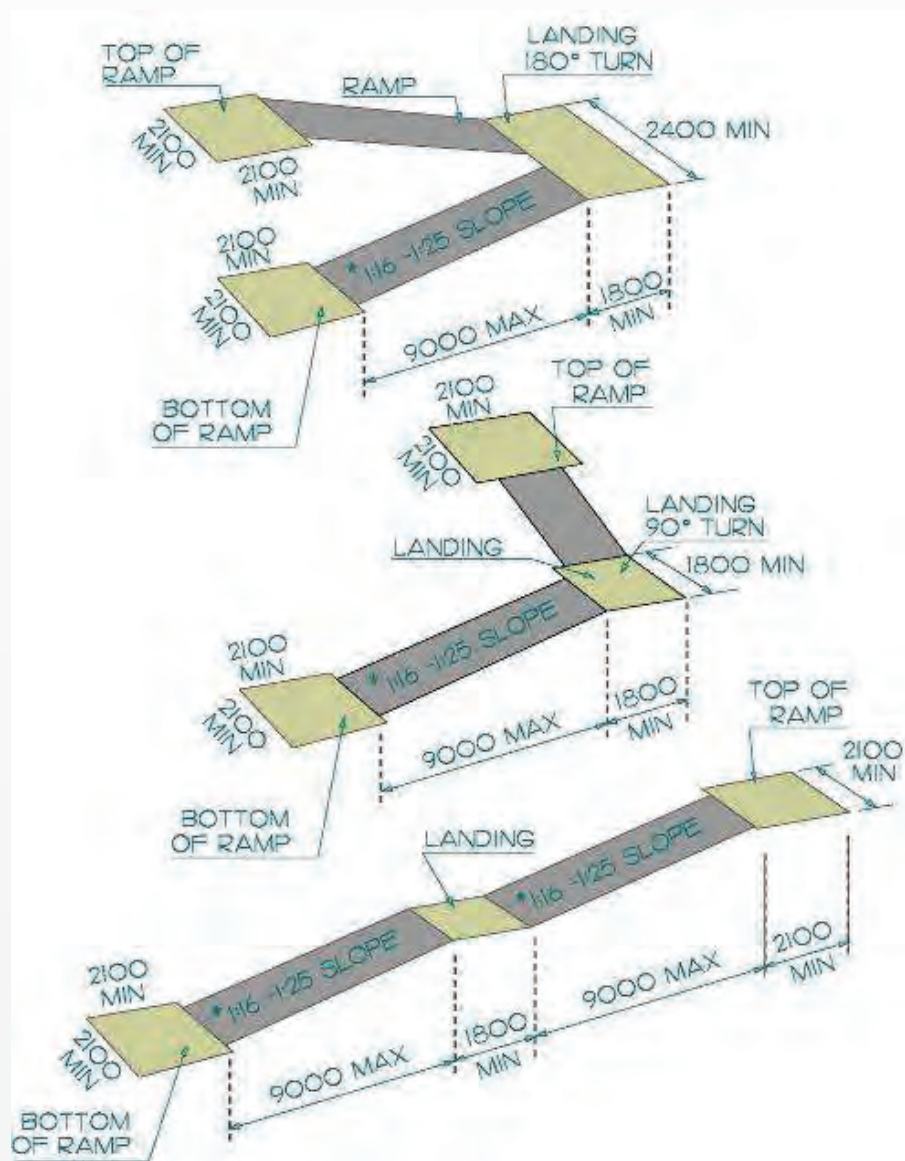
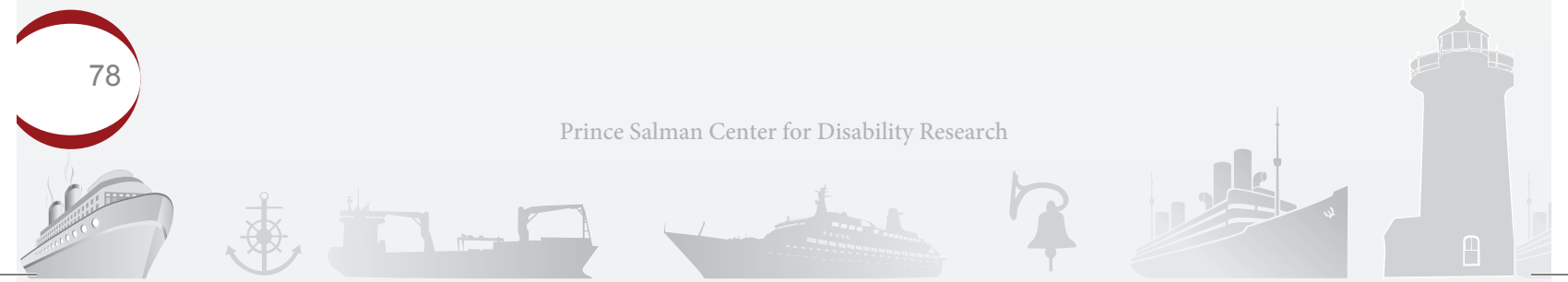


Figure 62: Minimum Ramp Landing Dimensions
Source: UDA & Associates



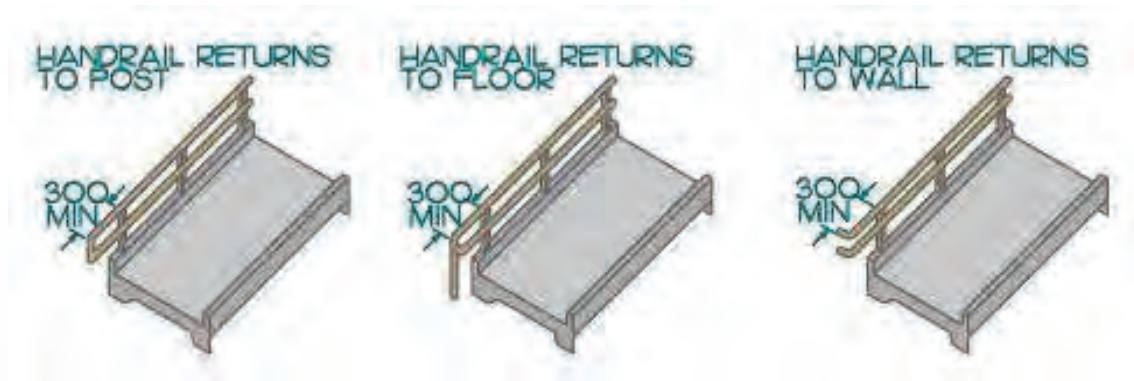


Figure 63: Horizontal Handrail Extensions
Source: UDA & Associates

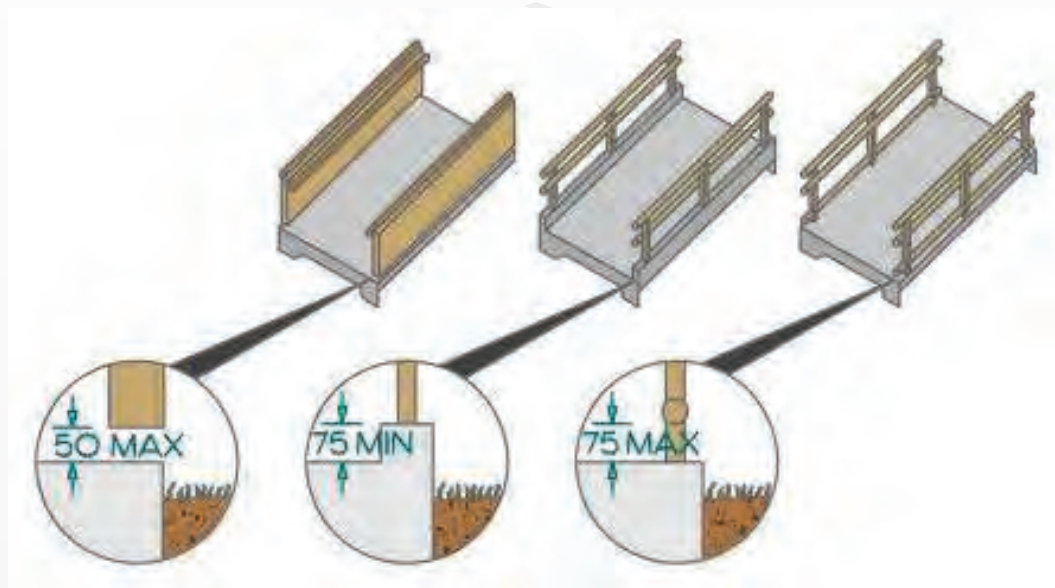


Figure 64: Edge Protection at Ramps
Source: UDA & Associates

3.2.5.5 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.7 Handrails
- 3.2.8 Doorways
- 3.2.9 Signage





3.2.6 Stairways

3.2.6.1 Design Considerations

Stairs that are comfortable for many adults may be challenging for children, seniors, or persons short in stature. Poorly designed nosings can present tripping hazards, particularly to persons with prosthetic devices or those using canes. Stairs without nosings are preferred. Cues to warn a person with a visual impairment of an upcoming set of stairs are vitally important. The appropriate application of handrails on both sides of the stairs will aid all users navigating stairways.

3.2.6.2 Application Guidelines

Where new stairs are planned at interior or exterior locations, stairs should comply with this section. In retrofit situations where existing stairs are located, dimensional changes to steps and landings are not required; all other design requirements should be met.

If structural restrictions of a ferry prevent any criteria concerning handrails and uniform riser heights and tread depths from being satisfied, and where an elevator is not provided or not available, a ferry operator should provide assistance, if requested, to a passenger with a disability in ascending and descending the stairs. (CTA, 1999)

3.2.6.3 Technical Guidelines

a. Treads and Risers: Stairs should have uniform riser heights (rise) and uniform tread depths (run). The rise should not be more than 180 mm and not less than 125 mm high. The stair run should not be more than 350 mm and not less than 280 mm deep, measured from riser to riser. There should be no open risers on any stairs. Stair treads and landings should be firm and finished with non slip material and should not create glare.

b. Nosings: Nosings should not project more than 25 mm, have no abrupt undersides, and have a curved or beveled leading tread edge of 6-10 mm. Where a nosing is projecting it should be sloped to the riser at an angle not less than 60 degrees to the horizontal. Nosings should be illuminated to a level of at least



100 lux, be slip-resistant, and have the horizontal surface of the stair nosing in colour contrast with the remainder of the riser and the tread. The horizontal surface of the stair nosing should be 40-60 mm deep and extend the full width of the tread.

c. Detectable warning indicators: Stairs should incorporate detectable warning surfaces, installed at the top of all flights of stairs and on all landings incorporating an entrance into the stair or where the regular pattern of a stairway is broken; also, where the run of a landing not having a continuous handrail is greater than 2100 mm. Detectable warning surfaces should extend the full width of the stair and have a depth of 600-900 mm commencing 300 mm from the edge of the stair and be in compliance with Section 3.2.4.

d. Stair Handrails: Handrails for stairs should comply with Section 3.2.7. Handrails should be installed on both sides and be of a uniform height, 875-925 mm for the upper handrail and 600-750 mm for the lower handrail. The handrails should be continuous on the inside of a switchback set of stairs and extend at the bottom of the stairs for a distance of one tread depth beyond the first riser, then horizontally not less than 300 mm, at a height of 875-925 mm for the upper handrail and 650-750 mm for the lower handrail. The handrails should also extend horizontally at the top of the stairs not less than 300 mm, at a height of 875-925 mm for the upper handrail and 650-750 mm for the lower handrail; and return to the wall, or post in a manner that will not obstruct pedestrian travel or create a hazard. In exterior situations and at a wider set of stairs, a handrail should be provided near the centre so that it can be easily accessible to users. Handrails should incorporate a pronounced colour contrast, to differentiate them from the surrounding environment.

e. Interior and exterior stairs connecting levels not connected by an onboard accessible route should comply.

f. Stair treads and landings subject to wet conditions shall be designed to prevent the accumulation of water.

g. Illumination: The stairs and stair landings should be evenly illuminated to a level of at least 100 lux at exterior locations and 200 lux at interior locations.

h. Signage: If a stair is located in a separate stairwell the floors should be identified with tactile signage located on the latch side of the entrance door onto the floor, in compliance with Section 3.2.9.





- i. Headroom:** In all cases headroom over stairs should be at least 2100 mm measured vertically from the leading edge of the stair nosings.
- j. Windows and Doors:** Windows and doors should not open across a flight of stairs so as to obstruct circulation. Doors may open onto a landing provided it does not obstruct the main circulation pattern.
- k. Circular Stairs:** Circular stairs should be avoided.
- l. Patterned Surfaces:** Strongly patterned carpets should not be used on stairs as many people find patterned carpets on stairs disorienting, especially older people and people with vision limitations.

3.2.6.4 Illustrations

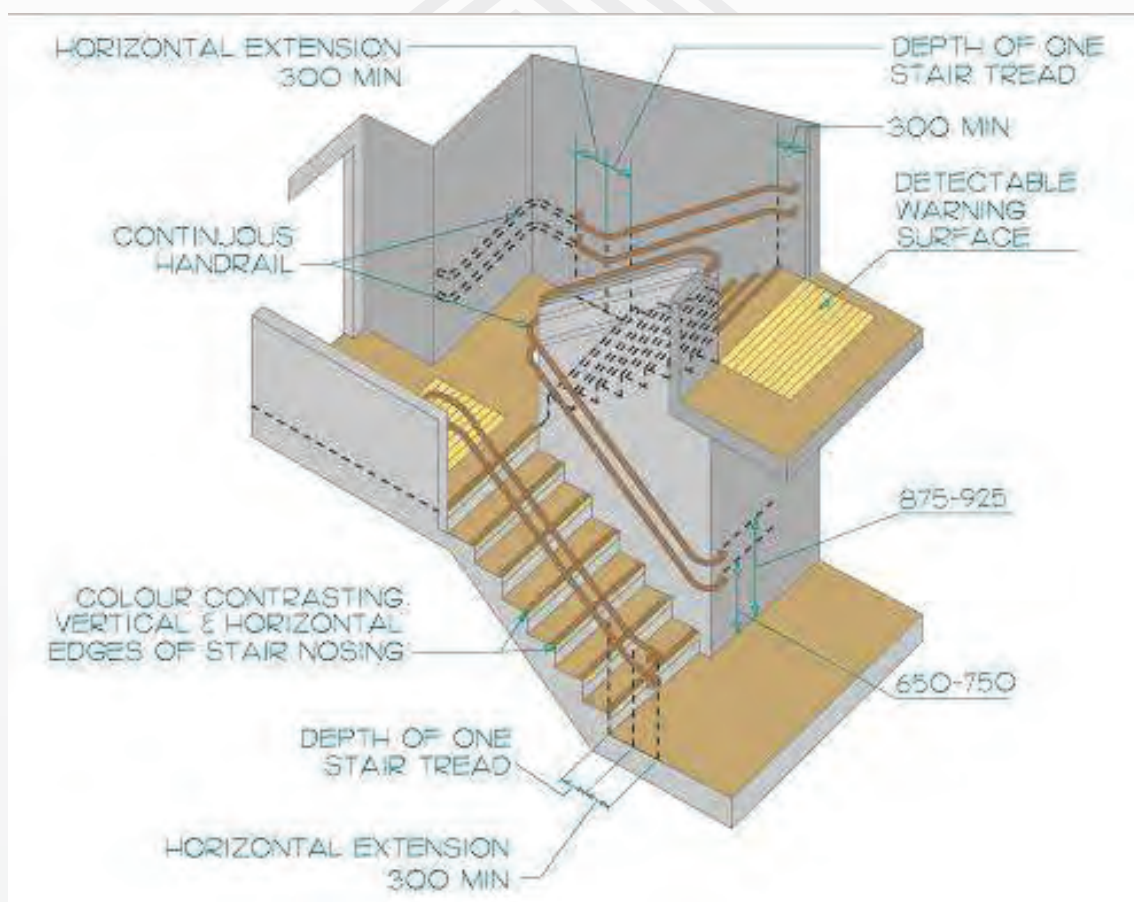


Figure 65: Stair Design Criteria
Source: UDA & Associates



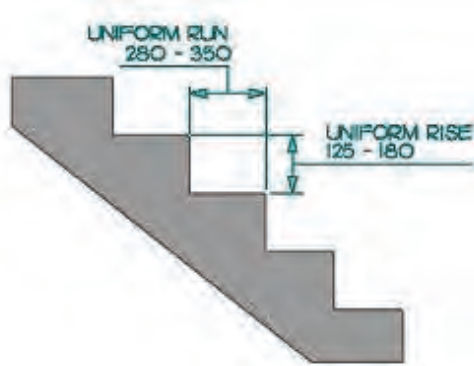


Figure 66: Stair Tread Criteria
Source: UDA & Associates

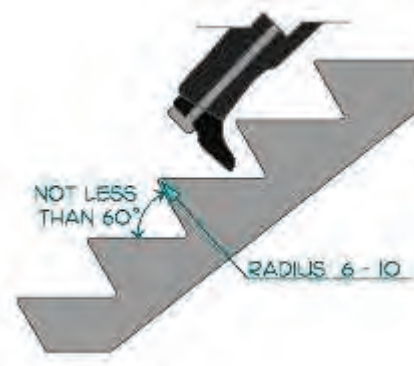


Figure 67: Raked Riser
Source: UDA & Associates

3.2.6.5 Other Considerations

- 2.3 Anthropometric Data
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.7 Handrails
- 3.2.8 Doorways
- 3.2.9 Signage
- 3.2.11 Lighting





3.2.7 Handrails

3.2.7.1 Design Considerations

In the design of handrails, consideration must be given to the range of hand sizes that will grasp them. A handrail profile should be graspable for an adult's hand, as well as, a child's, or persons with arthritis. The same is true for the heights of handrails where handrails of two different heights should be available to be grasped by a tall person or a person short in stature.

Extensions of the handrails parallel to the floor at the top and bottom of stairs, along with the use of a contrasting colour to their surroundings, provide important cues for a person with a visual impairment. A handrail's extension at the top or bottom of a set of stairs provides support to ensure a safe and stable gait before ascending or descending the stairs. A continuous handrail with no interruptions ensures that a handhold of a person will not be broken.

The clear space between the wall and handrail is also essential, as it must provide a clear area for the hand and knuckles to pass, but must not offer too much space into which an arm may slip during a fall or stumble on a set of stairs or a ramp.



Figure 68: Handrail Extensions

Showing an example of a stair featuring colour-contrasted handrail extensions.



Figure 69: Dual Height Handrails

Showing an example of a ramp featuring dual height handrails.

Source: UDA & Associates



3.2.7.2 Application Guidelines

All handrails should comply with this section.

3.2.7.3 Technical Guidelines

a. Mounting Height: Handrails should be provided at two heights. Upper handrails on a set of stairs, a ramp, or other installation should be mounted between 875-925 mm, measured vertically from a line drawn through the outer edges of the stair nosing, from the surface of a ramp, or the floor to the top of the handrail. An additional handrail should be located 650-750 mm above the stair nosing, ramp surface, or floor to the top of the handrail to accommodate children or persons short in stature. Handrails on a ferry should be sturdy and of a height and length that permit use by all passengers including a person using a wheelchair.

b. Grip: Handrails should have a circular section 30-40 mm in diameter. Non-circular handrail shapes do not allow the thumb and fingers to lock and therefore are not as effective for grasping and are not recommended. All handrails should be slip resistant and have continuous gripping surfaces, without interruption by newel posts, other construction elements, or obstructions that can break a handhold and should be free of any sharp or abrasive elements. Handrails should have a clear space between the handrail and the wall of at least 50 mm for a smooth wall or at least 60 mm where the wall has a rough surface. A handrail may be recessed with a clear space above the top of the handrail of at least 450 mm, 35-45 mm below the bottom of the handrail.

c. Termination: Handrails and their extensions on stairs, ramps, or along hallways should return to the wall, floor or a newel (post) to avoid catching clothes or being an obstruction. Where a handrail is not continued, a tactile indicator in the form of a domed button should be provided on the top of the handrail 140-160 mm from the end of the handrail. The method used should be consistent throughout the ship.

d. Load Values: Handrails and their supports should be designed and constructed to withstand the loading force of at least 1.3 kN applied in any direction to the handrail.

e. Colour Contrast: Handrails should incorporate a pronounced colour contrast, to differentiate them from the surrounding environment.





f. Hazardous Areas: Any handrail that leads to a hazardous area should be equipped with detectable cues. A roughened handrail surface will alert people with visual impairments. The warning surface should be a minimum of 1200 mm long and be located immediately before the potential hazard.

g. Emergency Exiting: There should be a colour contrasting tactile strip applied to the top and bottom edges of the handrail where the handrail is located along any emergency exit routes on stairs, ramps, or other installations.

3.2.7.4 Illustrations

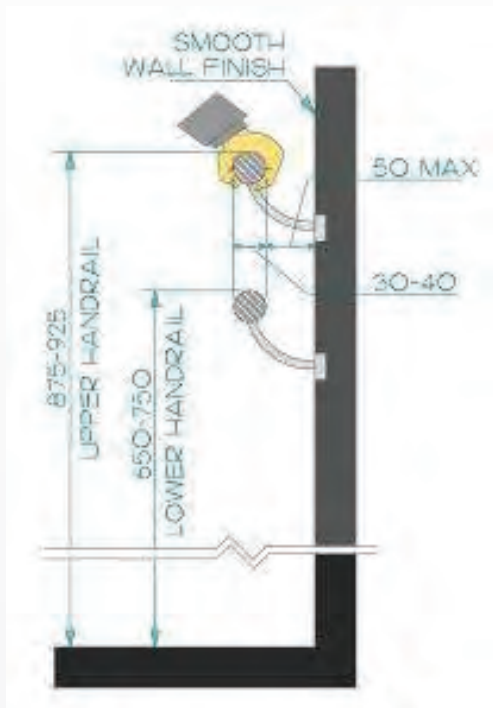


Figure 70: Handrail height and configuration
Source: UDA & Associates

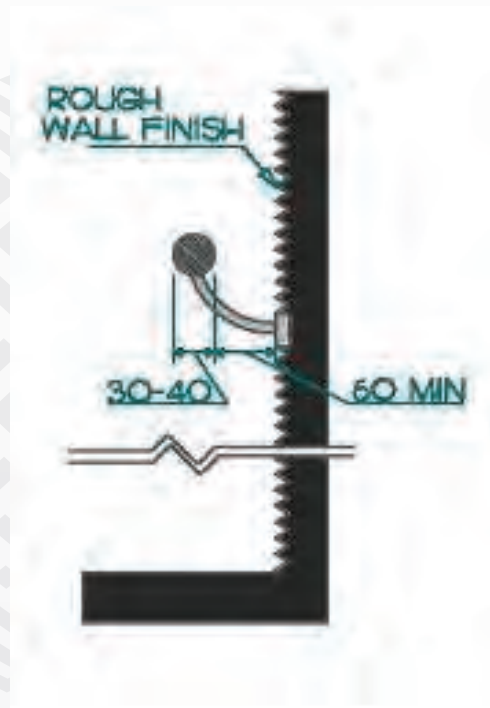


Figure 71: Handrail at Rough Wall
Source: UDA & Associates



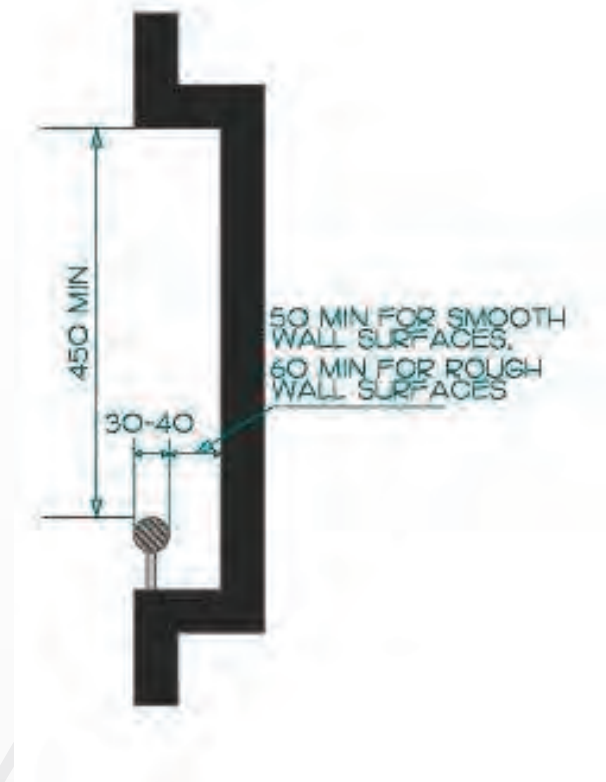


Figure 72: Handrail in Recess Wall
Source: UDA & Associates

3.2.7.5 Other Considerations

- 2.3 Anthropometric Data
- 3.2.5 Ramps
- 3.2.6 Stairways





3.2.8 Doorways

3.2.8.1 Design Considerations

Sufficiently wide doorways are advantageous to individuals using wheelchairs or mobility scooters, pushing strollers, or making a delivery. However, a raised threshold at the base of the door could impede any one of these same individuals. This same group, with the addition of children, seniors, or even someone carrying packages, would have difficulty opening a heavy door and would benefit from an automatic door opener. Where permitted and where feasible, entrances without doors are preferred. There will, however, be many instances where this is not feasible (Fire Compartmentation, Storm Enclosure, Room content Hazard, Security, or National/International ID control).

Independent use of doors is desirable. Reliance on assistance from others to open doors is not an accessible or dignified solution.

Careful thought to the direction of the door swing can enhance the usability and limit the hazard to other pedestrians. Sliding doors can be easier for some individuals to operate, and can also require less wheelchair maneuvering space. Doors that require two hands to operate are not considered to be accessible. Revolving doors are not accessible for persons using wheelchairs and strollers. Also, the coordination required to use such doors may be difficult for children or a person with a cognitive disability.

Glazed doors can present a hazard to all individuals and especially those with a visual impairment. The inclusion of colour-contrast strips across the glass, mounted at eye level, as well as, colour-contrasting doorframes and door hardware, will increase the safety and visibility of a glazed door for a person with a visual impairment.

3.2.8.2 Application Guidelines

a. All doors used by employees or the public should comply with this section. In a retrofit situation where it is technically infeasible to make all doors accessible, at least one door at each accessible space should comply with this section. Exception: Doors not requiring full user passage, such as shallow closets, may have the clear opening reduced to 500 mm minimum. Each door that is an element of an accessible route should comply with this section



b. Each door required by 3.9.1 (Emergency Exits, Fire Evacuation and Areas of Rescue Assistance) should comply with this section.

c. Where a door system incorporates multiple door leafs at a single location, at least one of the door leafs should comply with this section.

d. Power operators should be provided at the following door locations: entrances required by 3.1.2.;

- washrooms that include an accessible toilet stall, where there is no individual washroom on the same floor. Exception: Where there is at least one other male and female washroom with accessible toilet stalls on the same floor that is equipped with a power door operator;
- individual accessible washrooms;
- change rooms that contain accessible toilet and shower facilities, as well as, a private accessible change room; and
- intermediate doorways across primary circulation routes within a facility.
- Exception: Doors that are held-open using electromagnetic hold-open devices.

e. Mats and mat recesses at doors should comply with this section.

f. Revolving doors or turnstiles should not be the only means of passage at an accessible entrance or along an accessible route. An accessible gate or door should be provided adjacent to the turnstile or revolving door and should be designated to facilitate the same use pattern.

g. Frameless glass doors and/or sidelights should not be used.

h. Door hardware on all doors throughout a facility (not only those deemed accessible), should comply with the door hardware requirements of this section.

3.2.8.3 Technical Guidelines

a. General: Accessible doors should be on an accessible route that complies with Section 3.2.1. Where appropriate and permitted, rooms without doors are preferred. (e.g. at public washrooms)

b. Clear Opening: The minimum clear opening of doorways should be 900 mm, measured between the face of the door or the panic hardware and the





opposite door stop with the door open 90 degrees. In a renovation where it is technically infeasible to provide this clearance, the minimum clear opening of doorways may be reduced to 850 mm.

Exception: Doors not requiring full user passage, such as at closets, may have the clear opening reduced to 500 mm minimum. In existing buildings, off set or swing clear hinges can often be used to increase the clear opening of a door without enlarging the frame.

c. Maneuvering Space: Doors should have level wheelchair-maneuvering space on both sides of the door in compliance with Figure 73. The maneuvering space is to be unobstructed for the full height of the door.

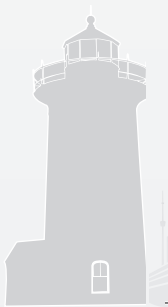
Exception: The maneuvering space is not required on the inactive side of a door, where access is provided from one side only - such as to a closet.

d. Thresholds: Level thresholds are preferred. Thresholds should be not more than 13 mm high, and where they are over 6 mm high, they must be beveled at a maximum slope of 1:2 (See Figures 80 and 81).

e. Door Hardware: All door hardware in a building or facility (operating devices such as handles, pulls, latches, and locks) should be operable by one hand, not require fine finger control, tight grasping, pinching, or twisting of the wrist to operate, and be mounted between 900 mm and 1000 mm from the floor. Lever type handles should be used on latched doors where panic hardware is not required. “U” type shaped door levers reduce the risk of catching on clothing or injury from the exposed lever end. “D” type push and pull mechanisms on unlatched doors are acceptable.

Operating hardware on sliding doors should be exposed and usable from both sides when sliding doors are fully open. Knob handles are inappropriate as they require grasping and are difficult for some people to use. Doors leading to hazardous areas, such as loading platforms and mechanical / electrical rooms should have a roughened or knurled handle for easier identification by persons with visual impairments.

f. Opening Force (Self-Closing door operators): The maximum door opening force for pushing or pulling to open a door should be 38 N for exterior hinged doors, 22 N for interior hinged doors, and 22 N for sliding or folding doors. Door closers should be adjusted to the least pressure possible, but never more than the opening forces noted in this section.



g. Door Closers: The sweep period of door closers should be adjusted so that, from an open position of 90 degrees, the door will take not less than 3 seconds to move to a semi-closed position of approximately 12 degrees. Doors that are not under the control of self-closing devices will need the presence of catches/keeps to retain their 'open' position under desired conditions, and to prevent the door swinging free when subject to the motion of the vessel: keeps/catches should be positioned so as to be accessible by all passengers who may use the doorway.

h. Kick plates: Kick plates at least 300 mm high should be provided on the push side of doors.

i. Power-Operated Swinging Doors: Power-operated swinging doors should take not less than 3 seconds to move from the closed to the fully open position and require a force of not more than 66 N to stop door movement.

j. Entrance Vestibule Mats and Metal Gratings: Permanent mats and metal gratings at entrances, in vestibules, or at other locations in a facility should be sunk level with the floor, so as not to create a tripping hazard. Occasional mats (e.g. runners used in bad weather) should be level with the floor surface and/or have a gently beveled edge, so as not to create a tripping hazard.

k. Power Door Operators: Where power door operators are provided they should be located to allow a person using a wheelchair or mobility scooter to stop immediately adjacent to the control (Refer to Appendix 1: Controls and operating mechanisms.), and be located at least 700 mm from any inside corner. If located on hinge side of door its controls should be located not less than 700 mm beyond the door swing, where the door opens towards the control. Controls should be clearly visible, have a pad that is a minimum 150 mm in diameter, and incorporate the International Symbol of Access for Persons with Disabilities. Two activation pads should be provided, located at 900 mm and at 225 mm to their centerline above the floor.

Alternatively, a vertical linear activation bar may be used, spanning 225-900 mm from the floor. In higher traffic areas, it is preferred that doors be automatically activated. Pressure-sensitive mats, overhead beams, or proximity scanners may be used to activate door operators. A pressure-sensitive mat of a weight activated door must be sensitive enough to detect a 15 kg service animal. (Australian Disability Standards, 2002)





Proximity scanning should be used to detect pedestrian and wheelchair traffic within the door-opening arc, deactivating the opener until the area is clear. Where hinged exterior doors open out to a pedestrian area, they should incorporate safety guards that project a minimum of 300 mm beyond both sides of the open door (See Figure 83).

l. Revolving Doors or Turnstiles: Revolving doors or turnstiles should not be the only means of passage at a pedestrian entrance or along an accessible route. An accessible gate or door should be provided adjacent to the turnstile or revolving door and should be designated to facilitate the same use pattern and to address the needs of persons with wheelchairs, mobility devices, strollers, walkers or delivery carts.

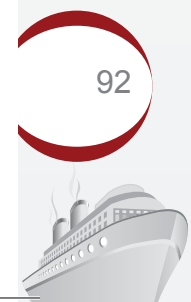
m. Frameless Glass Doors And Or Sidelights: Doors and sidelights that do not have a frame attached to all edges are not considered to be accessible, and should be avoided along accessible routes;

n. Multiple-leaf Doorways: If doorways have more than one independently operated leaf, at least one active leaf should comply with this section. Where an accessible door is located within a bank of doors, it should be identified using the International Symbol of Access. The use of a centre post should be avoided at double doors.

o. Two Doors in Series: The distance between two hinged or pivoted doors in series should be at least 1400 mm plus the width of any door swinging into the space.

p. Door to cabins, washrooms and other enclosed spaces which have no other exit doors should not be equipped with deadbolts or other means of security which can only be manipulated from the inside. As an alternative they should be equipped with an easily manipulated push-lock door knob that can be released from the outside with a special tool or lock. Toilet doors should be provided with a clear minimum opening width of 925 mm and be fitted with 'L' or 'D' shaped handles on the outside of the door. A horizontal closing bar should be fixed to the inside face of an outward opening door. The toilet door lock should be large and easy to operate. (DPTAC, 2007).

q. Watertight doors: Crew members should be available to assist passengers with the use of watertight doors, and fire rated doors designed to take reference from the Canadian Transportation Agency's publication "Ferry Accessibility for Persons with Disabilities" (CTA, 1999).



r. Peep Holes: Where peep holes are provided in doors there should be two, one located 1100-1300 mm from floor level for a seated person, child, or a person short in stature, and one at 1500 mm above the floor for a standing person.

s. Colour Contrast: Where doors are not equipped with a closing device, the edge of door should be colour contrasted to the face of the door. Doors and doorframes should incorporate pronounced colour contrast, to differentiate them from the surrounding environment. Door handles and other operating mechanisms should incorporate pronounced colour contrast, to differentiate them from the door itself. Power activation door pads should be colour contrasted from their surroundings.

t. Door Glazing / Vision Panels: Except where visual privacy is of concern, the sill height of viewing windows or vision panels should be no more than 750 mm above the floor. Horizontal transoms should not be positioned between 1000 mm and 1225 mm above the floor (Figure 85).

u. All glazed doors and sidelights should be marked to draw attention to the presence of glazing. Markings should comprise of two horizontal rows of decals or continuous stripes that include contrasting colours and that have a minimum width of 50 mm. One row of markings should be located 1475-1525 mm above floor level, and the second 1175-1225 mm, measured to the centerline of the rows. Alternatively, a regular pattern of individual decals can be used to identify the glazing. Decals should measure at least 50 mm across in any direction and may be of any shape, such as a logo, provided the solid portion of the decal incorporates colour contrast to the background. Decals should be spaced at a maximum of 150 mm apart, measured from centre to centre.

v. Markings having pronounced colour contrast should also be provided where etched or patterned glass is used (Figure 86).





<i>Figure 73: Manoeuvring Space at Doors</i>			
	Floor Space Required (in mm)		
	Depth	Width	Space beside latch
	Floor Space Required (in mm)		
Pull side	1500	1600 (*1500)	600
Push side	1400	1250 (*1200)	300
	Hinged door - Latch-side approach (Figure 75)		
Pull side	1400 (*1200)	1600 (*1500)	600
Push side	1400 (*1200)	1500	600
	Hinged door - Hinge-side approach (Figure 74)		
Pull side	2100 (*1500)	2100 (*1500)	600
Push side	1400 (*1200)	1800	450
	Sliding door (Figure 77)		
Pull side	1400	1200	50
Push side	1400 (*1200)	1550 (*1400)	600

3.2.8.4 Illustrations

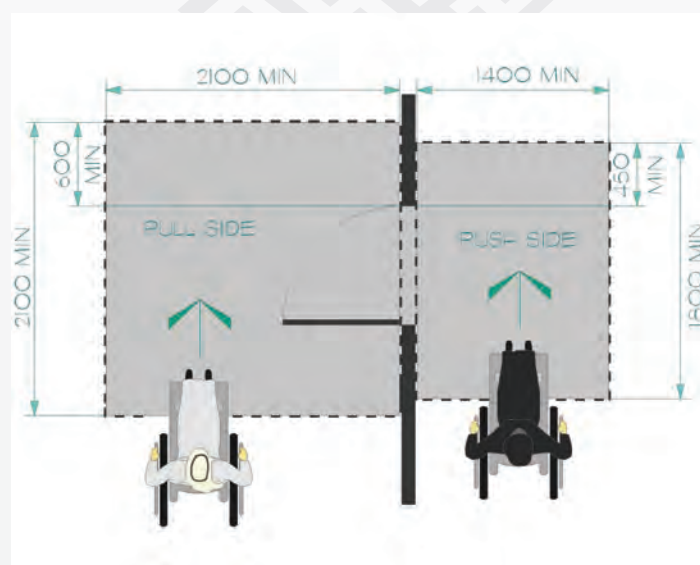
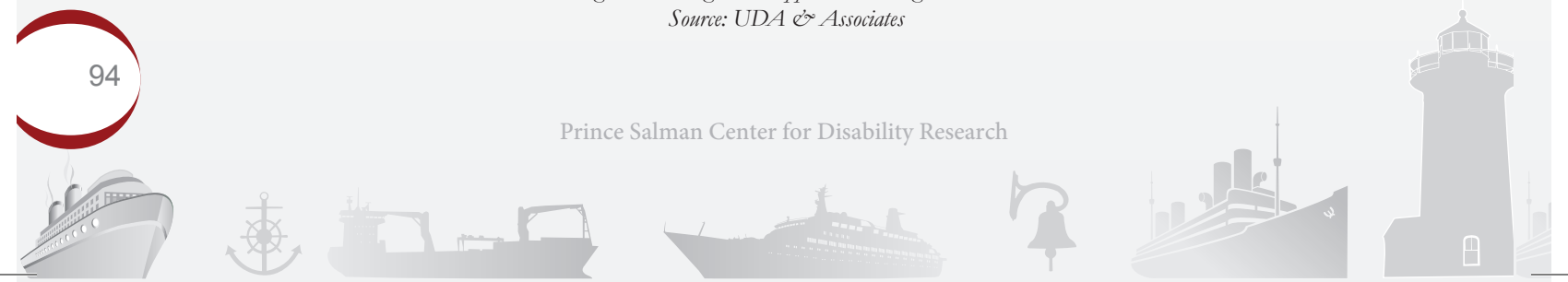


Figure 74: Hinge Side Approach at Hinged Doors
 Source: UDA & Associates



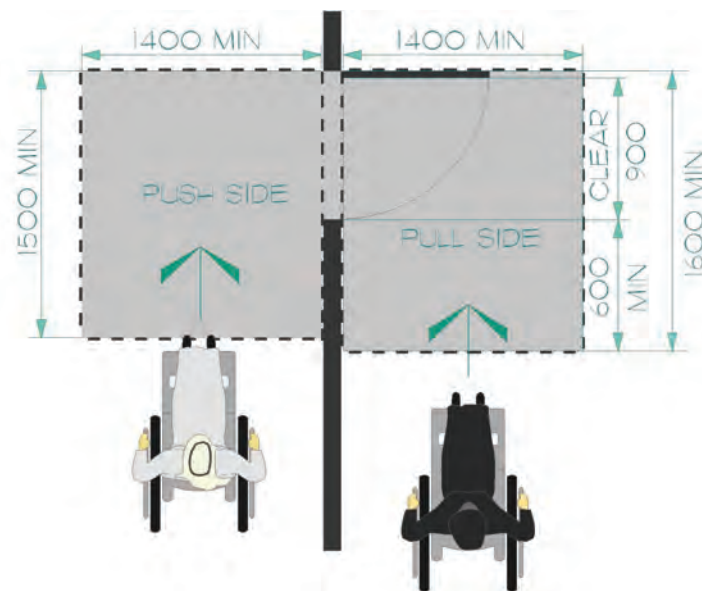


Figure 75: Latch Side Approach at Hinged Doors
Source: UDA & Associates

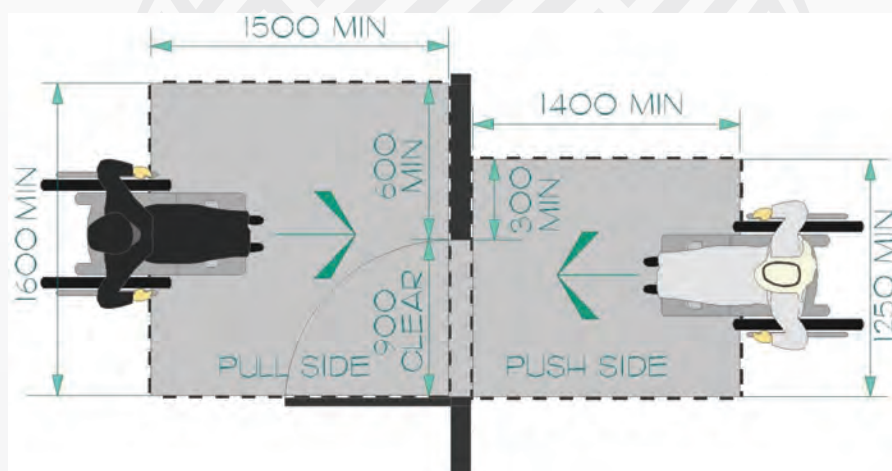


Figure 76: Front Approach at Hinged Doors
Source: UDA & Associates



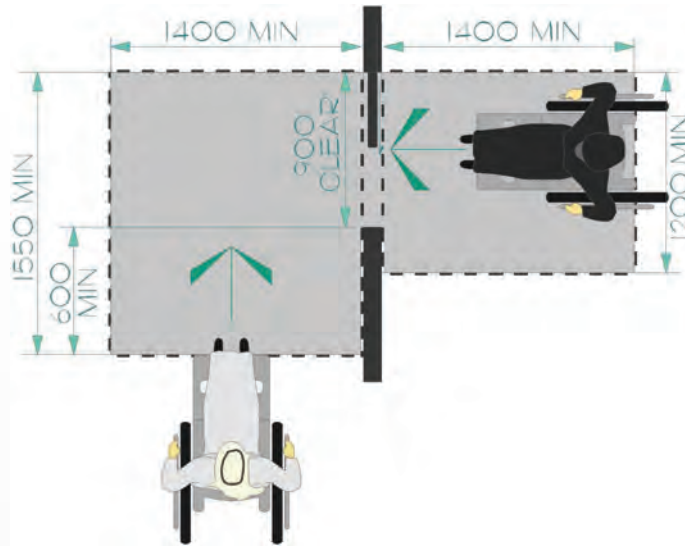


Figure 77: Front and Side Approach at Sliding Doors
Source: UDA & Associates

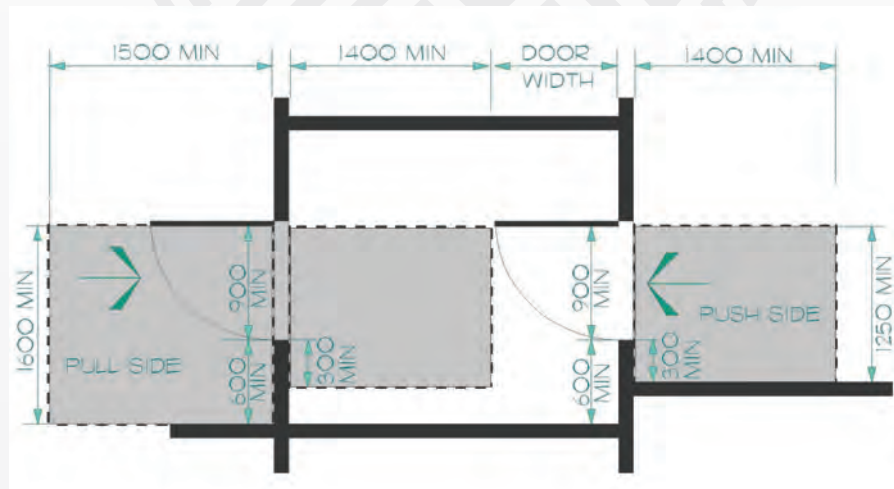


Figure 78: Manoeuvring Space at Doors in Series
Source: UDA & Associates



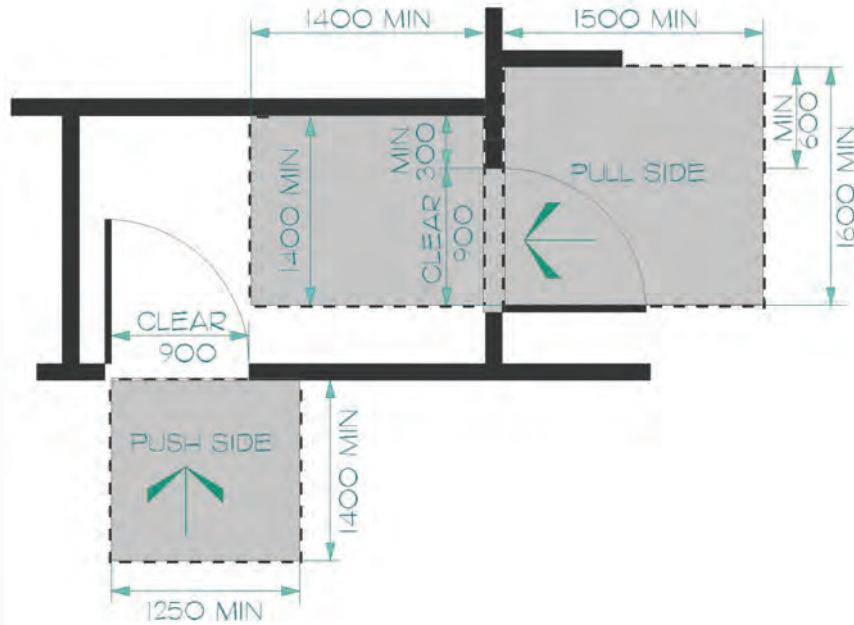


Figure 79: Manoeuvring Space at Doors in Series
Source: UDA & Associates

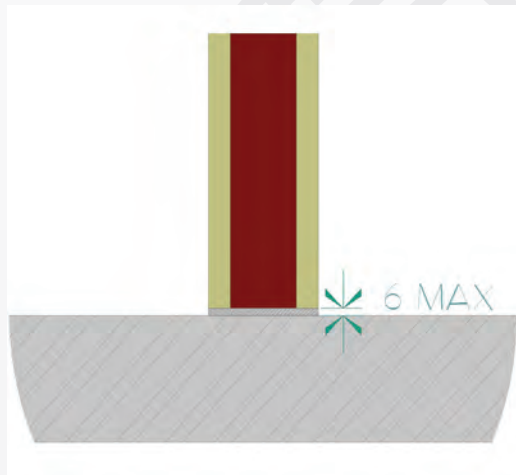


Figure 80: Door Threshold
Source: UDA & Associates

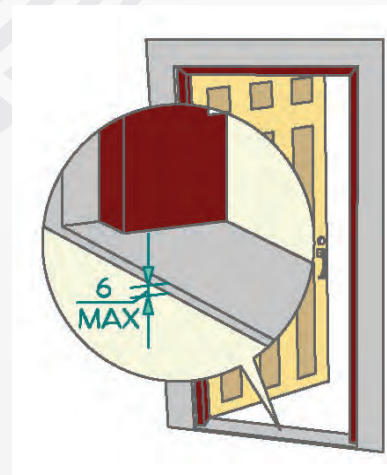


Figure 81: Door Threshold
Source: UDA & Associates





Figure 82: "U" shaped lever and "D" shaped handle.
Source: UDA & Associates

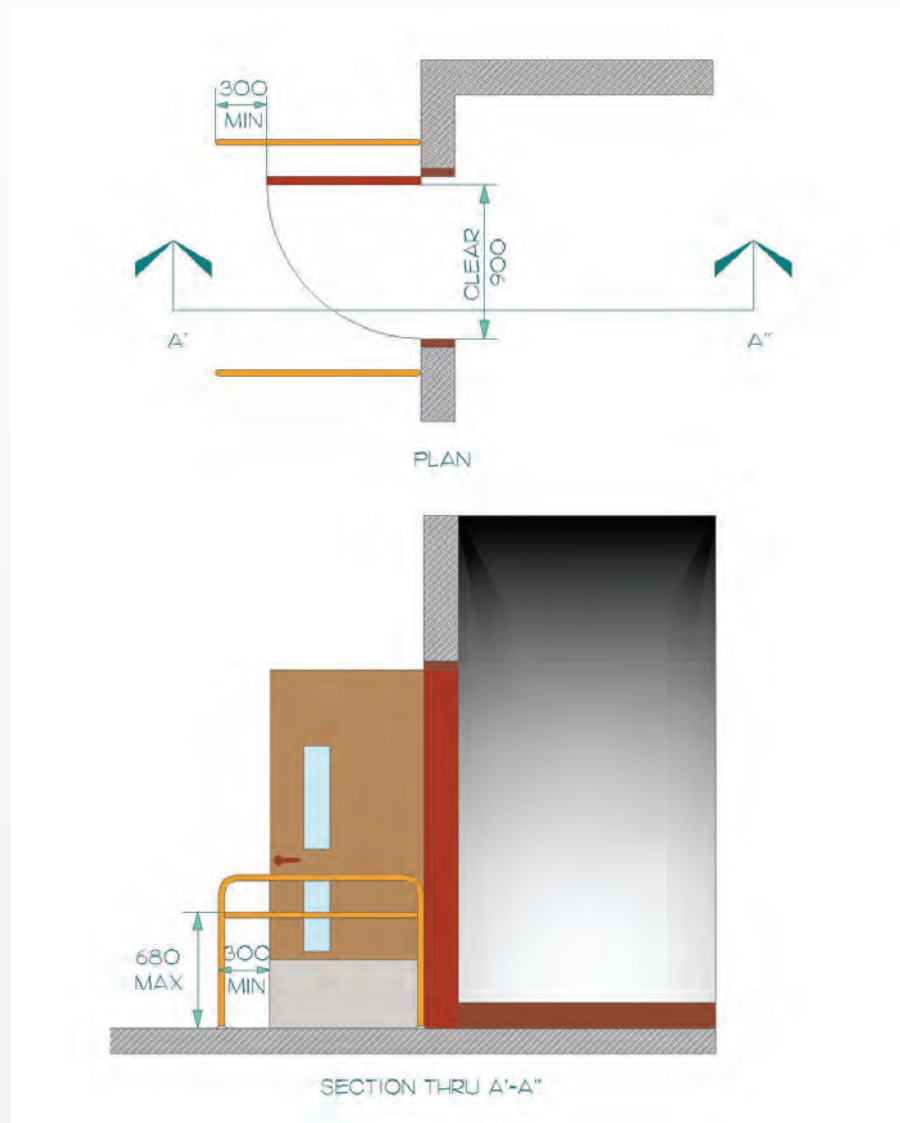


Figure 83: Detectable Guards
Source: UDA & Associates



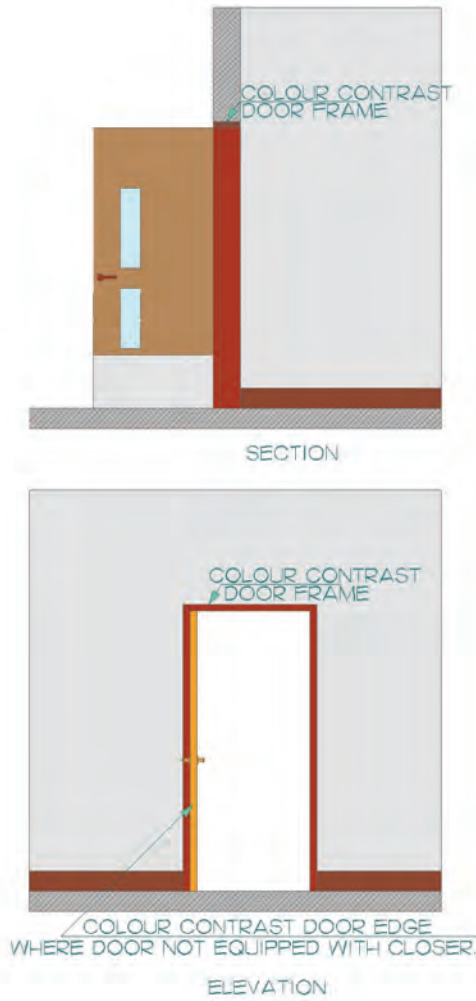


Figure 84: Colour Contrast at Doors
Source: UDA & Associates

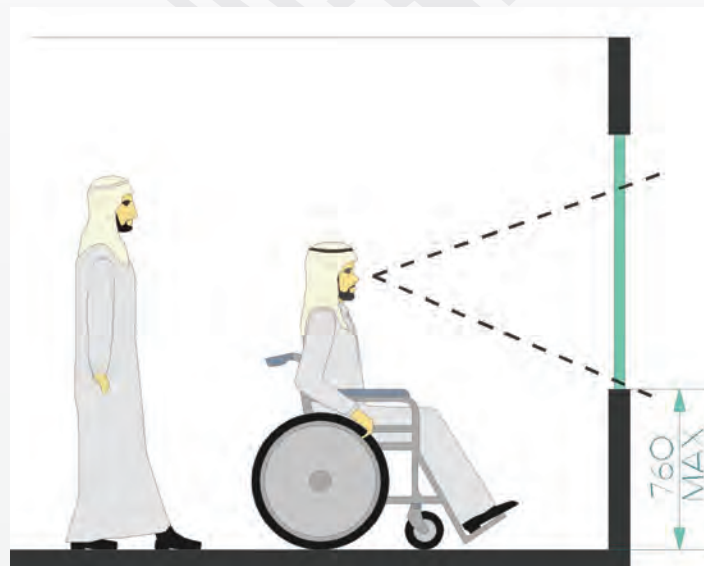


Figure 85: Window Sill Height
Source: UDA & Associates



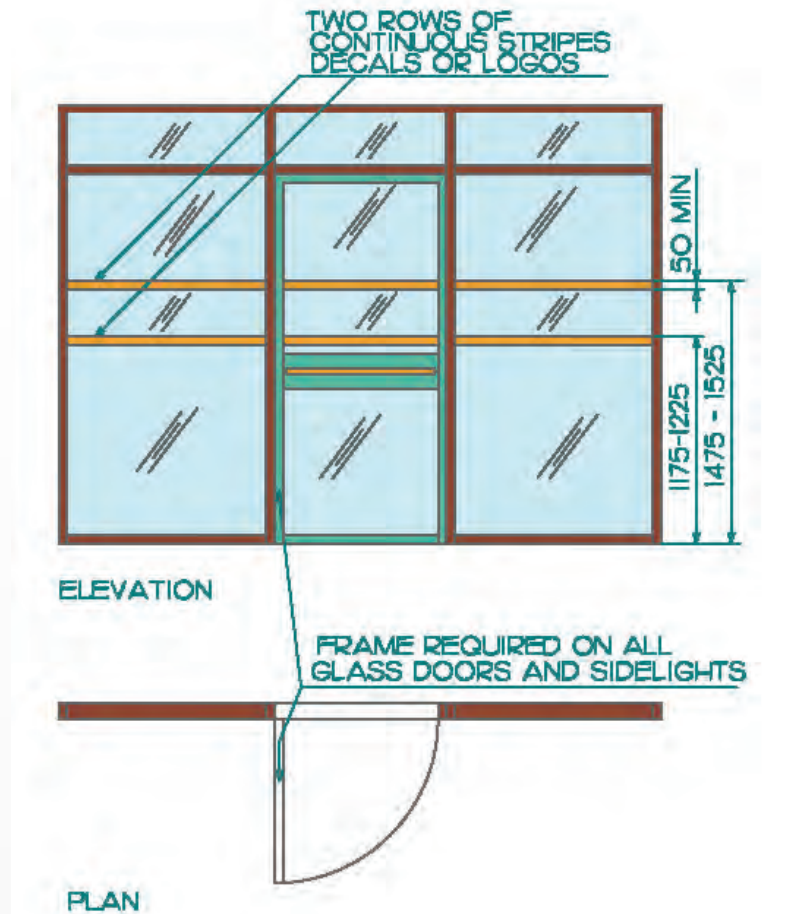


Figure 86: Fully Glazed Doors, Sidelights and Vision Panel Markings
Source: UDA & Associates

3.2.8.5 Other Considerations

- 2.3 Anthropometric Data
- 3.2.9 Signage
- 3.8.1 Information and Announcements – Maritime Vessels and Facilities
- 3.9.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance



3.2.9 Signage

3.2.9.1 Design Considerations

Signage should be simple, uncluttered, and incorporate plain language. The use of graphic symbols is helpful for individuals such as children, those with a limited literacy level, or those who speak a different language.

Sharp contrasts in colour make signage easier for anyone to read, particularly someone with a visual impairment. The intent of a symbol where used must be evident, culturally universal, and not counterintuitive. To enhance readability, raised tactile lettering should incorporate edges that are slightly smoothed.

3.2.9.2 Application Guidelines

Signage should comply with this section.

Signs that designate permanent rooms or spaces should be wall-mounted and include tactile characters and numbers. Tactile markings should also supplement the text of:

- regulatory signs, such as prohibition and mandatory signs;
- warning signs, such as caution and danger signs; and
- identification signs, such as rooms, titles, names, or numbers.

Signs that provide direction to, or information about, functional spaces, should comply with this section. Menus in eating establishments should also be available in alternative formats including Braille and large text.

Exception: Facility directories and all other signs that are temporary are not required to comply.

Elements and spaces of accessible facilities that should be identified by the International Symbol of Accessibility are:

- Shore-based Facilities - parking spaces, designated as reserved for individuals with disabilities;
- accessible passenger loading zones;
- accessible ramps located in a barrier-free path of travel serving a building entrance;
- accessible entrances when not all are accessible (inaccessible entrances should have directional signage to indicate the route to the nearest accessible entrance);





- accessible toilet and bathing facilities, including single-use portable units, when not all are accessible;
- accessible telephones;
- accessible elevators and other elevating devices;
- accessible means of egress; and
- areas of rescue assistance.

Audible signs (infrared and digital) that are readable by persons with a visual impairment using a receiving device may be the sole orientation aid across open spaces. Consideration should be given to including wire drops for future installation.

3.2.9.3 Technical Guidelines

a. Location – Rooms and Spaces: Where permanent identification is provided for rooms and spaces, signs should be installed on the wall adjacent to the latch side of the door within 150 mm of the doorjamb and located with its centerline 1400 mm above the finished floor. Where there is no wall space to the latch side of the door, including at double-leaf doors, signs should be placed on the nearest adjacent wall. Signage should be consistently located throughout a facility.

b. Location – Stairways: Within stairways, tactile floor numbers should be located on the latch side of the door within 150 mm of the door jamb and at a consistent height above the floor between a minimum 1350 mm and a maximum 1500 mm above the finished floor, throughout the building.

c. Location – Decision Making Points: Signs should be located at decision making points to be most useful, such as at intersections, stairs, elevators and escalators.

d. Overhead Signage: Any overhead signage should not create an overhead obstruction and should be in compliance with Section 3.2.3. Signage should be duplicated and located within a designated and approachable area on the adjacent wall. Signage placed behind counters should be duplicated with its centerline at a consistent height above the floor of 1400 mm, be easy to read from a seated or standing position, and be approachable and have sufficient contrast and size to be readable from appropriate distances. See Figure 87.

e. Case and Style: Letters and numbers on signs should be sans serif and have English and Arabic numbers.



f. Character Proportions: Letters and numbers on signs should have a width-to-height ratio between 3:5 and 1:1 and have a stroke-width-to-height ratio between 1:5 and 1:10.

g. Character Height: Character height dimensions for viewing distance should comply with Figure 87.

Figure 87: Minimum Character Height based on Viewing Distance

Maximum viewing distance (mm)	Minimum character height (mm)
6000	200
4600	150
2500	100
2300	75
1500	50
750	25

h. Finish and Contrast: Characters, symbols and backgrounds of signs should have an eggshell, matte or other glare-free finish. Characters and symbols should contrast with their background and be either light characters on a dark background or dark characters on a light background.

h. Tactile Raised Characters: Where signs contain Braille or tactile characters, letters and numerals should be raised at least 0.8 mm, not sharply edged, be between 16-50 mm high, and be sans serif and accompanied by uncontracted Braille. The sign should be no more than 48 inches (1220 mm) above the finished deck surface when measured from the center of the panel. This will ensure that the panel is accessible to the majority of people with visual and mobility impairments. (PVAAC, 2000)

j. Clear Floor and Ground Surface: A tactile sign should allow a person to approach the sign within 100 mm without encountering protruding objects or standing within a door swing.





k. Pictograms: Pictograms should be accompanied by an equivalent visual and tactile verbal description and placed directly below the pictogram. The pictogram should be a minimum 150 mm in height. There should be a clear wall area around all signage of at least 75 mm.

l. Illumination: The minimum level of illumination on signs should be 200 lux.

m. Audible Signage: Audible signs should duplicate information seen visually into spoken form. These could include street and building signs, visual pedestrian traffic signals, and for interior wayfinding and information systems.

n. Directories: Directories and other informational systems should be presented vertically or raised horizontally at an angle and be approachable and reachable from a standing or seated position. There should be adequate manoeuvring and clear space adjacent to the directory.

o. Comprehensibility: Visual symbols are preferred to written instructions, eliminating confusion for people who have difficulty reading or understanding print, or people unfamiliar with the language. Colour coding can strengthen messages when used as a coherent and consistent system throughout a facility.

p. Directional Signage: Directional signs should be concise, have as few instructions as possible, and use plain language. Directional symbols such as arrows should be clear, sharp, and not highly stylized. Directional signage must be provided when an accessible route does not coincide with a general circulation path. (PVAAC, 2000).

3.2.9.4 Illustrations



Figure 88: Colour Contrast on Signs





Figure 89: Pictograms



Figure 90: Tactile Lettering
Source: UDA & Associates



Figure 91: International Symbol of Access Space



Figure 92: Pictogram for Limited Mobility & Caregiver Parking Space





Figure 93: Illuminated emergency route sign at night



Figure 94: Emergency route sign during day

Source: Metal Safe Sign International

3.2.2.5 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.5 Ramps
- 3.2.6 Stairways
- 3.2.7 Handrails
- 3.2.8 Doorways
- 3.2.10 Symbols, Graphics and Pictograms
- 3.2.11 Lighting
- 3.5.1 Onboard Washrooms
- 3.5.2 Toilets
- 3.5.3 Washbasins
- 3.5.4 Urinals
- 3.9.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- 4.2.1 Elevators
- 4.2.2 Inclined and Vertical Platform Lifts



3.2.10 Symbols, Graphics and Pictograms

3.2.10.1 Design Considerations

The usage of symbols, graphics and pictograms are effective methods used to convey large amounts of information in a succinct and brief manner. Their accessibility to PwDs is important in this respect as often standardized symbols etc. convey consistent information that enables more usability in environments.

3.2.10.2 Application Guidelines

Where symbols, graphics, and pictograms are used on signage, public information boards, or in documentation produced for public use by tourist organizations, they should comply with this part.

3.2.10.3 Technical Guidelines

a. Symbols: A symbol is an object that stands for some other object or circumstance. A symbol or combination of symbols can make up a pictogram which is a symbolic representation of information through pictures. For people who cannot read, symbols can be very helpful. However, only symbols that are easily recognized should be used. Throughout the range of tourism information their use should be consistent e.g. using the universal symbol for a wheelchair is more meaningful than just using the letter 'W'. Coding landmarks with numbers or letters may save space but will complicate the task of interpretation and is not recommended (TRCP, 1999: 26). There needs to be cooperation between stakeholders and those who set tourism policy in order to settle on a consistent set of designs across the tourism industry. Symbols are sometimes misinterpreted and should be accompanied by a nearby label.

b. Graphics and Pictographs: Graphs and pictographs can be very useful for people who have difficulty reading. Their use worldwide is the major strategy for communicating with people of diverse language and with people with functional literary limitations (TCRP, 1996: 25). They can also save space by reducing the need for large tracts of text. However, they should be used with care. The shapes used should be clear and unambiguous. Very stylized or obscure shapes may look fashionable but can be confusing to some people. In a French study signs giving a concrete representation of an object were identified correctly with a higher frequency than abstract representations (Hunter-Zaworski &





Hron, 1993). Examples of easily understood symbols might be a cross for a hospital, a book for a library or a terminal or port for a passenger vessel. Using squares, circles, or “x” for landmarks makes them hard to distinguish by people who don’t read (Bloch & Hoyt, 1992: 10). As no standard tourism pictogram bibliography is available in the Kingdom of Saudi Arabia, this will need to be developed.

c. Borders: If a border is drawn around a pictograph, its thickness should not exceed the stroke thickness of other characters on the sign. The distance between the inside edge of the border to the nearest point of the symbol should be at least 4 units in relation to a square border with a base of 75 units (TCRP, 1996: 18), i.e. measure the length of the base of the border, divided by 75 and multiply by 4. The corners of sign borders should be rounded.

d. Ambiguity of Symbols: The majority of people are verbally orientated, absorbing most information through words, while the minority responds more quickly to visual devices, such as symbols. Most signs systems need verbal messages. Even the simplest symbol, an arrow, can be ambiguous: the difficulty comes in when the direction ‘ahead’ is indicated by an arrow. There can be confusion whether this means down or ahead or up or ahead, depending on the direction of the arrow.

e. Symbols can be very helpful to some people but use easily recognized symbols such as the Universal Symbol for Accessibility. Do not use letters or numbers to indicate landmarks, equipment or facilities.




f. The thickness should not exceed the stroke thickness of characters on signs. The distance between the inside of a border and the nearest point of a symbol should be the length of the base divided by 18.75.

g. Use of Arrows: The arrow is one of the most commonly used symbols in a signage system. The arrow should be two times the upper case character height that is used in the message. Arrows pointing to the left or up should always be on the left of the message and vice versus (TCRP, 1996).

h. Symbol Shapes: These symbols illustrated in Figure 95, are based on consistent use of geometric shapes and specific colors. These shape and color codes permit users to distinguish between the six types of symbols. The shape, color, function and subject area of each type are indicated below:



Figure 95: Classification of Graphic Symbols

Class & Shape	Type & Color	Function of Symbols
 Regulatory	Prohibition Red & Black on White	To Indicate an order forbidding an action
	Mandatory White on Black	To indicate an action for obligatory action.
 Warning	Caution Black and White	To Indicate a potential hazard.
	Danger White on Red	To indicate a definite hazard.
 Information	Emergency White on Green	To provide information required in case of emergency
	Guidance & Information White on Dark gray; or white on blue	To indicate Guidance; Information or Concessions Recreation General

3.2.2.5 Other Considerations

3.2.9 Signage

3.8.3 Accessibility of Print

3.8.4 Provision of Tourism-Related Information in Multiple Formats





3.2.11 Lighting

3.2.11.1 Design Considerations

Floor level and low-level lighting creates confusing environments for persons with functional visual and cognitive limitations.

3.2.11.2 Application Guidelines

See 3.2.11.3 below.

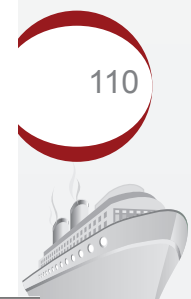
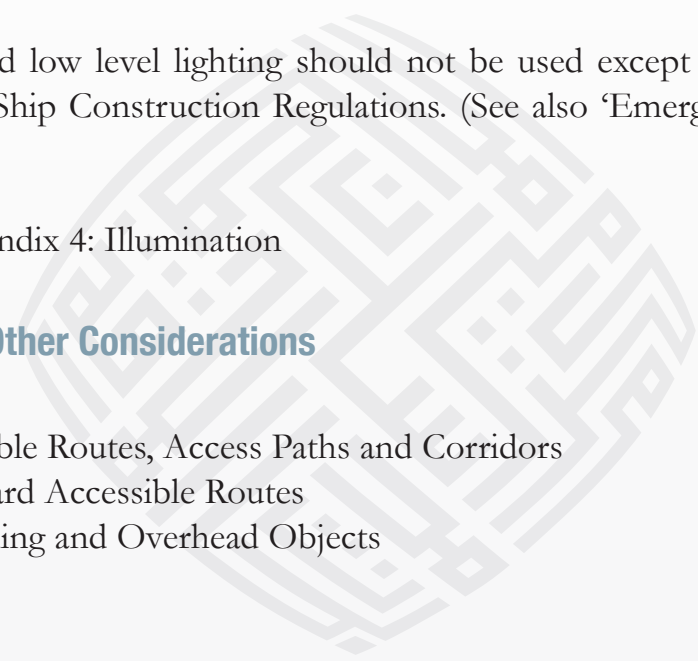
3.2.11.3 Technical Guidelines

Floor level and low level lighting should not be used except where required by Passenger Ship Construction Regulations. (See also ‘Emergency Lighting/ Routing’)

Refer to Appendix 4: Illumination

3.2.11.5 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects



3.3 Wheelchair Positions and SecUREMENTS

3.3.1 Wheelchair Positions and SecUREMENTS

3.3.1.1 Design Considerations

All wheelchair accessible passenger vessels, from small ferries to large cruise ships are required to provide a wheelchair securement system to secure the wheelchair to the deck of the vessel in case of rough seas or just for general safety of the passenger in the wheelchair. Wheelchair securement systems are primarily mechanical devices designed to hold the wheelchair in place during rapid acceleration or deceleration.



Figure 96: Wheelchair tie-downs
Source: Spinalistips, 2008



Figure 97: Wheelchair tie-downs
Source: Spinalistips, 2008

3.3.1.2 Application Guidelines

A specified wheelchair space should be sufficient to allow any passenger in a wheelchair to travel facing the bow of the vessel and to be provided with a wheelchair user restraint system. This system should be comprised of the option of a full harness (both shoulders and a lap belt) and should be suitable for general wheelchair application (including children's wheelchairs).

Any wheelchair restraint system should take reference from the requirements of Annex 9 of the International Code of Safety for High-Speed Craft (HSC) Code, 1994 or Annex 10 of the International Code of Safety for High-Speed Craft (HSC) Code, 2000 as applicable or amended.

Any wheelchair restraint system which is fitted to a wheelchair space should be capable of being easily released in the event of an emergency. (DPTAC, 2007)





3.3.1.3 Technical Guidelines

a. Challenges of wheelchair securement: It seems obvious that a wheelchair user's seat on a passenger vessel is usually the wheelchair itself. The challenge of wheelchair securement is the diversity in wheelchairs - with their variety of sizes, styles, and the wide range of models. This makes it nearly impossible to standardize a safety device suitable for everyone.

b. Strap tie-downs: Safety restraints appropriate for wheelchairs often come in the form of strap tie-downs. Different impact requirements call for different restraint systems, and though tie-downs are one solution, they can take time to secure and are not always user-friendly.

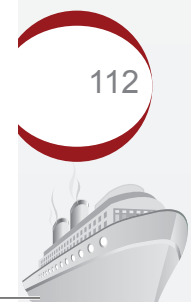
Tender vessels: All tender vessels must provide wheelchair securement.

c. Forward facing system: A forward-facing wheelchair securement system should withstand decelerating forces of 8000N. It should confine rearward movement and tipping of the mobility aid. Commonly, four (4) belts are anchored to the vehicle floor, two for the front, two for the rear, and are connected by hooks to the mobility aid. The forward-facing securement requires the use of an occupant restraint, typically using three belts (similar to a passenger car's three point systems) to restrain the occupant. This system should be independent of the securement system. Each anchorage point of the occupant restraint should have the strength to resist at least a 4000N deceleration force and should be anchored to the vessel floor, not to the mobility aid or the securement.

d. Ease of use: The securement system should be automatic or easy to use, and secure common wheelchairs (800 mm by 1300 mm) and mobility aids.

e. Rear-facing system: In a rear-facing system the wheelchair and the occupant face the rear of the vessel. The rear-facing system should be provided with a padded back panel with the following dimensions:

- Height from floor to bottom edge: 350–480 mm
- Height from floor to top edge: 1300 mm min
- Width: between 250 mm and 400 mm
- Back panel should withstand a decelerating force of 3g.
- The aisle side of the space should be fitted with a means of preventing tipping of the mobility aid into the aisle when the vessel is turning (such as a stanchion, movable arm, or belt).



f. Appropriate application: A wheelchair securement system may be counterproductive to accessibility on some large cruise vessels, where wide circulation is generally available and expected between public areas and program areas. Another factor is that because the decks are so large and accessible, it is not always practical to provide tie-downs at every possible location so the question would become where they would be placed. It should be made clear that in extremely heavy seas, all passengers are requested to stay in their cabins. Concerning vessels that merely transport passengers from point to point, and where seats are provided, securement in the form of tie downs may be appropriate. However, on a cruise vessel where one of the purposes is to promote circulation throughout the vessel, securement devices may be less appropriate. (ICCL, 2005)

3.3.1.4 Other Considerations

3.2.1 Accessible Routes, Access Paths and Corridors

3.2.2 On-Board Accessible Routes





3.4 Family and Gender Seating

3.4.1 General Seating

3.4.1.1 Design Considerations

Passenger vessels are characterized by a great deal of movement on-board as passengers attempt to entertain themselves. Consequently, provision should be made for seating at restaurants, on-deck and elsewhere, and importantly, provision should be made for accessible seating in this regard.

3.4.1.2 Application Guidelines

The scoping for this element is outlined in 3.4.1.3 below.

3.4.1.3 Technical Guidelines

a. Appropriate separate and designated seating (for family and gender separation) should be provided according to local customs if vessel capacity permits. Clear signage should indicate the location(s).

b. Accessible seating: At least 4% of the ship's passenger seats should be suitable for persons with disabilities. These seats should have sufficient space and be provided with suitable handholds in order that persons with disabilities may support themselves when sitting down or getting up from the seat. The handholds should be marked in contrasting colors. If the space available does not have enough leg room for persons with stiff legs, the seat in front of the special seat should be a removable one. If seats are arranged in rows, armrests which may constitute an obstruction to a person with disabilities, and as such should be of a type that can fold away. The seats for the elderly and persons with disabilities should be situated near evacuation routes and toilets. Space should be provided for companion seating next to accessible seating.

c. Gender seating: Appropriate separate and designated seating for family and gender separation should be provided according to local customs. Clear signage should indicate the location(s).



d. Furniture layout: When designing furniture layout within public spaces, operators should, in addition to complying with statutory regulations, provide facilities for persons with disabilities e.g. a combination of fixed or moveable seats, armrests, suitable heights etc.

e. Service animal: The floor space next to disabled seating should be large enough for a service animal to lie down. This seating should be designated by signage for use by persons with disabilities.

f. Passageways and counters: Passageways in a passenger lounge should satisfy the criteria in section 3.2.1. Counters in a passenger lounge should satisfy the criteria in section 3.6.1. (CTA, 1999)

g. Seating in Waiting or Rest Areas:

- **Location:** Waiting or rest areas should be located adjacent to an accessible route complying with Section 3.2.1 and 3.2.2. The maximum distance between rest areas along an accessible route is 50 meters.
- **Clear Floor or Ground Space:** Rest areas should include a bench or other type of fixed seating. A level, stable and firm ground surface measuring at least 900 mm wide by 1500 mm deep should be provided directly adjacent to one side of the bench (Figure 98).
- **Bench Seating:** Benches and other fixed seating should include a seating surface that is a minimum of 1100 mm long by 500-600 mm deep. The seating surface should be located at a height of 450-500 mm above the ground. Arm rests should be provided at each end of the bench. A back support extending the full length of the bench should also be provided. The back support should begin a maximum 50 mm above the seating surface, and should extend upwards for a minimum of 450 mm (Figure 99).
- **Stability:** Benches and other fixed seating should be stable and well anchored to the ground surface to prevent movement.
- **Colour Contrast:** Benches and other fixed seating should include contrasting colour to differentiate them from surrounding surfaces





3.4.1.4 Illustrations

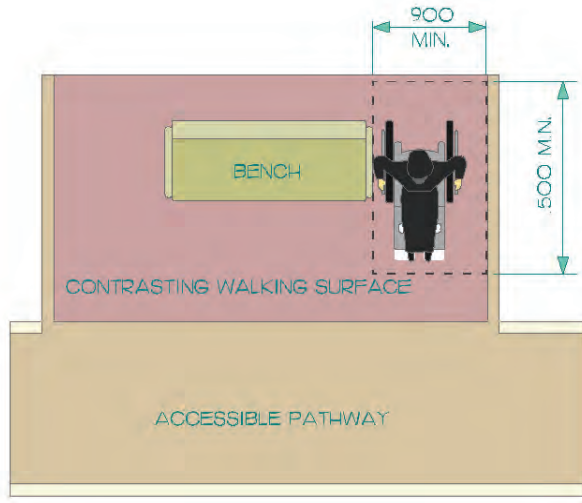


Figure 98: Rest Area
Source: UDA & Associates



Figure 99: Bench Seating
Source: UDA & Associates

3.4.1.5 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.9 Signage



3.5.1 General Seating

3.5.1.1 Design Considerations

As an integral feature of a passenger vessel, washroom facilities should accommodate the range of people that will use the space. Although many persons with disabilities use toilet facilities independently, some may require assistance. Family washrooms facilitate the provision of assistance.

Circumstances such as wet surfaces and the act of transferring between toilet and wheelchair or mobility scooter can make toilet facilities accident prone areas. An individual that may have a fall in a washroom with a door that swings inward could prevent his or her own rescuers from opening the door. Due to the risk of accidents, design decisions such as door swings and material finishes have safety implications and therefore make toilet facilities a prime location for emergency call switches. The appropriate design of all features will increase the usability and safety of all toilet facilities.

The identification of washrooms involves design issues related to signage. For someone who cannot read text, a symbol or pictogram is preferred. A person with a visual impairment would also benefit from accessible signage refer 3.2.9.

All passengers including passengers who are wheelchair users should have equal access to suitable toilet facilities. Toilets which are wheelchair accessible should be available at all times.

3.5.1.2 Application Guidelines

Where toilet facilities are provided, each public or common use toilet facility should comply with this section and contain at least one western style (Seated) accessible toilet.

3.5.1.3 Technical Guidelines

Onboard accessible washrooms should be designed for a passenger using a wheelchair or mobility aid to use the washroom according to the following technical guidelines:

- a. **Clear Floor Space:** The accessible path to reach the washroom should be clear of obstacles with a minimum clear width of 800 mm. There should be a clear floor space in the washroom to allow a person in a wheelchair to make a 180-degree turn. A minimum of 900 mm by 1500 mm clear space in front and





to the side of the toilet inside the washroom must be provided for assisted or independent transfers. Washroom fixtures may overlap this area (provided they do not interfere with toilet access) by a maximum of 150 mm if the lowest portion of the fixture is a minimum of 230 mm above the floor, or by a maximum of 480 mm if the lowest portion of the fixture is a minimum of 750 mm. If any fold-out or retractable seats or shelves are located in the washroom overlapping the clear floor space they must be able to be easily folded or moved out of the way. (Refer Figure 100)

b. Transfer Space in Accessible Toilet Stalls: Accessible toilet stalls should have a minimum 900 mm wide clear transfer space on one side of the toilet fixture. In a retrofit situation where it is technically infeasible to provide a 900 mm wide clear transfer space, this space may be reduced to 800 mm. Where more than one accessible toilet stall is provided within a toilet or bathing facility, the stalls should be configured with the clear transfer space (i.e., the open space beside the toilet) on opposite sides of the toilet fixtures. The clear transfer space should be clear of obstructions (such as garbage bins or baby change tables). **EXCEPTION:** Sanitary napkin disposal units may be installed within the transfer space provided they are recessed or protrude not more than 100 mm into this space.

c. In- Stall Washbasin: Accessible stalls should have an accessible washbasin located within the stall. The washbasin should be located on the wall beside the toilet, with its closest edge 275 mm from the front edge of the toilet fixture. The depth of the washbasin should be no more than 400 mm. The top of the washbasin should be no higher than 825 mm above the floor and provide a minimum of 700 mm clear knee space below. Faucets should be in compliance with Section 3.5.1. The drain should be offset to maximize clearance under the sink. Hot water and drain pipes should be insulated. Mirrors and washroom accessories should comply with Section 3.5.5 (See Figure 104)

d. Toilet Height: The height of the toilet should be between 450 mm to 500 mm measured to the top of the toilet seat, with seats that do not spring back to an upright position.

e. Grab Bar: Gender-specific or Family toilet rooms should have grab bars that comply with Section 3.5.2 .3 e). In addition, a fold-down grab bar should be provided on the transfer side of the toilet. Fold-down grab bars should measure at least 750 mm in length and be mounted between 420-440 mm away from the toilet, measured from the centre line of the toilet. The top member of a fold-down grab bar should be mounted at 800 mm above the floor, measured to its centerline. When in the raised position, the fold-down grab bar should not overlap



the required clear transfer space beside the toilet fixture. (Figures 105, 106 and 108)

f. Movable Armrests/Supports: Movable armrests/supports must be positioned on both sides of the toilet for transfers and for elderly persons at a height of 750 mm – 850 mm from the floor.

g. Doors: Doors into the washroom should have a minimum clearance of 800 mm. Door handles and latches should be easily operable with one hand and should not require tight grasping, pinching, or twisting of the wrist, and preferably be power operated for persons who do not have the strength to open/close doors.

h. Controls: All controls, including faucets and flush controls, should be mounted between 900 mm - 1200 mm above the floor and should be easily operable with one hand with a force of less than 22N, without tight grasping, pinching, or twisting of the wrist.

i. Location: Accessible washrooms should be in close proximity to and connected to mobility aid seating locations by a path at least 800 mm wide.

j. Bidet: Washrooms should also be equipped with a bidet-type device for use by women, as well as garment hooks to hang clothing at a height to be easily reachable yet high enough for long clothing not to touch the wet floor.

k. An Ablution Hose: An abluion hose should be located in the washroom within easy reach of (maximum 500 mm) from the toilet/bidet edge, at a height of 700 mm–800 mm, and be operable with one hand, preferably the right.

l. Emergency Call Buttons: An emergency call button or cord should be installed in the washroom within an easy reach of the user when sitting on the toilet (i.e. at a distance of 460-480 mm from the toilet edge to the wall, at a height of 750-1000 mm from the floor, and at a position of 0-200 mm from the front of the toilet).

m. Family Toilet: A Family accessible toilet with one WC and one sink should be located on each accessible deck. The advantage of a Family toilet is that a carer or partner of a different gender can enter to provide assistance.

n. On existing Passenger Vessels where it is technically infeasible to make existing public or common use toilet facilities accessible, the installation of at least one individual washroom per floor per gender and in compliance with 3.5.1, located in the same area as existing toilet facilities, will be permitted in lieu of modifying existing toilet facilities to be accessible.





o. Layout: It is an important design requirement to have a choice of layout when more than one accessible Family toilet exists to provide for both left-hand and right-hand transfers.

p. It is a most essential feature for the accessible toilet to provide privacy and dignity to a person in a wheelchair.

q. Toilet Signage: Toilet directional and identification signage should be in compliance with section 3.2.9.

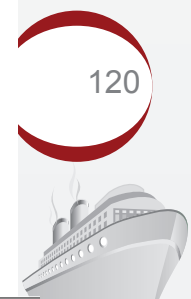
r. Entrance Door: Doors entering accessible and/or Family toilet rooms should be accessible and comply with Section 3.2.8. Doors should include a latch operating and locking mechanism that is located between 900-1000 mm above the floor and that complies with Appendix 1: Controls and Operating Mechanisms. The latch operating and locking mechanism should be capable of being released or opened from the exterior in the case of an emergency. (Figures 105 and 107)

s. Toilet Stall Doors: The minimum clear width of a door opening in an accessible toilet stall should be at least 900 mm, measured when the door is in the open position. In a renovation situation where it is technically infeasible to provide the required minimum clear width, the clear width of stall door opening may be reduced to 850 mm. Accessible toilet stall doors should swing outward from the stall, unless a minimum clear floor space measuring 800 mm wide by 1400 mm deep is provided within the stall. The required transfer space adjacent to the water closet should be aligned with toilet stall door. Stall doors should include gravity hinges that cause the door to return to the closed position when opened. The minimum clear width of a door opening in a limited mobility toilet stall should be at least 800 mm, measured when the door is in the open position.

t. Stall Door Locks: All toilet stall doors (not just the accessible toilet stall) should be capable of being locked from the inside by a mechanism that is operable with one hand, does not require fine finger control, tight grasping, pinching, or twisting of the wrist, and requires a force of not more than 22 N to activate (e.g., sliding bolt or lever). Toilet stall doors should be capable of being unlocked from the exterior in emergency situations.

u. Toilet Flooring: Toilet flooring should be slip resistant and self draining. Floor drainage outlets/gratings should be located so as to prevent neither obstruction nor tripping potential.

v. Colour Contrast: There should be an appropriate level of colour contrasting between flooring, walls, door, toilet, washbasin and other fittings and all their surroundings.



3.5.1.4 Illustrations

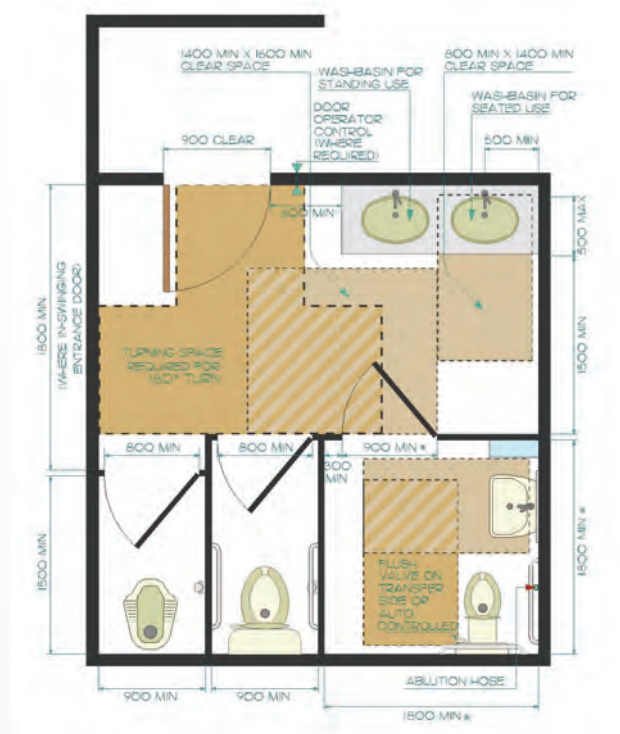


Figure 100: Washroom Dimensions

Note: In a renovation situation where it is technically infeasible to provide the required clearances, the dimensions marked with an asterisk (*) may be reduced. Refer to Section 3.2.1.

Source: UDA & Associates

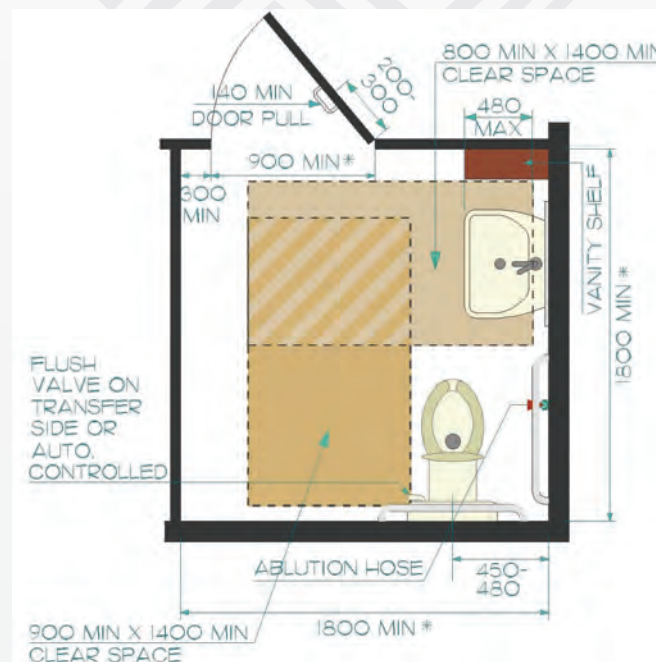


Figure 101: Accessible Toilet Stall – Plan

Source: UDA & Associates





Figure 102: Accessible Toilet Stall

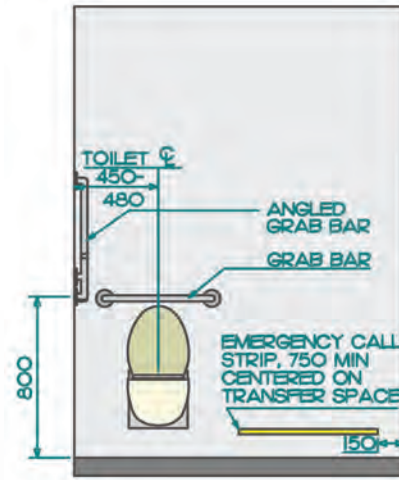


Figure 103: Accessible Toilet Stall

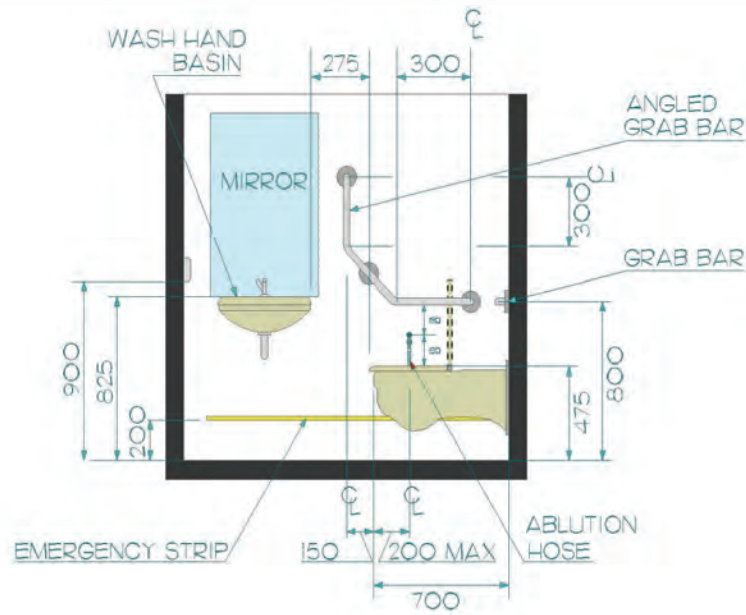


Figure 104: Accessible Toilet Stall

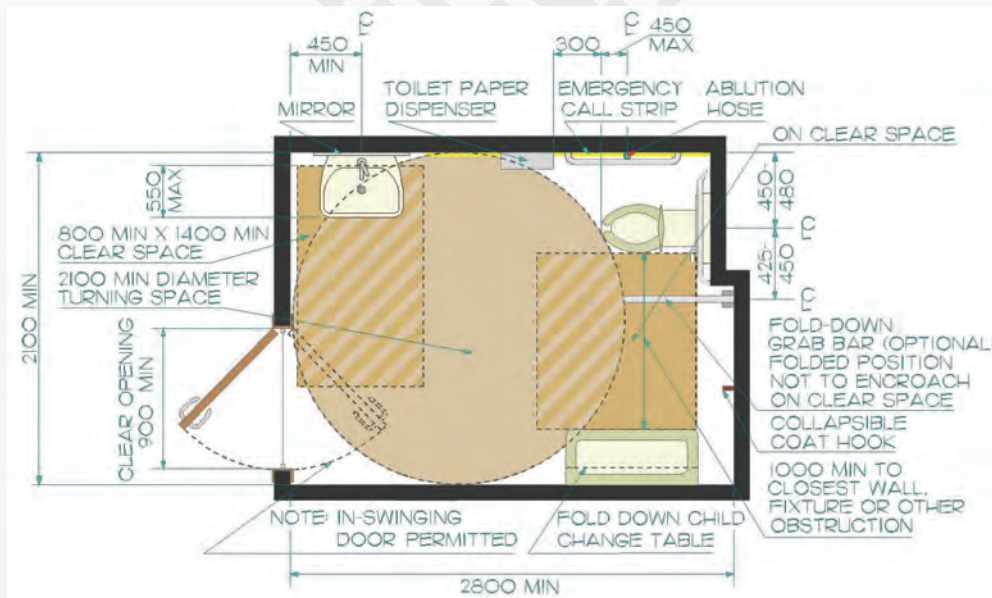


Figure 105: Family Toilet Room

Source: UDA & Associates



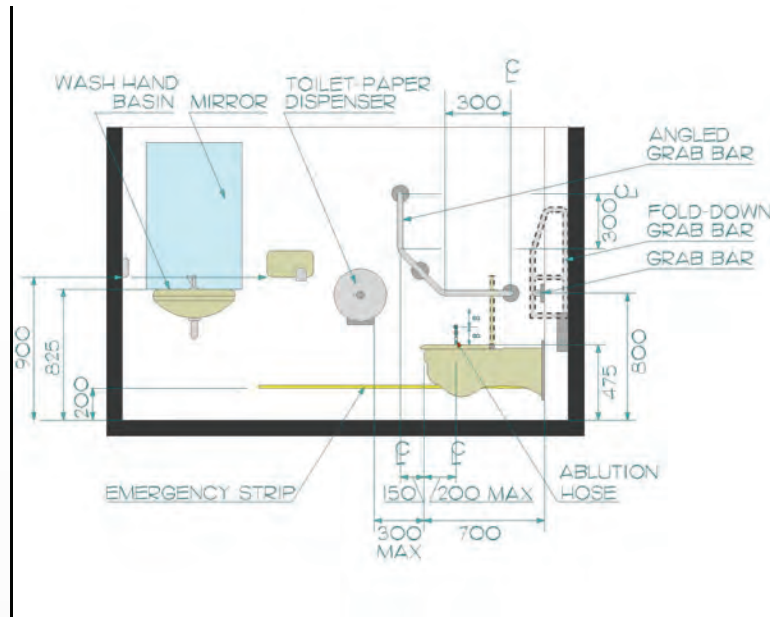


Figure 106: Family Toilet Room

Source: UDA & Associates

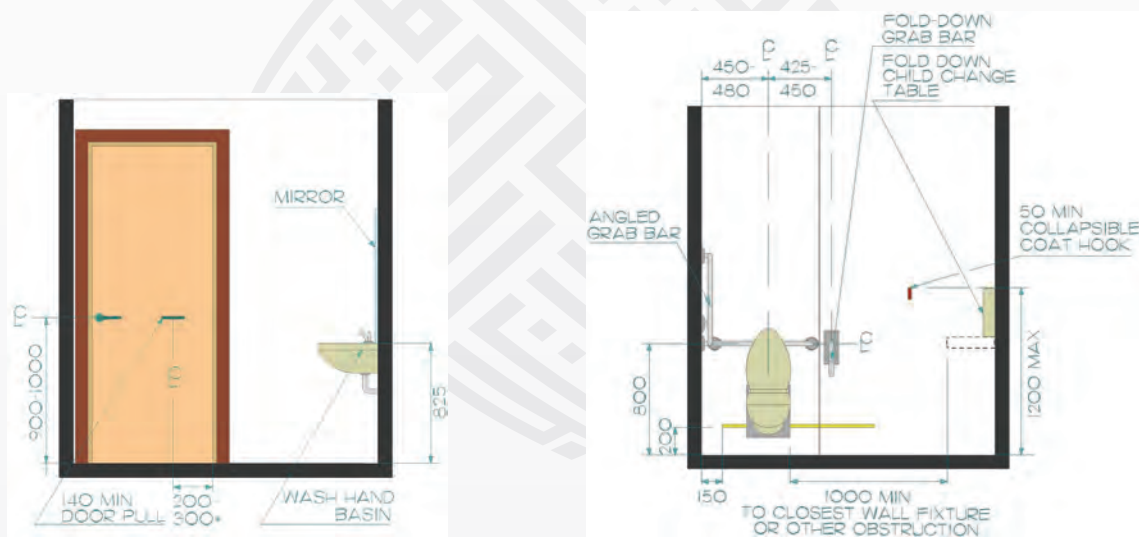


Figure 107: Family Toilet Room

Figure 108: Family Toilet Room

Source: UDA & Associates

3.5.1.5 Other Considerations

- 2.3 Anthropometric Data
- 3.2.3 Protruding and Overhead Objects
- 3.2.8 Doorways
- 3.2.11 Lighting
- 3.5.2 Toilets
- 3.5.5 Washroom Accessories
- 3.5.2 .3 e) Grab Bars





3.5.2 Toilets

3.5.2.1 Design Considerations

Western-style (seated) water closet (WC) fixtures are required within accessible and limited mobility toilet stalls as many persons with disabilities are unable to use traditional (squat) toilets.

Toilet seats which are higher are easier to use for persons with limited strength and/or flexibility.

Whenever possible, automatic flush controls should be installed. When flush mechanisms cannot be automated, level style handles on the transfer side of the W.C. are recommended to accommodate limitations in reach, hand strength and dexterity.

Grab bars should always be installed alongside a WC to facilitate a safe transfer between the toilet and a mobility device and/or provide support for the acts of sitting and standing.

The use of 'high-tech' fully automated toilets should be given consideration as a way to enhance accessibility through automated washing and drying hygiene functions.



Figure 109: Celebrity Cruises Disabled Bathroom Toilet
(Source: Connie George Travel Associates. URL: <http://www.wheelchaircruising.com/> Celebrity Cruises, Mercury. Accessed 20/08/09.)



3.5.2.2 Application Guidelines

At least one accessible water closet should be located in each washroom facility and should comply with this section.

3.5.2.3 Technical Guidelines

a. Toilet Seat: Toilet seats should not be spring-activated. A back support should be provided where no seat lid or tank is included on a water closet. Where provided, water closet tank lids should be securely attached. Stronger toilet seat models that are well anchored should be provided to accommodate persons who are obese.

b. Water Closet: Water Closets should have the top of the seat located between 430-460 mm above the floor and 450-480 mm from the closest side wall, measured to the centreline of the toilet. Wall hung toilets are desired. (Figure 110)

c. Transfer Space: Accessible toilet stalls should have a clear transfer space measuring a minimum of 900 mm wide, extending the full depth of the water closet, located on one side of the water closet. In a renovation situation, either small ferry, larger Cruise Ship, or within shore-based facilities and Terminals, where it is technically infeasible to provide the minimum clear transfer space, the width may be reduced to 800 mm. Clear transfer spaces should be free of obstructions, such as toilet accessories; however, sanitary napkin disposal units may be installed within the transfer space provided they are recessed or protrude a maximum of 100 mm into the transfer space. (Figure 100 and 101)

d. Toilet Flush Controls: Flush controls may be manual or automatic. Where flush controls are automatic, it should include a gentle warning sound and light pre-flush to prevent confusion, alarm, or worry that flushing will not occur. Manual flush controls should be located on the transfer side of the water closet and be colour contrasted with their surroundings.

e. Grab Bars:

Diameter: Grab bars should be 30-40 mm in diameter.

- **Structural Strength:** Grab bars should be capable of resisting a load of at least 1.3 kN applied in any direction when installed.
- **Surfaces:** Grab bars should be free of any sharp or abrasive elements, have a slip-resistant surface, and be colour contrasted with surrounding environment. Adjacent surfaces should be free of any sharp or abrasive elements.
- **Clear Space:** Grab bars should have a clearance of 35-45 mm between the inside surface and wall it is mounted on.





f. Grab Bars in Accessible Toilet Stalls: Two grab bars should be located in each accessible toilet stall. One grab bar should be located behind the toilet, measuring at least 600 mm in length. The rear grab bar should be centred across the toilet fixture and mounted with its centreline 800 mm above the floor and 150 mm above any toilet element located underneath it. The second grab bar should be located on the side wall closest to the toilet fixture. The side grab bar should be of a cranked design, possessing a horizontal component 300 mm long, a 45 degree angled component 300 mm long and a vertical component 300 mm long. The side grab bar should be mounted with the centreline of its horizontal component 800 mm above the floor and the centreline of its vertical component 150 mm in front of the toilet bowl. Grab bars should also comply with e) above (Figure 110).

g. Grab Bars in Limited Mobility Toilet Stalls: A grab bar should be provided on each side wall of the limited mobility stall. Grab bars should be at least 900 mm in length and should be located with their mid-point aligned with the front of the toilet fixture, and mounted with its centreline 800 mm above the floor. Grab bars should also comply with e) above.

h. Toilet Paper Dispenser: Toilet paper dispensers should be mounted on the side wall closest to the water closet. Toilet paper dispensers should be located below the grab bar, but not less than 600 mm above the floor; Clearance between the toilet paper dispenser and grab bar should be a minimum of 60 mm. Toilet paper dispensers should be positioned in line with, but never more than 300 mm in front of, the toilet seat. (Figure 110)

i. Coat Hooks: Toilet stalls should be equipped with a collapsible coat hook mounted not more than 1200 mm above the floor, on a side wall, and projecting not more than 50 mm from the wall.

j. Colostomy Bag: A colostomy changing shelf should be provided to the side of the WC pan.

k. Emergency Call Strip: A waterproof emergency call strip-switch that is a minimum length of 1200 mm should be provided on the side wall adjacent to the toilet fixture. The side emergency call strip should be located at 200 mm above the floor level, beginning 150 mm away from the rear corner of the wall. A second waterproof emergency call strip-switch that is a minimum length of 750 mm should be provided on the rear wall adjacent to the toilet fixture. The rear emergency call strip should be located at 200 mm above the floor level and should be centred on the required transfer space beside the toilet fixture. Emergency call strips should activate a bell or other signalling device that is monitored from a location within the facility. (Figure 103, 104 and 110)



l. Ablution Hose: An ablu-tion-hose should be provided at every toilet fixture, with a wall-attachment for the hose head. The hose-head attachment should be located to the right hand side of the seated user. Ablution hose heads should be positioned no more than 200 mm back from the front edge of the toilet fixture and at a height mid way between the underside of the horizontal component of the side grab bar and the top of the toilet seat. Ablution hoses should have operating mechanism in compliance with Appendix 1: controls and operating mechanisms (Figure 110).

m. Child Size Toilet: In facilities where a many children will be present, one additional accessible stall should be provided with a lower child size toilet fixture.

n. Colour Contrast: Toilet fixtures should incorporate pronounced colour contrast, to differentiate them from the background environment. Grab bars should incorporate pronounced colour contrast, to differentiate them from the surface they are mounted on. The emergency call strip-switch, flush controls, toilet paper dispensers and ablu-tions hoses, should incorporate pronounced colour contrast, to differentiate them from the background environment.

3.5.2.4 Illustratons

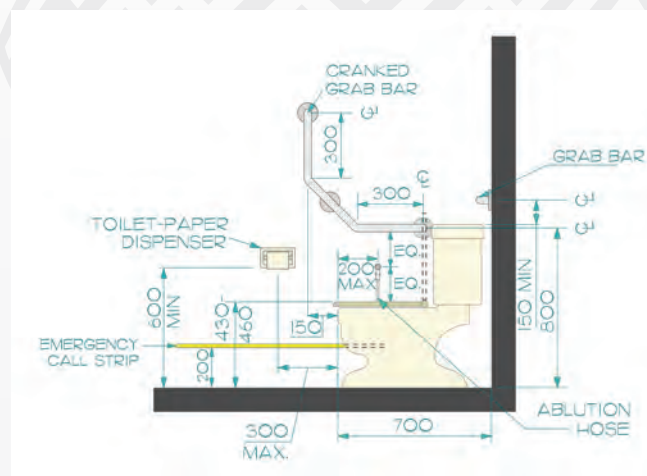


Figure 110: Accessible Toilet
Source: UDA & Associates

3.5.2.5 Other Considerations

- 2.3 Anthropometric Data
- 3.5.1 Onboard Washrooms
- 3.5.3 Washbasins
- 3.5.4 Urinals
- 3.5.5 Washroom Accessories
- Appendix 1 Controls and Operating Mechanisms
- Appendix 4 Illumination





3.5.3 Washbasins

3.5.3.1 Design Considerations

Washbasins should be designed to facilitate the broad range of individuals who will use them. Operating mechanisms should be selected and installed for ease of use. Remote-eye sensor technology provides unparalleled accessibility and convenience, even if it is initially confusing to some users. For persons who have limited hand strength or dexterity, lever-style handles are desirable alternatives. A lowered counter will provide equitable access for children, persons short in stature and those individuals using wheelchairs or mobility devices. When more than one washbasin is provided, a range of counter heights is an optimal solution to address the needs of persons with varying statures. There should be sufficient space under the counter to comfortably accommodate the combined depth of an individual's knees and wheelchair.

Hot water and drain pipes should be insulated to protect the legs of persons using wheelchairs, especially when a person's disability impairs the sensation of heat.

The combination of shallow sinks and strong water pressures can result in unacceptable splashing at washbasin areas, leading to personal discomfort and slipping hazards.



Figure 111: Accessible cabin's roll-under hand basin
(Source: Princess Cruises: Island Princess, from website <http://www.wheelchaircruising.com/princess.html> accessed 20/08/09)





Figure 112: wheelchair accessible bathroom- hand basin
(Source: Photos of Future Inn Cardiff Bay, Cardiff, URL: www.tripadvisor.com)

3.5.3.2 Application Guidelines

All washbasins should comply with this section.

The type and minimum number of washbasins to be provided should comply with Figure 113.

Figure 113: Type of washbasins to be provided

Total number of washbasins provided within the washroom	Washbasin Type	
	Minimum required number of accessible washbasins	Minimum required number of washbasins for standing users
1	1	0
2	1	1
3	1	2
4 or more	At least 50% of the total provided	





3.5.3.3 Technical Guidelines

a. General: Washbasins should be located on an accessible route that complies with Section 3.2.1, 3.2.2.

b. Mounting Location: The top of accessible washbasins should be located no higher than 850 mm above the floor. Washbasins for standing users should have the top located between 900-950 mm above the floor. Washbasins should be located so that the minimum distance between the centre line of the fixture and the side wall is 450 mm. (Figure 114)

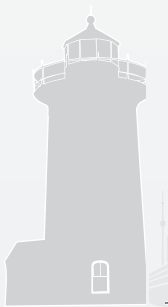
c. Knee Space: Accessible washbasins and vanity counters should have a knee space in compliance with Section 2.3. Drains from accessible washbasins should be offset to maximize clearance under the sink. (Figure 114)

d. Clear floor space: There should be at least 800 mm wide and 1400 mm deep of clear floor space in front of accessible washbasins; the clear space may extend a maximum of 550 mm under the washbasin or counter, measured from the leading edge. (Figure 100)

e. Faucets: Faucets should be electronically controlled or have a single long lever-style handle that is operable with a clenched fist and complies with Appendix 1: Controls and Operating Mechanisms. Faucets at accessible washbasins should not self-close, i.e. stop water flow, unless manually activated to do so. The centre line of a faucet measured to the edge of the basin, or where the basin is mounted in a vanity, to the front edge of the vanity, should not exceed 500 mm. The hot and cold water directions should be marked with colour contrasted and raised letters for easy identification.

f. Dispensers: Dispensers at accessible washbasins, such as soap and towel dispensers, should be located to prevent reaching over the washbasin. Dispensers should be located so that the dispensing height is not more than 1200 mm above the floor. Dispensers should be operable with one hand, be colour-contrasted from the surrounding environment; and comply with Appendix 1: Controls and Operating Mechanisms.

g. Water Temperature: Hot water and drain pipes beneath accessible washbasins should be insulated. Hot water temperature should be limited to a maximum of 45 degrees Celsius.



h. Shelves: Shelves or other projections above washbasins should be installed at a height and depth that eliminates hazards to persons with a visual impairment; refer to Section 3.2.3.

i. Mirrors: Where mirrors are provided at washbasins or vanity units, they should comply with Section 3.5.5 and be located with their bottom edge no higher than 1000 mm above the floor. In renovation situations where a mirror's bottom edge cannot be located lower than 1000 mm, a tilted mirror may be used. (Figure 114)

j. Colour Contrast: There should be colour contrast between wall/washbasin/faucet and wall/soap-dispenser/towel-dispenser/towel-disposal/hand dryer units.

3.5.3.4 Illustrations

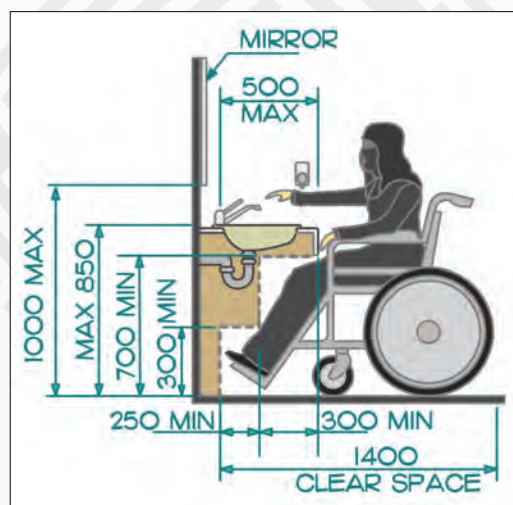


Figure 114: Accessible Washbasin Configuration
Source: UDA & Associates

3.5.3.5 Other Considerations

- 2.3 Anthropometric Data
- 3.5.1 Onboard Washrooms
- 3.5.4 Urinals
- 3.5.5 Washroom Accessories
- Appendix 1 Controls and Operating Mechanisms
- Appendix 4 Illumination





3.5.4 Urinals

3.5.4.1 Design Considerations

The space in front of urinals should be adequately sized to accommodate the operation of a mobility device. Grab bars should be provided on both sides of the urinal to assist a person rising from a seated position and/or holding themselves steady. For children, persons of short stature or those using specialist medical devices (draining: urinal bag/personal medi-care) or mobility devices, a floor-mounted urinal will provide easy and equitable access. It is preferable for flush mechanisms to be automatic, but when this is impractical, lever-style flush controls should be chosen to address limitations in reach, hand strength or dexterity.

The urinal, the wall and the floor should be differentiated with contrasting colours and the exact position of the urinal should be indicated with a tactile and colour-contrasting marker for persons with visual impairments.



*Figure 115: Urinal
Showing a urinal with side and top grab bars, an emergency call button and detectable
floor tactile tiles in front of the secondary urinal with hands-free flushing.
Source: UDA & Associates*



3.5.4.2 Application Guidelines

Where urinals are provided, at least one urinal should comply with this section.

3.5.4.3 Technical Guidelines

- a. Urinal Types:** Accessible urinals should be wall-mounted and include an elongated rim that is located no higher than 425 mm above the finished floor. Alternatively, accessible urinals may be a stall-type urinal, with the rim at the finished floor level. Urinals should be at least 350 mm deep, measured from the outer face of the urinal rim to the back of the fixture.
- b. Clear Floor Space:** A minimum clear floor space measuring 800 mm wide by 1400 mm deep should be provided directly in front of the urinal to allow for a forward approach by a wheeled mobility device.
- c. Urinal Stall Dimensions:** Accessible urinal stalls (where provided) should have internal dimensions at least 1800 mm wide by 1800 mm deep. In a renovation situation where providing the required internal dimension is technically infeasible, the internal dimensions may be reduced to 1500 mm wide by 1500 mm deep.
- d. Urinal Stall Doors:** Accessible urinal stall doors should be provided with a clear opening width of at least 900 mm when the door is in the open position. In a renovation situation, where it is technically infeasible to provide the required clear opening, the clear opening may be reduced to 850 mm. Doors should swing outward, unless clear floor space is provided within the stall for a wheelchair, that does not overlap with the door swing. Stall doors should be equipped with gravity hinges that cause the door to return to the closed position when opened.
- e. Urinal Stall Door Locks:** Door locks should be provided on urinal stall doors and should be capable of being locked from the inside by a mechanism that is operable with one hand, does not require fine finger control, tight grasping, pinching, or twisting of the wrist, and requires a force of not more than 22 N to activate, for example a sliding bolt or lever. Urinal stall doors should be capable of being unlocked from the exterior in the case of an emergency.
- f. Urinal Flush Controls:** Urinal controls may be manually or automatically activated and should comply with Appendix 1: Controls and Operating Mechanisms. Manual flush controls should be mounted at maximum height of 1100 mm above the floor.





g. Grab Bars: Grab bars should be provided on both sides of the urinal. Grab bars should be a minimum of 600 mm in length and comply with Section 3.5.2.3 e). Grab bars should be mounted no more than 375 mm away from the urinal, measured from the centre line of the urinal, and the lowest surface of a grab bar should be located between 600-650 mm above the floor.

h. Ablution hose: An ablation hose should be provided at an accessible urinal, with a wall-attachment for the hose head. The hose head should be located on the right-hand-side of the urinal, mounted 900-1100 mm from the floor. Ablution hoses should have operating mechanisms that comply with Appendix 1: Controls and Operating Mechanisms.

i. Vertical Markers: A vertical marker should be provided above urinals that projects from the surrounding surface a minimum of 3 mm and is colour contrasted to the surrounding surfaces. Vertical markers should be located so that they are centred across the urinal and with their bottom edge located a minimum of 150 mm above the top of the urinal. Vertical markers should be no less than 50 mm wide and extend to a minimum height of 1300 mm above the floor level.

j. Colour Contrast: There should be pronounced colour contrast between wall/urinal, wall/flush controls and wall/grab bars.

3.5.4.4 Illustrations

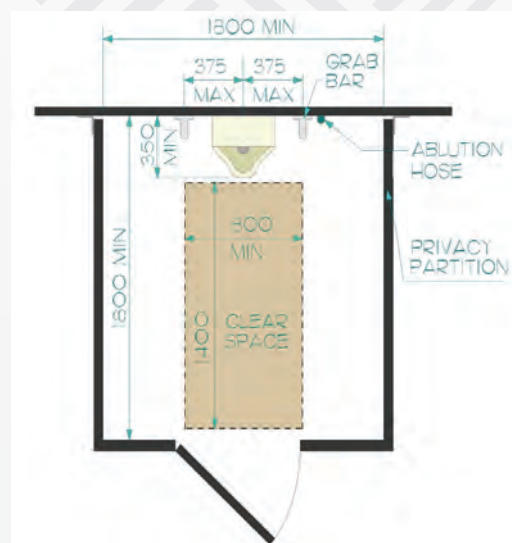


Figure 116: Urinal Stall
Source: UDA & Associates



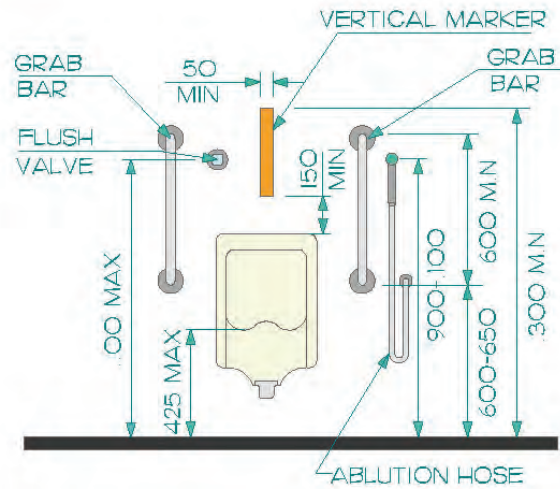


Figure 117: Urinal Elevation
Source: UDA & Associates

3.5.4.5 Other Considerations

- 2.3 Anthropometric Data
- 3.5.1 Onboard Washrooms
- 3.5.3 Washbasins
- 3.5.5 Washroom Accessories
- Appendix 1 Controls and Operating Mechanisms
- Appendix 4 Illumination





3.5.5 Washroom Accessories

3.5.5.1 Design Considerations

All toilet accessories should be designed to accommodate the full range of potential users. The operating mechanisms of accessories should account for limitations in hand strength and dexterity, while the placement of accessories should address the limited reach range of persons in wheelchairs or mobility devices, children, and persons of short stature. Accessories that require two hands to operate are problematic to persons who experience difficulties with reach or balance. Accessories in a toilet facility should be laid out logically, conveniently, and consistently in order that a person with a visual impairment may anticipate and easily find the location of accessories such as hand soap dispensers, paper towel dispensers or hand dryers, garbage cans etc.

Furthermore, it should be a design objective to attempt to have no free-standing objects (garbage bins, toilet cleansing brushes, room cleansing equipment or anything similar needed for permanent inclusion as a room equipment item) on the floor of the compartment: not only are such objects potential hazards to persons with impaired mobility of any kind, but they also restrict the ease with which the floor area may itself be cleansed, maintained and drained.

3.5.5.2 Application Guidelines

All toilet accessories provided within accessible toilet or bathing facilities should comply with this section.

In a renovation situation, where it is technically infeasible to have all toilet accessories comply with this section, at least one of each type of washroom accessory should comply with this section.

3.5.5.3 Technical Guidelines

a. Operable Mechanisms: Toilet accessories should have operable portions and controls mounted 900-1200 mm above the floor. The operable controls and mechanisms should comply with Appendix 1: Controls and Operating Mechanisms. (Figure 118)

b. Clear Floor Space: A clear floor space measuring a minimum of 800 mm wide by 1400 mm deep should be provided In front of each accessory provided. Clear floor spaces of adjacent toilet accessories are permitted to overlap.



c. Mirrors: When mirrors are provided, at least one mirror should be inclined and vertically adjustable by a person using a wheelchair, or mounted with its bottom edge at a maximum height of 1000 mm above the floor.

d. Soap Dispensers: At least one soap dispenser should be mounted near the front edge of a washbasin that has reach requirements in compliance with Section 2.3.

e. Paper Towel Dispensers / Hot Air Hand Dryers: At least two paper towel dispensers and/or hot air hand dryers should be provided in accessible facilities, mounted at different heights above the floor. One unit should be mounted at a maximum height of 1200 mm above the floor, measured to its centreline, and the second unit should be mounted at a maximum height of 1500 mm above the floor, measured to its centreline. Paper towel dispensers and/or hot air hand dryers may be manually or automatically activated; although automatic is the preferred method.

f. Baby Change Tables: Where baby change tables are provided, they should be of a fold-down type with the change surface located no higher than 850 mm above the floor. No operable mechanisms of the baby change tables should be located higher than 1200 mm above the floor. The change table should be designed to carry a minimum load of 1.33 kN (300 lbs). A shelf for a diaper bag should be provided and located to provide reach requirements that comply with Section 2.3.

g. Garbage Containers: The Garbage container should be located in proximity to washbasins and located so that it, or use of it, does not block access to or use of other washroom facilities and accessories. Garbage containers may be free standing or either wall-mounted or recessed units (which are preferred). Openings in garbage containers should be located between 900-1000 mm above the floor.

h. Colour Contrast: Colour contrast should be provided between accessories and surrounding surfaces.





3.5.5.4 Illustrations

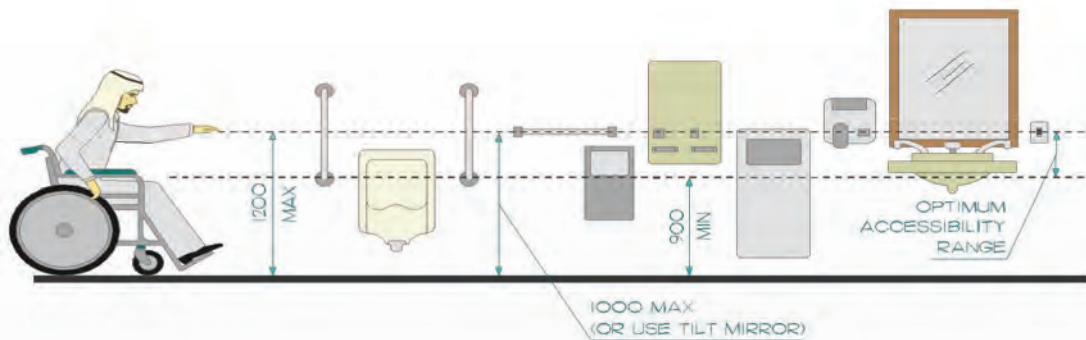


Figure 118: Washroom Accessories
Source: UDA & Associates

3.5.5.5 Other Considerations

- 2.3 Anthropometric Data
- 3.2.3 Protruding and Overhead Objects
- 3.5.1 Onboard Washrooms
- 3.5.3 Washbasins
- 3.5.4 Urinals
- Appendix 1 Controls and Operating Mechanisms
- Appendix 4 Illumination



3.6.1 Onboard Restaurants, Cafeterias and Snack bars

3.6.1.1 Design Considerations

Restaurant and bar areas pose significant obstacles to persons with varying degree of functional limitation e.g.

- a. For persons with functional visual limitations, the set-up of furniture, and the internal environment of these areas may be confusing.
- b. For persons with functional hearing limitations, the background din and music being played in such facilities may be problematic.
- c. For persons with functional physical/ mobility limitations, access to tables, buffets (where supplied), counters etc. may pose problematic

3.6.1.2 Application Guidelines

This part should apply to all on-board restaurants and bars.

3.6.1.3 Technical Guidelines

- a. **Clear unobstructed routes provided:** Main routes need to be free of obstacles and clearly identified by contrasting colors and textures to enable easy access for guests with functional visual limitations. Refer to 3.2.1, 3.2.2.
- b. **Fixed slip-resistant floor surface:** There should be, for example, wooden tiles or close-pile carpet no longer than 13 mm to ensure that persons with functional mobility limitations do not injure themselves.
- c. **The clear opening between the door leaf, open at 90 deg. and the opposite frame edge should be 900 mm minimum.**
- d. **Door handles:** All pull-handles on doors should be of a “D”-shaped configuration, at least 120 mm in length and easy to grasp so that wheelchair users may easily open and close doors.





e. Unobstructed width of 900 mm between fittings and furniture. At best this should be 1200 mm. This ensures that the wheelchair user may pass without obstruction.

f. Table height: At least 5 per cent of the tables in each cafeteria should have a height and surface that permits use by a person in a wheelchair. These tables should be designated by signage for use by persons who use wheelchairs. See section 3.2.9. (CTA, 1999)

Tables should be 800 mm high tables with 760 mm clear space below. This ensures that the wheelchair user has adequate leg space under the table without obstruction.

g. A lowered section of the buffet/servery area and service available on request. The permanent lower section of a buffet or servery must be at a height of 800 mm to enable wheelchair users to comfortably reach whatever is being served without any obstruction.

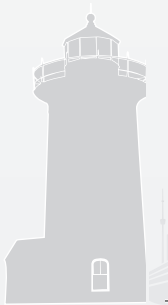
h. Service animals should be permitted in restaurants, cafeterias and other Service Counters. (DPTAC, 2000)

i. Lighting should be positioned to minimize glare. Guests with functional visual limitations must be able to clearly distinguish between different obstacles and a glare can cause confusion.

j. Colour contrasting tableware: Tableware to contrast with table surface or tablecloth. Tableware should contrast with the table in order for the guest with a functional visual limitation to clearly differentiate.

k. Information and menus in multiple formats: Menu display boards should be large enough and positioned to avoid shadow areas and glare and in a manner that they can be easily seen by a person in a wheelchair. All information needs to be in multiple formats for guests with functional visual limitations for example, large print and Braille versions. Large print version should be in 14 point or larger sans serif type with dark characters on a light background. The Braille version should be in Grade Two Braille that meets standards such as the Canadian Braille Authority in English, and Braille in the local language (CTA, 1999) Staff must offer to read the menu if necessary.

l. Orientation: Staff to provide orientation for table setting and the food position on the plate. Staff must provide guests with functional visual limitations with an orientation of exactly where everything is on the table in order for that guest to create a mind map.



m. Assistance from staff: Staff should be available to assist guests.

n. Noise & Background Sound: music in restaurants/bars/lounge areas should be avoided or kept at a low level. Good illumination is also very important. This will facilitate communication for guests with functional hearing limitations, who may or may not use hearing aids.

The design of interiors should obtain acoustic specialist advice with regard to the selection and deployment of sound absorbing materials to avoid the spread of reverberant sound, which will be perceived as Noise by those with hearing difficulties. Design environments with high proportions of hard and sound-reflective surfaces should be avoided.

o. Induction loops/listening devices/sub-titles: Where televisions are provided in public areas such as cafeterias, restaurants or bars, induction loops supplied and/or TV listening devices made available. TV extension headsets or earphones can be used by guests with functional hearing limitations. Inductive loop extensions are useful for users of hearing-aids. Where sub-titling is available, especially on video systems, this should be activated.

3.6.1.4 Illustrations

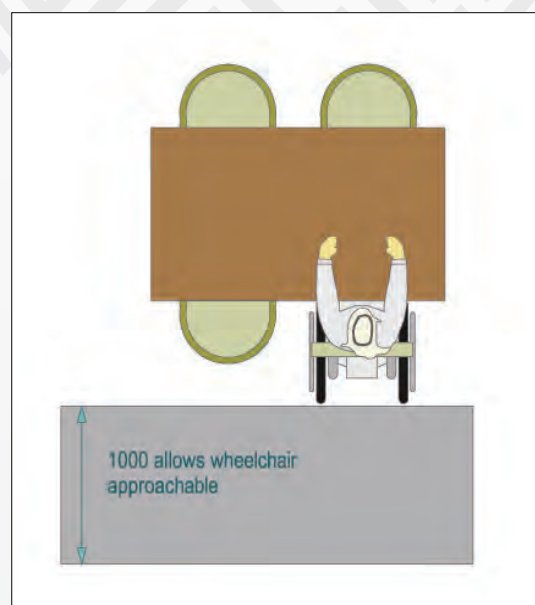


Figure 119: Table Layout 1
Source: UDA & Associates



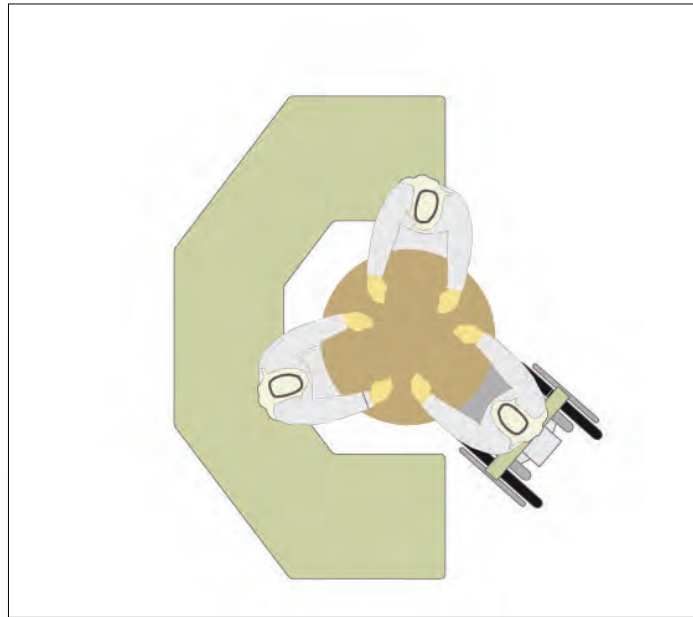


Figure 120: Table Layout 2
Source: UDA & Associates



Figure 121: Lowered buffet and tray counters are important for accessibility
Source: UDA & Associates



3.6.1.5 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.9 Signage
- 3.8.3 Accessibility of Print
- 6.3.2 Waiting and Queuing Areas





3.7

Individual Safety Briefing for Passengers who are Blind and Deaf

3.7.1 Individual Safety Briefing

3.7.1.1 Design Considerations

All passenger vessels should be required to brief all passengers on safety/evacuation proceedings. Individuals who have a sensory impairment such as visual or auditory, will not be able to understand the proceedings to the same capacity as passengers who do not have these impairments. They therefore require alternative forms of briefings.

3.7.1.2 Application Guidelines

This part should apply to all safety briefings on all passenger vessels.

3.7.1.3 Technical Guidelines

a. Multiple formats: All ferry operators should make readily available, in large print and Braille version, supplemental passenger briefing cards for individuals who are visually impaired. There should also be a version provided in caption-form on a television screen for individuals who are hearing impaired. It is strongly recommended that passengers who require this should also receive a personal briefing. (CTA, 1999)

b. Readily available: These alternative safety briefing cards/captions should be available on all decks. It is recommended to supply at least 2 per deck. The large print version should be available in 14 point or larger sans serif type with dark characters on a light background and in Braille in both Arabic and English. (CTA, 1999)

3.7.1.4 Other Considerations

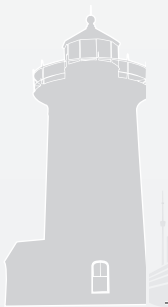
3.7.2 Safety Announcements

3.8.1 Information and Announcements – Maritime Vessels and Facilities

3.8.2 Accessibility of Information in On-Board Facilities

3.8.3 Accessibility of Print

3.8.4 Provision of Tourism-Related Information in Multiple Formats



3.7.2 Safety Announcements

3.7.2.1 Design Considerations

Safety announcements are required on all vessels.

3.7.2.2 Application Guidelines

This part should apply to all safety announcements on all passenger vessels.

3.7.2.3 Technical Guidelines

- a. When to announce: Before the vessel leaves its berth, safety announcements must be given over the public address system. These announcements include details of emergency arrangements such as donning of lifejackets, but should be complemented by a simultaneous video, wherever practicable.
- b. Safety information location: The location of safety instruction information in its multiple forms should be made known to all.
- c. Mock evacuations: Evacuation arrangements vary considerably between ships and crews should take part in regular exercises to train them in assisting disabled passengers.
- d. Induction Loops should be fitted and screened to avoid causing interference with the ship's systems. (DPTAC, 2000)

3.7.1.4 Other Considerations

- 3.7.1 Individual Safety Briefing
- 3.8.1 Information and Announcements – Maritime Vessels and Facilities
- 3.8.2 Accessibility of Information in On-Board Facilities
- 3.8.3 Accessibility of Print
- 3.8.4 Provision of Tourism-Related Information in Multiple Formats





3.8 Onboard Public Information and Communication Facilities (PA Systems, Monitors, E-Boards)

3.8.1 Information and Announcements – Maritime Vessels and Facilities

3.8.1.1 Design Considerations

The provision of accessible information and announcements is important to ensure maximum exposure of information and announcements to all users groups.

3.8.1.2 Application Guidelines

This part should apply to all information and announcements on marine vessels and in marine facilities which are intended for public dissemination. Information should be available audibly, visually in form of captions and/or in the form of sign language.

3.8.1.3 Technical Guidelines

- a. Multiple formats: Port and ferry operators should make leaflets available to persons with disabilities covering the facilities available at ports and on ships. Such written material should conform to the requirements regarding print guidelines.
- b. Safety announcements should cater for persons with functional hearing limitations by being complemented by video or staff demonstrations. The design of safety signage used throughout the vessel should consider the requirements of persons with disabilities, especially in respect of lettering, size and height.
- c. Audible Information: Audible messages should be made in a clear voice with good diction. Messages should be well-structured, with the key words at the beginning to attract attention. Use plain language and avoid jargon and technical terms.
- d. Visual Displays: Visual display units should be positioned at a height which enables passengers to get close. The VDU or electronic display should have a non-reflective surface. Light colored text against a dark background assists readability. The text should be bright and in a clear font.



e. Dual-Sensory Loss: A small number of persons have both functional visual and functional hearing limitations. They will not be able to access information by any of the means listed above other than possibly Braille. It is recommended that a member of staff receive training in use of the deaf blind alphabet. This is a simple system, which can be easily learnt. As a member of staff is unlikely to use a deaf blind alphabet regularly, they should carry an instruction card to assist them. (DPTAC, 2000)

f. If it is not possible to have monitors or screens in certain locations such as public toilets or inside cars on car decks, the announcements should still be audible, and this may require specialist design advice to ensure the appropriate spread of audio PA announcements, especially in reverberant environments.

3.8.1.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.9 Signage
- 3.7.1 Individual Safety Briefing
- 3.7.2 Safety Announcements



3.8.2 Accessibility of Information in On-Board Facilities

3.8.2.1 Design Considerations

See Section 3.8.2.3. below.

3.8.2.2 Application Guidelines

This part should apply to:

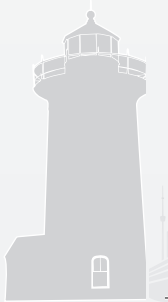
1. a. All safety information presented on-board marine vessels, including – though not limited to – safety and emergency procedures.
2. b. All entertainment provided on-board marine vessels.
3. c. All other information provided on-board intended for public display or dissemination.

3.8.2.3 Technical Guidelines

a. On-board Orientation/General: Some travelers require extra assistance in locating the call buttons, the on-board washroom features or the safety briefing material. Taking the time to provide a thorough orientation to passengers who require it may prevent confusion about how to use the features on-board during the trip. To make use of these on-board features, passengers also require information about the equipment in a format that they can understand.

b. Safety and Emergency Procedures: By presenting safety information visually and verbally the risk of misinformation regarding safety features and procedures is greatly reduced. One way to do this is to ensure that the audio component of the safety message is represented in visual images by checking that the safety message is complete when either the audio or the video image is turned off. This presentation of information can help all passengers remember and understand the instructions in the safety video and is critical to passengers with functional hearing limitations. Another way that this can be accomplished is by captioning safety videos. Captioning is particularly helpful to travelers with functional hearing limitations and reassures them that they have not missed any critical safety information.

c. Emergency Procedures: All information relating to emergency procedures, etc. should be accessible to persons with functional learning, cognitive and visual limitations. Other printed material e.g. dinner menus shall be accessible to persons with functional visual limitations through the use of large print, Braille or audible relaying of such information.



d. Entertainment: Films and other programmes should be sub-titled for persons with functional hearing limitations.

e. Provision of Information for Persons with functional learning and visual limitations: The current practice of using pictures generally meets the requirements of people with functional learning and cognitive limitations. For persons with functional visual limitations, Braille and Large Print formats should be made available. Cabin crew should also be trained to assist by reading / explaining the contents if requested to do so.

f. Provision for sub-titles: Where video, or similar systems, are used to communicate safety or emergency information, sub-titles should be included to supplement any audio commentary. The need for sub-titles will be minimized if the video programme is produced without the need for audio commentary e.g. a video relying solely on pictures. It will also assist persons with learning or cognitive disabilities and sign-language users. A separate audio description would, however, still be required for persons with functional visual limitations.

g. Announcements: All emergency announcements and others relating to changes to the schedule, connections and on-board services shall be made visually and orally available to persons with disabilities who request such services.

h. Audio Entertainment Systems: Audio systems should be compatible with the “T” switch on hearing aids worn by persons with functional hearing limitations.

i. Multiple formats: Upon request, crews on-board passenger vessels are to give oral, written or visual information about the equipment features of the vessel (e.g. the location and function of call or control buttons at seating, and washroom features) to passengers with disabilities. This information should also be made available in multiple formats, where possible.

3.8.2.4 Other Considerations

- 3.2.9 Signage
- 3.2.10 Symbols, Graphics and Pictograms
- 3.7.1 Individual Safety Briefing
- 3.8.3 Accessibility of Print
- 3.8.4 Provision of Tourism-Related Information in Multiple Formats
- 3.9.1 Emergency exits, Fire evacuation and areas of rescue assistance





3.8.3 Accessibility of Print

3.8.3.1 Design Considerations

For persons with functional sensory, cognitive and communication limitations, the format and accessibility of print in documentation is vital.

3.8.3.2 Application Guidelines

This part should apply to all documentation, physical or electronic print, to be compliant with this part. The part should only require information that is to be made available to the general public to comply with this part in its whole; private or internally distributed information at government organizations, at tour agencies and similar uses need not consider compliance, though the guidance put forward may be applicable.

3.8.3.3 Technical Guidelines

a. Usage of sans serif fonts: sans serif fonts do not have any serifs (i.e. tails that finish off the stroke of the letter).

- An example of a sans serif font is ARIAL
- Examples of serif fonts are TIMES NEW ROMAN, GARAMOND and CG TIMES.
- Complicated or decorative fonts should be avoided. Similarly roman numbers should not be used as many people do not understand what they mean (Bloch & Hoyt, 1992: 17).
- Some numerals can be misread when the tails curl over (Gill, 1997: 23). Some sans serif fonts are like this:

(i) 3 5 6 8 9 and 0
(with curled over tails can be misread)

(ii) 3 5 6 8 9 and 0
(without curled over tails) are less likely to be misread.

b. Font size: Use of a font size between 14 and 18 allows persons with functional visual limitations to read the document.



c. Presentation of Information: Information should be presented in a clear and simple format. Avoid use of italics or outlining when using a visual display of information:

- Italics can be harder to read because the italic lettering makes it difficult to distinguish letters from one another.
- Bold text should be used sparingly. Using shadowing also makes it more difficult to distinguish information on signs or travel documents.
- USING ALL CAPITAL LETTERS MAKES IT DIFFICULT TO DIFFERENTIATE BETWEEN DIFFERENT WORDS. THIS IS ESPECIALLY THE CASE WHEN BOTH BOLD TEXT AND CAPITAL LETTERING ARE USED TOGETHER.
- Contrast: Using good color contrasting is also important. If information appears on a background that is similar to that of the text, it will take longer to understand the information on the document or sign. The two graphics that follow (Figures 121 and 123) illustrate how information should appear on a sign. The first picture shows dark-colored text on a light background. The second picture shows light-colored text on a dark background.
- Use the highest possible contrast between print and background. High contrast helps provide good resolution which in turn assists in character recognition. Black on white should be used if possible – dark blue or dark brown are also acceptable. Avoid using red or green print.
- The boldness of lettering and the distance between the letters should be chosen so that the shapes and intermediate spaces are clearly recognizable. Large print readers may make use of the patterns of space around each character rather than the letters themselves.

d. The horizontal spacing between characters should be 25% to 50% of characters within a word and 75% to 100% between words (Woodson, 1981).

e. Line Spacing: the vertical spacing between lines should be at least 50% of character height (Woodson, 1981).

f. Display Time / Scroll Rate on Electronic Media: Scrolling information is very difficult for a person with a functional visual limitation; therefore text should be displayed in a fixed manner if possible (Gill, 1997: 23). If scrolling is used, information should be left on the screen for at least twice the normal reading time (Harris & Whitney, 1993). A fixed time of about 10 seconds is





likely to avoid confusion (Barham, 1994) so a display time of 10 to 20 seconds should be used.

g. Glare: Glare can cause discomfort and reduce readability of information on a display. It can be caused by a variety of factors including reflection of light from the display surface or surfaces surrounding the display, light emitted from the display itself and the illumination in the area of the display. It is recommended that a test be conducted of a prototype of the display in the intended location under all expected lighting conditions. To control glare, the following could be considered (Hunter-Zaworski & Watts, 1994: 33):

- i. Placement of displays in relation to lighting sources;
- ii. Selection of materials for floors, wall and ceilings which limit reflection;
- iii. The use of glare-reducing screen treatments.

i. Placement of Text: Type should not run across photographs or illustrations. This can limit the contrast and confuse the eye (Gill, 1997: 22).

j. Column Width: Column width is an important factor that affects readability. If lines of type are too long the eye has difficulty in finding its way back to the beginning of the next line. A maximum of 8 words per line is recommended for continuous text on a screen (Gill, 1997: 23).

k. Formatting of text: Unjustified right-hand margins are helpful to people with functional visual limitations. Avoid splitting words at the end of sentences (Gill, 1997: 23).

l. Navigation of electronic information: Navigation should be clear and consistent. Color and shape can help. Icons and imagery are useful for persons with functional literacy limitations and help to minimize the need for translation. To feel comfortable and be willing to experiment, the user must know they can always backtrack to undo any mistake (Schofield and Flute, 1997: 38).

m. Icons: Ensure that icons are recognizable by all expected users. International symbols should be used where possible although it can be surprising how few people know these symbols or their meaning (Schofield and Flute, 1997: 37). Labels placed beside symbols or icons can be helpful but care should be taken not to clutter the page with too much information.



3.8.3.4 Illustrations



Figure 122

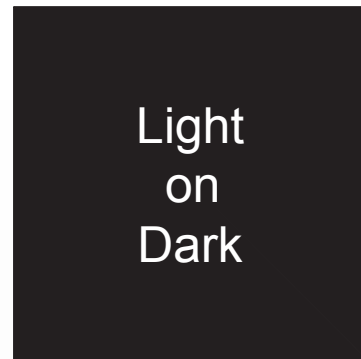
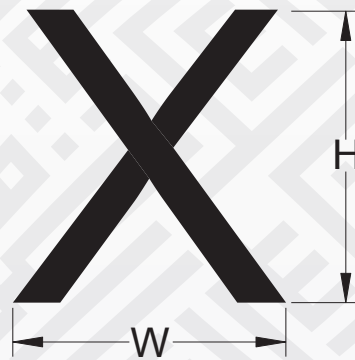


Figure 123

Source: UDA & Associates

Width-to-height ratios should meet the criteria in the images below:

i. Width



Ratio of width to height for an upper case letter “X” should be between 3:5 and 1:1. Fonts for an upper case X should not be wider than they are tall (TDC, 1996).

i. Height

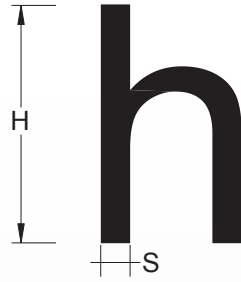


Ratio for the height of a lower case letter ‘x’ to the height of an upper case letter ‘X’ should be about 3:4 (lower case letters should be about 75% the height of upper case letters).





ii. Weight



The stroke width to height ratio should be between 1:5 and 1:10. Text should not be too thin and light or too heavy.

3.8.3.5 Other Considerations

- 3.2.9 Signage
- 3.2.10 Symbols, Graphics and Pictograms
- 3.7.1 Individual Safety Briefing
- 3.8.2 Accessibility of Information in On-Board Facilities
- 3.8.4 Provision of Tourism-Related Information in Multiple Formats



3.8.4 Provision of Tourism-Related Information in Multiple Formats

3.8.4.1 Design Considerations

The variety of user groups of tourism-related information requires that information cannot be presented in a single format only; in order to ensure the maximum accessibility to and of information, it is necessary to adopt a best practices approach focusing on the usage of multiple-formats. This will ensure the e.g. persons with blindness, are able to obtain and assimilate information through reading Braille. Where multiple formats are not made available, certain segments of the population will be excluded from making use of the material or accessing information.

3.8.4.2 Application Guidelines

This part should be deemed to apply to all tourism-related information, whether produced by governmental organizations or by organizations and individuals in the private sector. It should be deemed to apply to external/ public information only.

3.8.4.3 Technical Guidelines

a. Definition of Multiple Formats: formats that substitute or complement conventional print and video products and that address the communication needs of persons with functional visual or hearing limitations and persons with functional cognitive limitations. These include – though are not limited to – the following: computer diskette or electronic copy, large print, audio tape, Braille, captioned video, sign language video and described video.

b. Rationale: Not everyone is capable of reading traditional print. Creating a multiple format policy and guideline provides travelers and personnel what information is available in which format and how much time is necessary to obtain a copy.

c. Large Print: Many people with functional visual limitations can read large print. Documents can be converted to large print without the use of outside services. Large print documents are often produced using a non-italic sans serif font such as Helvetica, Arial or Verdana in 16-point to 18-point type. It is very important to assess individual preferences about font type and size. Non-glossy light yellow or off-white paper is best to reduce glare. To obtain maximum results the following guidelines should be adopted :





- It is preferable that the paper is a standard A4 i.e. 297 mm x 210 mm. Larger paper may be used, but care should be taken to ensure that the document does not become too bulky, thus making it difficult to read.
- The best contrast with the least glare is achieved on very pale yellow or cream-colored paper. Do not use dark colors and shades of red.
- Remove formatting codes that can make reading more difficult .
- There is no standard typeface or point size. For more universal access, use 16 – 18 point type. Use a good strong bold typeface.
- Use upper and lowercase letters.

d. Braille: Braille is a system of reading by touch using raised dots that are arranged to represent letters. Not all people who are blind can read Braille. If Braille is requested, most Braille transcription services require receipt of materials in advance, at least two weeks is typical.

e. Materials on Disk: Persons with functional visual limitations may prefer materials on disk so they can use computers to access the materials via speech output or text magnification.

f. Cassette Recordings: Where provided for use by persons with functional:

- cognitive or visual limitations, should comply with the following requirements
- The reader should be proficient in the language being recorded.
- The reader should be familiar with the subject. Someone who is somewhat familiar with the technical aspects of a product but who can explain functions in ordinary language would be a logical person to record an audio cassette.
- The reader should have good diction. Recording should be done in a conversational tone and at a conversational pace; neither too slow nor too fast.
- The reader should be familiar with the material to minimize stumbling and hesitation.
- The reader should not editorialize. When recording a document, it should be read in full. Graphic and pictorial information available to readers without functional visual limitations should be described in the narrated text. Tables and charts whose contents are not already contained in the text should be converted into text and included in the recording.
- The reader should spell any difficult or unusual words and words of foreign origin.
- At the beginning of the tape, identify the reader, i.e. “This document is being read by John Smith”.
- On each side of the tape, identify the document and the page number where the reader is continuing, i.e. “tape 2, side 1, Guide to Barrier Free Meetings, continuing on page 75.”



For users with functional visual limitations, all cassettes should be labeled in Braille so that they can easily be referenced in the appropriate order.

3.8.4.4 Illustrations



Figure 124: Wall-Chart indicating Braille and Large Print

Source: Special Needs Computer Solutions, 2009

3.8.4.5 Other Considerations

- 3.2.9 Signage
- 3.2.10 Symbols, Graphics and Pictograms
- 3.7.1 Individual Safety Briefing
- 3.7.2 Safety Announcements
- 3.8.1 Information and Announcements – Maritime Vessels and Facilities
- 3.8.2 Accessibility of Information in On-Board Facilities
- 3.8.3 Accessibility of Print
- 3.11.1 Arrival / Departure Monitors and Other Electronic Signage





3.9 Emergency and evacuation information and procedures

3.9.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance

3.9.1.1 Design Considerations

All passenger and non-passenger vessels require a safe way of evacuating their passengers in an effective and timely manner. It is essential to design, for all marine vessels, effective evacuation escape routes, which should reduce any congestion and confusion of passengers and crew as to when and how they should abandon the ship in an emergency event.

Emergency exit doors should be fully accessible, as per the specifications outlined for other doors in section 3.2.8. All routes of emergency travel should be marked in a way that is understandable to all individuals, including those who may have difficulty with literacy, such as children or persons speaking a different language. For persons with a visual impairment, an audio or talking sign is a functional tool for locating exits quickly. Refer section 3.2.9. In the event of fire when elevators cannot be used, an area of rescue assistance can be a life-saving respite for persons who have difficulty negotiating stairs.

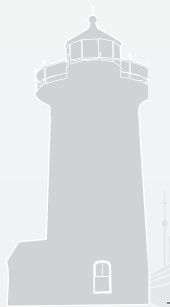
The emergency evacuation plan of the vessel should directly address the safety of any passengers with reduced mobility in case of an emergency.

The vessel operator should determine the number of passengers with reduced mobility, or how many as a proportion of the total passengers, that can be safely carried on board under normal operating conditions with due consideration to emergency situations.

3.9.1.2 Application Guidelines

a) **In facilities or portions of land and shore-based facilities** required to be accessible, accessible exits should be provided in the same number as the minimum number of exits required by the Kingdom of Saudi Arabia Building Code.

Where an accessible exit from a floor level does not provide level access to the exterior, an area of rescue assistance should be provided instead.



The minimum number of rescue spaces to be provided in each area of rescue assistance should comply with Figure 125.

A horizontal exit meeting the requirements of the Kingdom of Saudi Arabia Building Code will satisfy the requirements for an area of rescue assistance.

Figure 125: Number of Rescue Assistance Spaces

Occupant load of the floor area served by the area of rescue assistance	Minimum number of rescue spaces in each area of rescue assistance.
1 to 400	2
Over 400	3 plus 1 for each additional increment of 200 persons in excess of 400 persons

All areas of on-shore rescue assistance should comply with this section.

b) On-board code (Escape and Evacuation) requirements, DPTAC. 2007 refers, together with developed and developing specialist national and international codes for marine vessel's design.

3.9.1.3 Technical Guidelines

a. Emergency Warning Systems: Emergency warning systems should include both audible alarms and visible alarms that comply with Section 3.9.2 Emergency Alarm Systems.

b. Identification Signage: Accessible means of egress should be identified with signage that complies with Section 3.2.9.

c. Areas of Rescue Assistance – Accessible Route: Areas of rescue assistance should be located on accessible routes that comply with Section 3.2.1, 3.2.2.

d. Areas of Rescue Assistance –Area of temporary refuge:

- Vessels with more than two passenger decks (with the exclusion of car decks) should make provision for areas of temporary refuge. These areas are where people who are unable to use stairs may remain temporarily to await further instructions or assistance during emergency evacuation. At least 1 wheelchair for every 100 passengers with a minimum of 2 wheelchairs should be accommodated here. (DPTAC, 2007)





- Each area of temporary refuge should be easily identifiable by a tactile sign stating “Area of Temporary Refuge” and including the International Symbol of Accessibility.
- These signs are to be located at each door providing access to the area of temporary refuge.
- All evacuation routes from accessible cabins should follow the criteria set out in the section Accessible means of escape and should either lead to the Area of Temporary Refuge or to the lifeboat embarkation deck. (DPTAC, 2007)
- Areas of rescue assistance should be separated from the floor area by a fire separation having a fire-resistance rating that is at a minimum equal to that required for an exit. Areas of rescue assistance should be smoke protected in facilities of more than three storeys (Figures 78 and 79).

e. Areas of Rescue Assistance – Communication System:

- It is essential that each area of temporary refuge be provided with an accessible two-way communication system having both audible and visible signals between the area of temporary refuge and the bridge or other continuously manned control station. (DPTAC, 2007)
- It is paramount that instructions on the use of these areas under emergency conditions should be clearly marked adjacent to the communications system. These instructions should include directions for use of the emergency communications system; information on planned availability of assistance in the use of stairs or supervised operation of lifts and how to send for such assistance; and directional information to other means of escape. (DPTAC, 2007)
- The communication system should be colour contrasted from the surrounding environment, have an audible signal to be detectable by persons with visual impairments, and have a volume control.

f. Areas of Rescue Assistance – Signage: Areas of rescue assistance should be identified with signage stating “AREA OF RESCUE ASSISTANCE”, include the International Symbol of Access and should comply with Section 3.2.9. The location of areas of rescue assistance should identified by directional signage, on all publicly displayed floor evacuation plans, be designated in evacuation procedure documents. Evacuation floor plans should be available in alternative formats.

g. Accessible Fire Evacuation Plans: Accessible Means of Escape



- Accessible fire evacuation plans should be displayed and available at strategic locations throughout the facility. Signage should comply with Section 3.2.9.
- If an emergency occurs on board a passenger ship, it is expected that most passengers will be able to evacuate themselves from any passenger accommodation to the designated assembly area. Individuals with restricted mobility including infirm, very young, elderly and disabled persons will require special consideration when designing a passenger ship and preparing emergency plans for such a ship.
- All areas deemed to be accessible spaces should be provided with an accessible means of escape. Where more than one means of escape is required from any accessible space in public areas, each of these should be served by at least two accessible means of escape.
- Each required accessible means of escape should be a continuous and unobstructed way of traveling to an area of temporary refuge then, if applicable, to lifeboat embarkation locations or alternatively to the point of disembarkation from the vessel. Refer to section 3.2.1, 3.2.2.
- During the situation where accessible space is serving as an accessible means of escape, there should be provided at least one accessible means of escape should contain a elevator, approved to be used in an emergency. This elevator would require a source of emergency power. These elevators should be accessible from the area of temporary refuge. (DPTAC, 2007)
- During an emergency situation, passengers with reduced mobility may be receive physical assistance into life saving appliances, whilst maintaining due regard to the safety of all on board in order that the evacuation process maintains the highest level of control and speed. Crew members should always be adequately trained in the operation and use of any device intended to assist in the evacuation of persons with reduced mobility. (DPTAC, 2007)

h. Night-time evacuation: If the evacuation takes place at night time, flashing the bedroom lights on and off will help to alert a sleeping guest. Staff should ensure that female guests are woken by female staff and male by male staff, if this is not possible, then guests should be informed and alternative arrangements agreed.

i. Use of written cards: The use of written cards to communicate an emergency will be important where there is no alternative visual communications facility. (ETA, undated: 11) Refer section 3.2.9.

j. Evacuation plan: A designated evacuation plan must be specific to each and every vessel. Each passenger ship shall have procedures in place for locating and rescuing passengers trapped in their staterooms. (ICCL, 2005)





k. Area of Rescue Assistance: An area, which has direct access to an exit, where people who are unable to use stairs may remain temporarily in safety to await further instructions or assistance during emergency evacuation. (ATBCB, 2000)

l. Egress: Means of a continuous and unobstructed way of exit travel from any point in a vessel or facility to a public way. A means of egress comprises vertical and horizontal travel and may include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, horizontal exits, courts and yards. An accessible means of egress is one that complies with these guidelines and does not include stairs, steps, or escalators. Areas of rescue assistance or evacuation elevators may be included as part of accessible means of egress. (ATBCB, 2000)

m. Exit Stairways: exit stairways that are part of an accessible means of escape shall be accessible:

- Exit stairways shall have a clear width of 1220 mm minimum between handrails;
- Exit stairways shall be accessed from an area of refuge complying with requirements established by the administrative authority;
- Exit stairways shall incorporate areas of temporary refuge within enlarged deck-level stair landings;
- Exit stairways shall be accessed from areas of temporary refuge in an adjacent space.

3.8.4.4 Illustrations

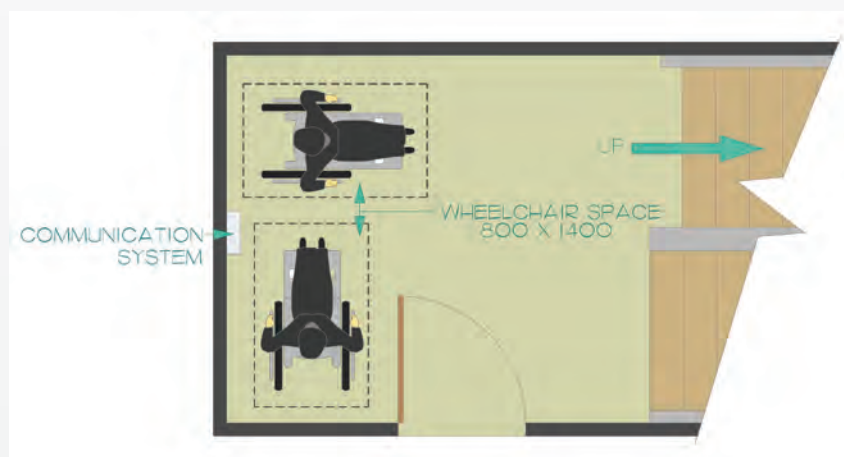


Figure 126: Oversized Landing as Area of Rescue Assistance

Source: UDA & Associates



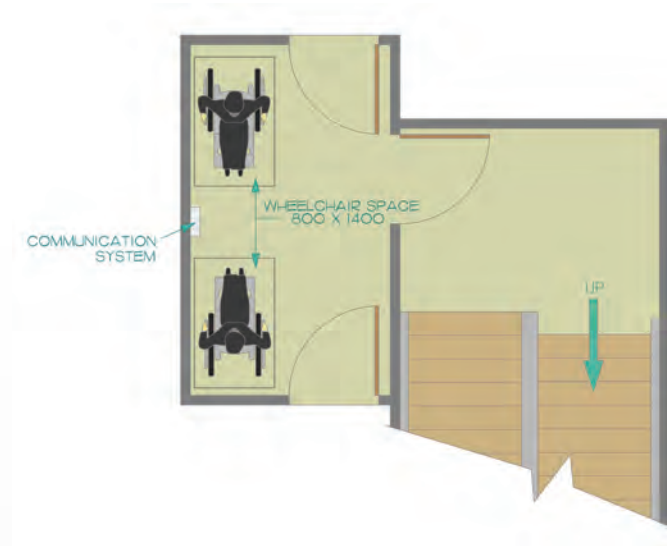


Figure 127: Protected Corridor as Area of Rescue Assistance

Source: UDA & Associates

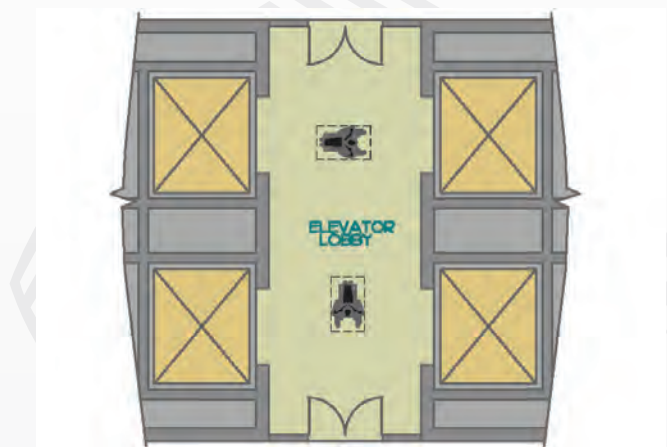


Figure 128: Protected Elevator Lobby as Area of Rescue Assistance

Source: UDA & Associates

3.8.4.5

Other Considerations

- 2.3 Anthropometric Data
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.8 Doorways
- 3.2.9 Signage
- 3.8.4 Provision of Tourism-Related Information in Multiple Formats
- 3.9.2 Emergency Alarm Systems
- 6.5.1 Public Announcements in Terminals
- Appendix 1 Controls and Operating Mechanisms





3.9.2 Emergency Alarm Systems

3.9.2.1 Design Considerations

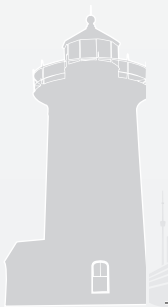
The provision of accessible emergency alarm systems is necessary for persons with functional sensory limitations. In the case of persons with functional hearing limitations, they will not be able to hear sirens or other similar audible alarms; persons with functional visual limitations will not be able to perceive visual alarms.

3.9.2.2 Application Guidelines

This part is recommended for application to all emergency alarm systems in marine vessel (On-shore and Terminal) facilities and on-board marine vessels.

3.9.2.3 Technical Guidelines

- a. **General:** Where emergency alarm systems are provided, they should be of an accessible design, complying with the requirements of 3.9.2.3
- b. **Testing:** Fire alarms should be tested on a regular basis including flashing lights and vibrating pads installed in bedrooms.
- c. **Public Areas:** Alarms in public areas should comply with the principles of best practice and the requirements of 3.9.2.3.
- d. **Guest Rooms:** Guest rooms that are required to comply should provide alarms conforming to the requirements of 5.15.1 and 5.16.1.
- e. **Escape route maps and procedural information should be provided in multiple formats – at least Braille and Large Print.**
- f. **Signage:** Clear, well-illuminated signage indicating escape routes should be evident. The fire evacuation point should be clearly identified.
- g. **Guest Rooms / Bedrooms:** Where a fire alarm is fitted, a flashing light and vibrating pad should be made available.
- h. **Toilets, Washrooms and Bathrooms:** Emergency evacuation procedures are essential. Where a fire alarm is fitted with a flashing light is provided, an Emergency Alarm pull-cord is a recommended provision, as it provides an accessible facility for guests with varying disabilities.



i. Visual Alarms: Visual alarms should be used with audible alarms, especially in main concourses and washrooms. Visual alarms should be lights that flash at 1Hz in conjunction with audible alarms. Bright white lights, at least 75cd in intensity, should be used for flashing alarms. Flashing lights should be timed at not less than 5 flashes per second. If the light is combined with an auditory signal, it should be timed at a rate of 1 per second (Richesin et al.; December, 1989: 60).

j. Visual Alarm Location: Visual alarms should be placed 2030 mm above the highest floor level or 150 mm below the ceiling, whichever is lower (see Figure 129). In general, no place in any room or space required to have a visual signal appliance should be more than 15m from the signal. In large rooms and spaces such as auditoriums and conference centers, devices may be placed around the perimeter, spaced a maximum 30m apart, in-lieu of suspending appliances from the ceiling. No place in common corridors or hallways should be more than 15 metre from the signal (ADAAG, 1991).

k. Audible Alarms: Audible alarms should exceed the ambient noise of a setting by 15 decibels, or exceed any maximum sound level with a duration of 30 seconds by 5 decibels, depending on which is louder. Audible alarms should not exceed 120 decibels, and should provide intermittent noise. Where possible, the alarm should be placed immediately above an emergency exit door (Richesin et al, 1989: 68).

l. Audible Warnings: Audible warnings should be between 500 and 3000 Hz. Use frequencies below 500 Hz if the sound must bend around obstacles or pass through partitions. Use a modulating signal (1 to 8 beeps per second, or 'warbling' that change 1 to 3 times per second). Present the signal for at least 0.5 to 10 seconds (Richesin et al., 1989: 68).

3.9.2.5 Illustrations

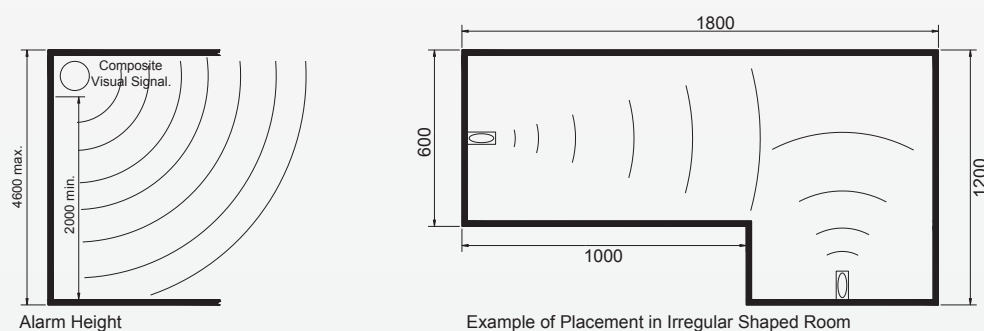


Figure 129: Placement of Visual Alarms

Source: (A.D.A.A.G., 1991: §4.28.3).





3.9.2.5 Other Considerations

3.2.9 Signage

3.2.10 Symbols, graphics and Pictograms

3.9.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance



3.10 Emergency and Evacuation Equipment for Persons with Impaired Mobility

3.10.1 Evacuation Equipment

3.10.1.1 Design Considerations

All passenger vessels should have, as part of their evacuation plans, emergency equipment to assist in the evacuation of their passengers.

3.10.1.2 Application Guidelines

This section applies to all passenger vessels.

3.10.1.3 Technical Guidelines

- a. Emergency and evacuation procedures should avoid the use of elevators and escalators. Refer to section 3.9.1.
- b. Clear directional signage should be present at all emergency egress paths; refer to section 3.2.9, 3.9.1.
- c. Trained staff should carry or move persons who are unable to walk or who are in a wheelchair along evacuation routes in tunnels or on guide ways, down stairs or on ramps. It may be necessary to take persons out of their wheelchair/ scooter and transport them on stretchers or similar equipment, such as Evacu-trac, to safety.
- d. Safety of Life at Sea (SOLAS) rules that a vessel must be able to evacuate completely within 30 minutes.
- e. For passenger ships with large numbers of passengers, evacuation systems would preferably only require minimal staff assistance, and they must be easy to use. Evacuation chutes developed by Viking Life-Saving Equipment A/S (website: www.VIKING-life.com), which are approved by SOLAS, provide a rapid form of evacuation directly onto life rafts, regardless of passenger's level of mobility.





3.10.1.4 Illustrations



Figure 130: Mass evacuation systems- slide system

Source: www.VIKING-life.com

3.10.1.5 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes



3.11 Arrival Information At Terminal Buildings & Shore Facilities

3.11.1 Arrival / Departure Monitors and Other Electronic Signage

3.11.1.1 Design Considerations

Electronic signage and arrival / departure monitors are important for the dissemination of information for use by the public.

3.11.1.2 Application Guidelines

This part should apply to all arrival/ departure monitors and electronic signage at marine terminals.

3.11.1.3 Technical Guidelines

a. Multiple formats: At arrival, information should be provided in alternative formats for elderly and disabled passengers for transfers, ground transportation alternatives, medical, wheelchair repair/exchange and emergency contacts. This should be in the form of large print, tactile maps, access to websites via PDAs, or at accessible information kiosks. Information should be provided with printed material, such as printed maps of the area, access to a public phone and help lines. Refer to sections 3.2.9 and 3.8.4.

b. Large monitors: The arrival and/or departure information on large monitors will be continually updated with change in arrival/departure times, vessel numbers and gate numbers. This updated information will be available audibly as well. Refer to 6.5.1 Public Announcements in Terminals.

c. Monitor location: Placing monitors at eye level allows people using wheelchairs to see this information at a better viewing angle and allows people with functional visual limitations to read the screen at a very close range. Proper color-contrast for text improves clarity for all passengers and is especially important for passengers with functional visual limitations, especially those with color-blindness. Clear visual information is also critical for people who cannot hear spoken announcements. Incorporating these universal design features gives everyone the opportunity to navigate a terminal independently where some people might otherwise require assistance from personnel.





d. Simple language: Some or all monitors are to be installed at eye level (1.5 meters above the floor, +/-25 mm. Where monitors are placed above eye level, they are to be placed at a height of 2.00 meters +/-25 mm so that they can be easily seen by a person in a wheelchair. The information displayed on monitors is to be in plain language that is easy to read, avoiding acronyms where possible.

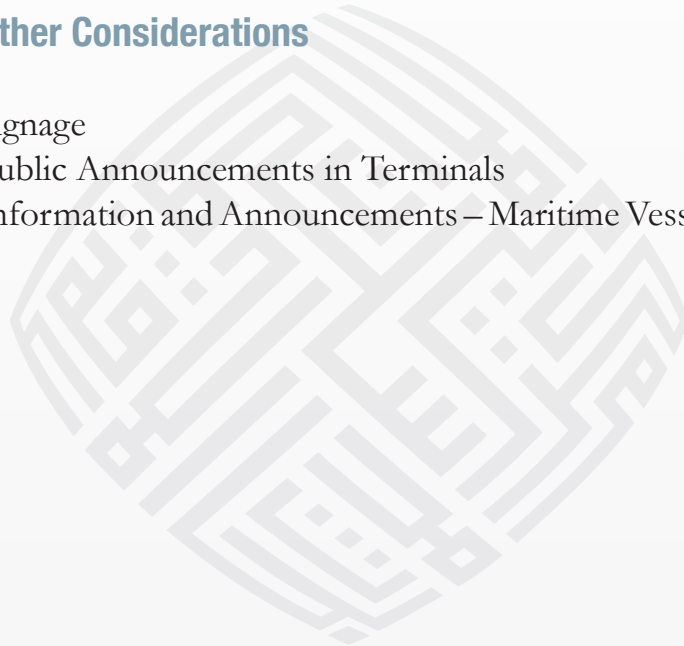
e. Colour contrast: When monitors or other electronic signs are used, good color contrast is to be provided, such as a light color on a dark background or a dark color on a light background, with light on dark being preferable. Monitors are to be positioned to avoid glare. Red lettering on a black background is not to be used. Scrolling, flashing or dot matrix text also creates accessibility barriers for some users and are to be avoided, where possible.

3.11.1.4 Other Considerations

3.2.9 Signage

6.5.1 Public Announcements in Terminals

3.8.1 Information and Announcements – Maritime Vessels and Facilities



3.12 Baggage Transit & Retrieval

3.12.1 Baggage Transit & Retrieval

3.12.1.1 Design Considerations

Baggage transit & retrieval systems are required to be accessed by many individuals including those with disabilities and the elderly. Consideration of a variety of components should be taken into account, such as the height of baggage racks or carousels, clear signage to differentiate the baggage carousels, and staff should be readily available to provide assistance in retrieving baggage for those requiring help.

3.12.1.2 Application Guidelines

This will apply to all baggage handling facilities involved with passenger vessels either onboard, or at terminals.

3.12.1.3 Technical Guidelines

- a. **Accessible room:** The baggage deposit or retrieval room to be accessible for individuals with impairments including visual, hearing, and those requiring the use of a wheelchair or scooter.
- b. **Staff assistance:** Staff to assist in the handling of baggage.
- c. **All baggage should be well labeled for easier identification especially if assistance is required from staff for its retrieval.**
- d. **Priority baggage storage/retrieval should be engaged.**
- e. **Baggage Racks or Carousels:** If the baggage handling/retrieval system involves platform surfaces of baggage racks or carousels, such as those used for suitcases, there should be a continuous colour contrasted strip along its edge and should be located no higher than 450 mm above the floor.
- f. **Baggage compartment height:** If baggage is stored in a compartment, the compartment height should be no higher than 450 mm above the floor, or including separate areas of the compartment provided with shelving with this height recommendation. Staff should be available for assistance.





g. Time allowance: Ensure enough time is allowed for baggage handling, especially if the passenger is expecting car transfers on Port arrival.

h. Lockers or Baggage Storage

- Where lockers or baggage storage units are provided in public or common-use areas, at least 10%, but not less than one unit, should comply with this section.
- Location: Accessible lockers and baggage storage units should be located on accessible routes that comply with Section 3.2.1 and 3.2.2.
- Clear Floor or Ground Space: A clear floor space measuring a minimum of 1400 mm should be provided in front of lockers, baggage compartments, and carousels to permit forward or side approach by mobility devices.
- Storage Units: Accessible lockers and/or baggage storage units should have no element lower than 450 mm above the floor, and no element higher than 1200 mm above the floor.
- Operating Controls and Locks: Operating controls and locks on accessible lockers and baggage storage units should be located at a maximum of 1060 mm above the floor and should comply with Appendix 1: Controls and Operating Mechanisms.
- Identification: Identification used on lockers and baggage storage units should include lettering that is raised or recessed, that is contrasted to the surrounding surfaces and should comply with Section 3.2.9.
- Baggage Racks or Carousels: Platform surfaces of baggage racks or carousels, such as those used for suitcases, should include a continuous colour contrasted strip along its edge and should be located no higher than 450 mm above the floor.

3.12.1.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes



3.13 Vehicle Interface with Terminal Buildings, Platforms, Gangways, Floating Piers

3.13.1 External Approaches

3.13.1.1 Design Considerations

External/Land approaches are key elements in the usage of facilities such as terminals and passenger vessels. These are critical areas, in that if access cannot be gained to the terminal or vessel, the facility is effectively rendered inaccessible.

3.13.1.2 Application Guidelines

This provision shall apply to all terminals and vehicle accesses to passenger vessels. This provision shall apply to all terminals and vehicle accesses to passenger vessels.

3.13.1.3 Technical Guidelines

Arrival at the Terminal: By Car (DFT, 2003):

- a. **Location and design of entry equipment:** In all car parks the design of entry equipment should take account of users with disabilities, including wheelchair users e.g. positioning, height, and ticket issue. An easy to operate 'Help' button should be provided at the entrance that makes provision for persons with functional communication limitations.
- b. **It should be possible to reach all of the controls** (Car Parking or Space reservation – Temporary Ticketing purchase, for 'Short' or 'Long' stay parking) from the driver's window, without the need to open the door or get out of the vehicle. All controls should be easy to use requiring an operating strength of no more than 15 Newton's. The controls should contrast with their surroundings and where they require to be pushed they should be capable of being operated by the palm of the hand. There should be weather protection (Canopy) to protect both the car and the Vendor Equipment.
- c. **Size of ticket:** The ticket issue should provide a sufficient length of ticket to enable the driver to grasp hold of it easily, and it should require minimum effort to remove the ticket. Provision should be made for people who are unable to make use of their arms. This may involve the installation of CCTV cameras at barriers, or other systems which will alert staff to the need for assistance.





d. Visual indication for assistance: Where new systems are introduced a visual indication should be incorporated to notify the user that their request for assistance has been received.

e. Vehicle barrier heights: Where vehicle barrier heights are installed a vertical clearance of 2600 mm from ground level will be required to allow access to hi-top conversion vehicles. Alternatively, a facility should exist to allow the users of such vehicles to make arrangements to pass. The vertical clearance should be maintained from the entrance to the car park to (and including) the designated parking spaces and exits from those spaces.

f. Accessible parking spaces: Parking spaces reserved for people with disabilities should be clearly signed from the entrance. The spaces should be near to terminal access and payment facilities and should be designed to facilitate access from the side and rear of the vehicle.

g. It should not be necessary to locate all parking for people with disabilities in short term car parks (which are generally those closest to the terminal buildings) provided:

- Long term car parks are served by wheelchair accessible buses;
- The reserved spaces are close to and have unobstructed access to the bus stops;
- The transit (Terminals 'Shuttle') bus stops are close to and have unobstructed access to the Main Arrivals bus stops;
- A 'Help' button or similar system is provided for passengers with disabilities to call for assistance with baggage or mobility.
- In some terminals it is recognized that the accessible buses will operate on special services dedicated to people with disabilities. However, in those cases, the services provided to other passengers by the mainstream service, i.e. people with disabilities, having advised of their presence, should not have to wait longer for the service. Contact details for those services should be clearly displayed at pick-up points.

h. A 'help' point should be provided in close proximity to reserved spaces. The 'help' point should be clearly signed and should contrast with its surroundings. Its controls and communication links should be located between 750 mm and 1200 mm above ground level. Any manually operated controls should be capable of being operated with the palm of one hand and should require a force not greater than 15N to operate. The system should be



accessible to persons with functional auditory and communication limitations. As an alternative a telephone-based system (incorporating an inductive coupler) can be used. Where new systems are introduced a visual indication should be incorporated to notify the user that their request for assistance has been received.

i. It is also necessary to provide ‘help’ points at other, signed locations, throughout the car park, to ensure that people with disabilities, using other parking spaces can call for assistance e.g. with transporting baggage to the terminal.

j. All ‘help’ points, including those using telephone systems, should have amplification, inductive couplers, and a light or other visual display to assist guests with functional hearing limitations.

k. Staff responding to requests for assistance should be expected to assist with lifting baggage or mobility equipment out of the car, but they should not be expected to lift the person with a disability out of the car.

l. Signage: The signage for all spaces reserved for persons with disabilities should clearly indicate the status of those spaces and should discourage other passengers from abusing them.

m. Payment machines should be accessible to persons with disabilities, or a convenient alternative arrangement should be in place to facilitate payment. Provision will also have to be made for people who have varying levels of functional hearing limitation if the machine includes a voice telephone/help button for emergency use, i.e. amplification, inductive couplers and a light or simple message display.

Arrival at the Terminal: By Taxi (DFT, 2003):

a. Signage: Taxi ranks should be well-signed. They should allow people with disabilities to get in and out of the vehicle on the nearside or rear, and should provide unobstructed, step free access to/from the terminal building. Where access requires passengers to cross other lanes of traffic, footways at those crossing points should be flush with the road surface (dropped curb or raised carriageway) and should incorporate tactile paving.

b. Wheelchair accessible: Where terminal operators have entered into a contract with a firm to provide “taxi” services, they should include a condition that at least some of the vehicles serving the terminal should be wheelchair accessible and a system should be established to enable those vehicles to be called to the rank or pre-booked.





c. Help point: Unless the taxi rank is staffed during operating hours, a help point should be provided to enable customers to call for assistance.

Arrival at the Terminal: By Hire Car (DFT, 2003):

a. Signage: The drop-off points should be clearly signed. ‘Information’ Counters and ‘Assistance’ Counters should be clearly signed.

b. Help point: The premises should be accessible to people with disabilities.

c. Accessible shuttle service: The hire car company should ensure that an accessible shuttle service, or special service is available to transfer the person with disabilities from the hire car premises to the terminal. Alternatively, another system to allow people with disabilities to drop off close to the terminal, e.g. in the pick-up area should be provided.

d. Accessible pedestrian links: Where pedestrian links are available between the hire car premises and the terminal, the terminal operator should ensure that these are fully accessible to persons with disabilities.

Arrival at the Terminal: By Bus or Train (DFT, 2003):

a. Accessible interchange: Where the bus, train or tram station (interchange) is owned or operated by the terminal operator they should ensure that the premises are fully accessible. In other circumstances the terminal operator should liaise with the operator of the interchange to encourage such provision;

b. Assistance provided: A procedure should be agreed between the passenger vessel and the interchange operator to ensure that people with disabilities receive assistance between the interchange and the check-in. Ideally the assistance should be given by one provider so as to provide a seamless service to passengers with disabilities.

c. Help point: A help-point should be provided at the entrance/exit and on platforms to allow a passenger with a disability to summon assistance. It should be clearly signed and should contrast with its surroundings.

Arrival at the Terminal: Routes to the Terminal (DFT, 2003): All pedestrian routes between drop-off points, the terminal and passenger vessel should be well-signed and fully accessible to people with disabilities.



3.13.1.4 Illustrations

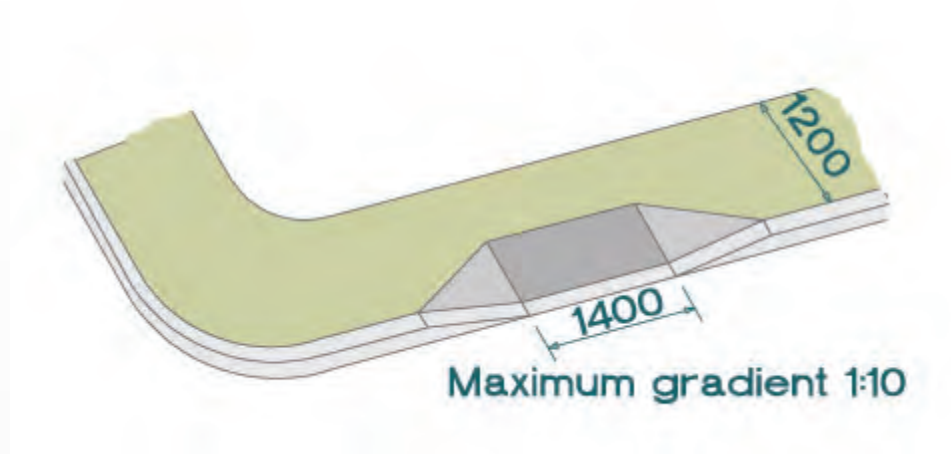
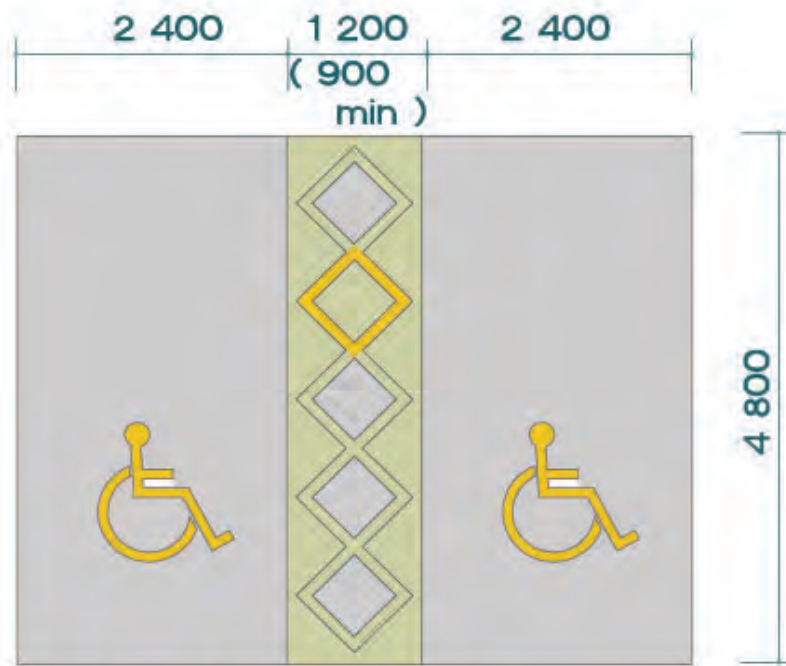


Figure 131: Minimum set-up requirements for curb-ramp
Source: UDA & Associates



Figure 132: Minimum camber setup/ layout
Source: UDA & Associates





b) Marked out shared space between two standard bays

Figure 133: Ideal layout for accessible parking bays

Source: UDA & Associates



Figure 134: Example of curb-cut; note that the expansion joint makes access through this ramp difficult

Source: UDA & Associates





Figure 135: Example of ramp, parking bay and signage system
Source: UDA & Associates

3.13.1.5 Other Considerations

- 3.1 Boarding via Platforms, Gangways, Floating Piers
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.5 Ramps
- 3.2.6 Stairways
- 3.2.7 Handrails
- 3.2.8 Doorways
- 3.2.9 Signage
- 3.13.2 Vehicle Parking





3.13.2 Vehicle Parking (in conjunction with Marine Terminals and Shore-based Facilities)

3.13.1.1 Design Considerations

The provision of parking spaces near the entrance to a facility is important to accommodate persons with a varying range of abilities, as well as, persons with limited mobility and those caring for small children. Medical or other conditions, such as arthritis, heart conditions, persons who are pregnant, those persons using crutches, or the physical act of pushing a wheelchair, all make it difficult to travel long distances. Minimizing travel distances is particularly important outdoors, where weather conditions and ground surfaces can make travel both difficult and hazardous. The accessible route of travel connecting the parking area to the entrance of a facility should be well marked and free of steps and kerbs.

In addition to the proximity to entrances, the spatial requirements of accessible parking spaces are important. A person using a mobility aid such as a wheelchair requires a wider parking stall to accommodate the manoeuvring of the wheelchair beside the car or van in order to enter or exit the vehicle. A van may also require additional space to deploy a lift or ramp through the side or back door. An individual would then require space for the deployment of the lift itself, as well as, additional space to manoeuvre on/off the lift.

A designated access aisle adjacent to a designated parking space is not required by all persons who would benefit from close proximity parking. Persons with limited mobility, expectant mothers, caregivers, and persons who use walkers, canes, crutches, and strollers can be accommodated by wider courtesy parking spaces near the entrance to a facility - identified in this section as a “Limited Mobility Parking”.

Heights above grade along the routes to accessible parking are a factor. Accessible vans may have a raised roof resulting in the need for additional overhead clearance. Alternatively, the floor of the van may be lowered, resulting in lower tolerances for speed bumps and pavement slope transitions. The number of accessible parking spaces required by this section may not be sufficient in some facilities (such as seniors’ centres) where increased numbers of persons with disabilities may be expected.

Wherever possible locate parking signs away from pedestrian routes, as they may constitute an overhead and/or protruding hazard.





Figure 136: Van with Side Lift
Source: UDA & Associates

3.13.2.2 Application Guidelines

These guidelines for car parking in conjunction with Marine Terminals or other Shore-based Facilities are intended to apply to all new parking structures and surface parking areas. Where existing parking structures and surface parking areas are being renovated or altered, these standards should be implemented to the greatest extent possible.

Designated parking spaces should include both Accessible Parking and Limited Mobility Parking.

The minimum number of designated parking spaces should be in accordance with Figure 137 below. Additional designated parking spaces would be allocated where a higher frequency occurs of persons with disabilities, such as at: hospitals, medical facilities, nursing homes, facilities for the senior and the elderly, but it would be a matter for particular analysis to determine if a marine terminal would be able to anticipate above-average incidence of disability – there may well be a case to anticipate a higher incidence of ‘Senior Citizens’ in Terminals handling Cruise Liner facilities.





Figure 137: Designated Accessible Parking Space Guidelines

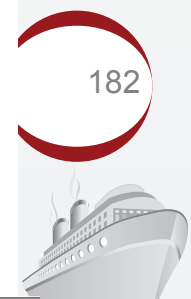
Total Number of Automobile Parking Spaces Provided	Minimum Number of Designated Accessible Parking Spaces	Minimum Number of Designated Limited Mobility Parking Spaces
1 – 50	1	1
51 – 100	2	2
101 – 200	4	2
201 – 300	5	3
301 - 500	6	4
501 and over	6 plus 1 for each 100 over 500	4 plus 1 for each 100 over 500

3.13.2.3 Technical Guidelines

a. Location: Designated accessible spaces should be located at the shortest distance to the accessible entrance that it serves, or the closest accessible entrance where multiple locations are served. Designated parking spaces should be located adjacent to an accessible route that complies with Section 3.2.1, 3.2.2.

b. Path of Travel: The path of travel from the designated accessible parking spaces to the accessible entrance should minimize numbers of crossings of vehicular and pedestrian traffic flows. Access to the adjacent accessible route from the accessible parking space should be via the required access aisles at the accessible parking space. Where the location of the accessible entrance/s served is not clearly visible from the designated parking spaces, directional signage to the entrances should be provided at the designated parking space area.

c. Identification Signage: Designated parking spaces should be capable of being identified clearly from a distance and should comply with Section 3.2.9. Such signage should measure at least 300 mm wide by 450 mm high and should include the International Symbol of Access. Signs should be mounted vertically on a post that is colour contrasted with the surrounding environment and should be installed at a height of at least 2100 mm from the ground, measured to the bottom of the sign. For perpendicular parking spaces, signs should be



centred across the parking space, and for parallel parking spaces, signs should be located toward the head of the parking space. Avoid mounting signs on fences or building faces (Figure 138).

d. Directional Signage: At locations of vehicular entry and at intersections located between vehicle entry points and designated parking spaces, where the designated parking spaces are not clearly visible, directional signage should be provided to the designated parking spaces. Directional signage should include the International Symbol of Access, directional arrows and should comply with Section 3.2.9.

e. Pavement Markings: Designated parking spaces should include pavement markings that contain the International Symbol of Access per Section 3.2.9. Pavement markings should measure 1500 x 1500 mm and have a white border and blue background.

f. Layout-Perpendicular Parking: Accessible parking spaces where vehicles are positioned perpendicular to the adjacent accessible route, should measure at least 2400 mm wide by 6100 mm long. Perpendicular accessible parking spaces should have an access aisle adjacent to it that measures 2100 mm wide and that extends the entire length of the accessible parking space. Access aisles should be clearly marked to prevent obstruction. Adjacent accessible parking spaces are permitted to share an access aisle which should be located adjacent to both. In a renovation situation where it is technically infeasible to provide a 2100 mm wide access aisle, the width of the access aisle may be reduced to a minimum of 1500 mm (Figure 139).

g. Layout-Parallel Parking: Accessible parking spaces where vehicles are positioned parallel to the adjacent accessible route, should measure at least 5400 mm long and 3900 mm wide. Parallel accessible parking spaces should have an access aisle adjacent to it that measures 2100 mm wide and extends the entire width of the accessible parking space. Access aisles should be clearly marked to prevent obstruction. Adjacent accessible parking spaces are permitted to share an access aisle which should be located adjacent to both. In a renovation situation where it is technically infeasible to provide a 2100 mm wide access aisle, the width of the access aisle may be reduced to a minimum of 1500 mm (Figure 140).

h. Layout-Angled Parking: Accessible parking spaces where vehicles are positioned at an angle other than perpendicular or parallel to the adjacent accessible route, should measure at least 6350 mm long and 2900 mm wide.





Angled accessible parking spaces should have an access aisle adjacent to it that measures 2100 mm wide and extends the entire length of the accessible parking space. Access aisles should be clearly marked to prevent obstruction. Adjacent accessible parking spaces are permitted to share an access aisle which should be located adjacent to both. In a renovation situation where it is technically infeasible to provide a 2100 mm wide access aisle, the width of the access aisle may be reduced to a minimum of 1500 mm (Figure 141).

i. Floor and Ground Surface: Floor and ground surfaces at designated parking spaces and adjacent access aisles should have a firm, stable surface with a maximum 1:50 (2%) for both running and cross slopes.

j. Overhead Clearance: The minimum overhead clearance required to extend along the entire route from vehicle entry/exit to the designated parking space location/s should be 2750 mm above the floor. The required minimum overhead clearance may be reduced for indoor parking areas to a minimum of 2600 mm high; Signage should be provided at vehicle entry points clearly indicating the minimum overhead clearance.

k. Limited Mobility Parking: Limited Mobility Parking spaces should be a minimum 2400 mm wide and 6100 mm long. Limited Mobility Parking spaces should have an access aisle adjacent to it that is at least 1200 mm wide. Access aisles should be clearly marked to prevent obstruction. Adjacent accessible parking spaces are permitted to share an access aisle which should be located adjacent to both. Limited Mobility Parking spaces should include the Limited Mobility symbol complying with Section 3.2.9 (Figure 142).



3.13.2.4 Illustrations

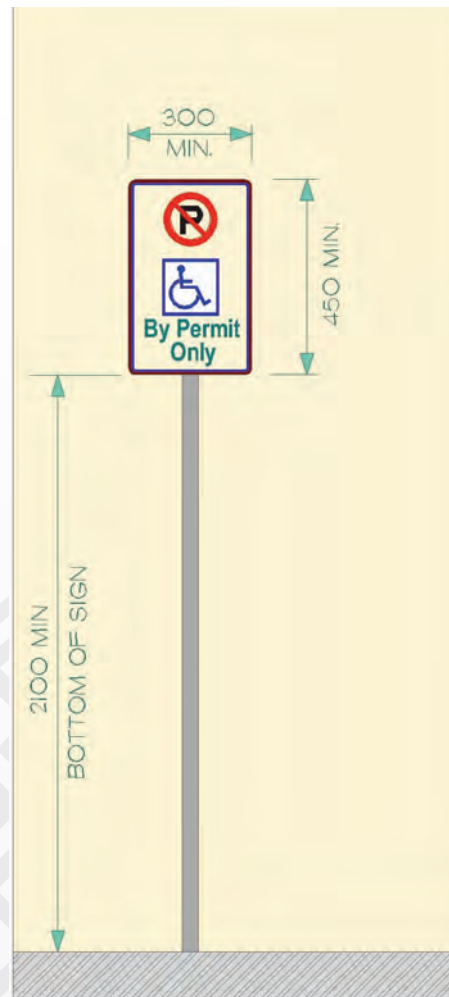


Figure 138: Designated Parking Signage

Source: UDA & Associates



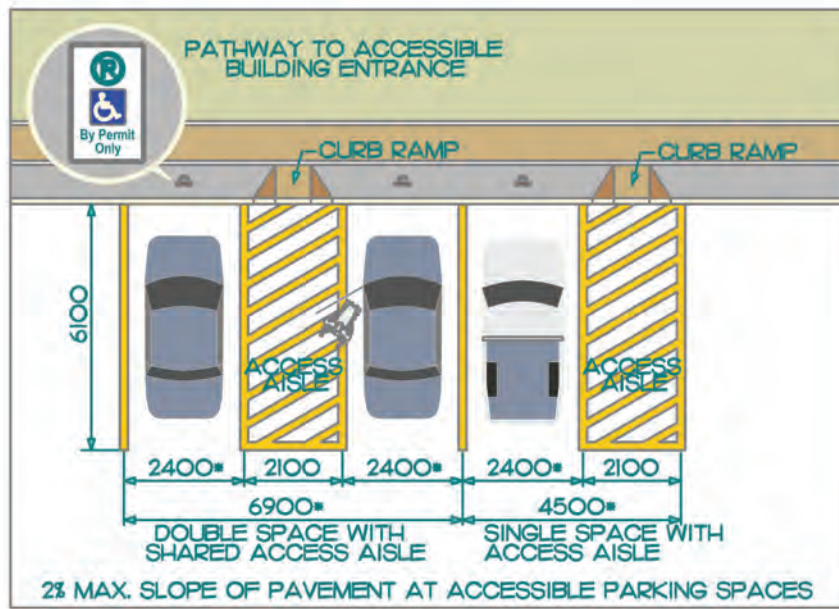


Figure 139: Perpendicular Parking Spaces

Source: UDA & Associates

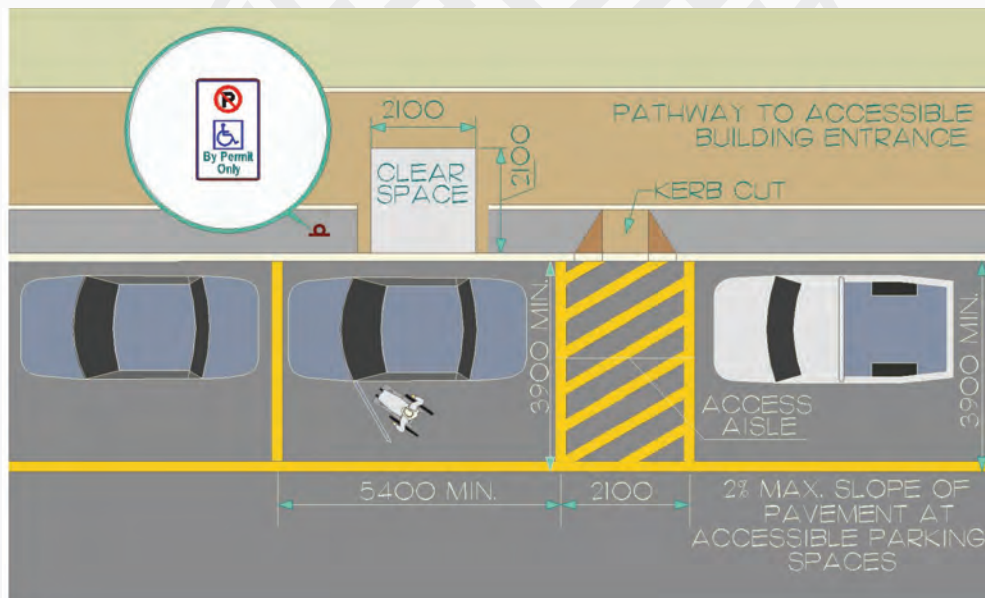


Figure 140: Parallel Parking Spaces

Source: UDA & Associates





Figure 141: Angled Parking Spaces

Source: UDA & Associates



Figure 142: Limited Mobility Parking Spaces

Source: UDA & Associates





3.13.2.5 Other Considerations

- 2.3 Anthropometric Data
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.9 Signage
- Appendix 4 Illumination



3.13.3 Passenger Drop Off Areas

3.13.3.1 Design Considerations

Passenger-loading zones are important features for individuals who may have difficulty in walking distances or those who use parallel transit systems. Accessible transit vehicles typically require space for the deployment of lifts or ramps and overhead clearances. Protection from the elements will be beneficial to all users and particularly those that may have difficulty with mobility.

3.13.1.2 Application Guidelines

Where passenger-loading zones are provided, at least one should comply with this section.

Accessible passenger-loading zones should be identified with signage complying Section 3.2.9.

If the passenger-loading zone is a designated mobility transit stop zone, it should comply with all relevant local bylaws.

3.13.1.3 Technical Guidelines

a. Location: Passenger-loading zones should be on an accessible route complying with Section 3.2.1, 3.2.2.

b. Floor and Ground Surface: Floor and ground surfaces at designated parking spaces and adjacent access aisles should have a firm, stable surface with a maximum 1:50 (2%) for both running and cross slopes.

c. Signage: Passenger loading/drop-off zones should be clearly identified with signage that complies with Section 3.2.9. Such signage should measure at least 300 mm wide by 450 mm high and should include the International Symbol of Access. Signs should be mounted vertically on a post that is colour contrasted with the surrounding environment and should be installed at a height of at least 2100 mm from the ground, measured to the bottom of the sign. Signs should be posted at both ends of the drop-off zone.

d. Overhead Clearance: Passenger loading/drop-off zones should have a minimum overhead clearance of 3600 mm, at the loading/drop-off zone and along the vehicle access route to vehicle entry/exit points (Figure 143).





e. Off-Street Zone Size: Off-street passenger loading zones should measure at least 2700 mm wide by 7000 mm long and have an access aisle adjacent to it that is at least 2100 mm wide, extending the entire length of the loading zone. In a renovation situation where providing a 2100 mm wide access aisle is technically infeasible, the access aisle width may be reduced to 1500 mm. (Figure 144).

f. On-Street Zone Size: On-street passenger loading zones should measure at least 3900 mm wide by at least 5400 mm long, with an adjacent access aisle at least 3900 mm wide 2100 mm long (Figure 145).

g. Kerb cuts: Where there is a kerb between the access aisle and the vehicle pull-up space, a kerb cut should be provided in compliance with Appendix 5: Kerb Cuts.

h. Weather Protection: Passenger loading zones should provide sufficient protection from harsh weather conditions, including but not limited to, wind, rain, sun and snow.

3.13.3.4 Illustrations

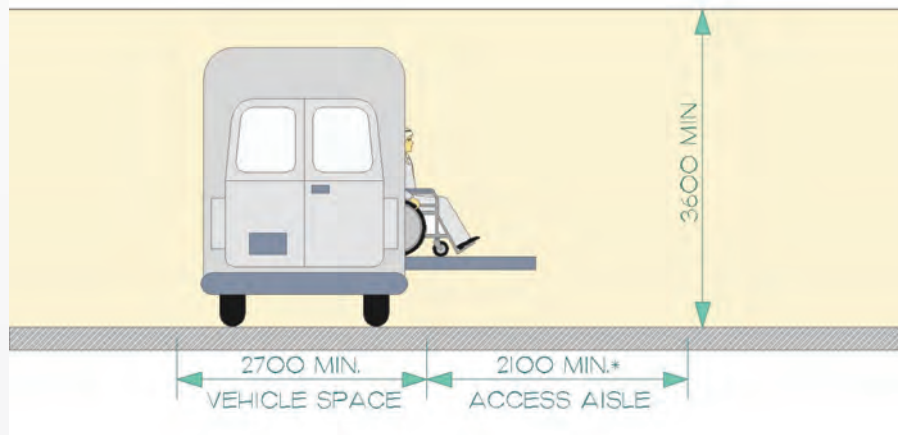


Figure 143: Height Clearance at Passenger Loading Zone

Source: UDA & Associates



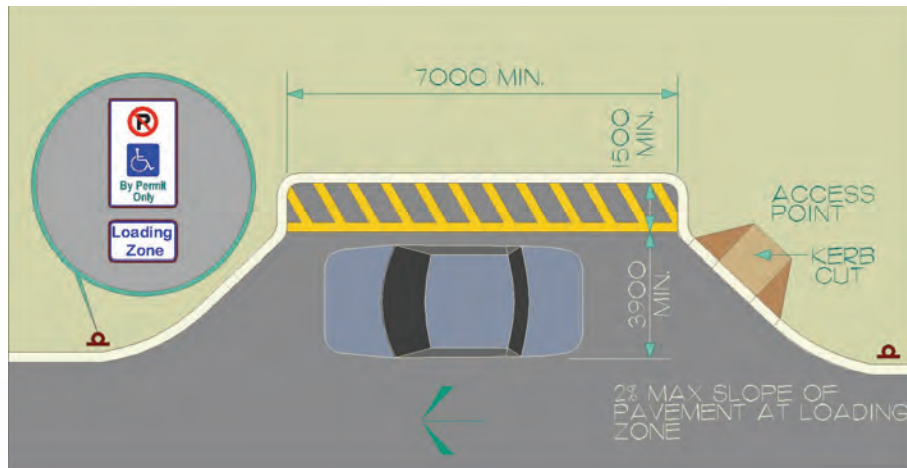


Figure 144: Off-Street Passenger Loading Zone

Source: UDA & Associates

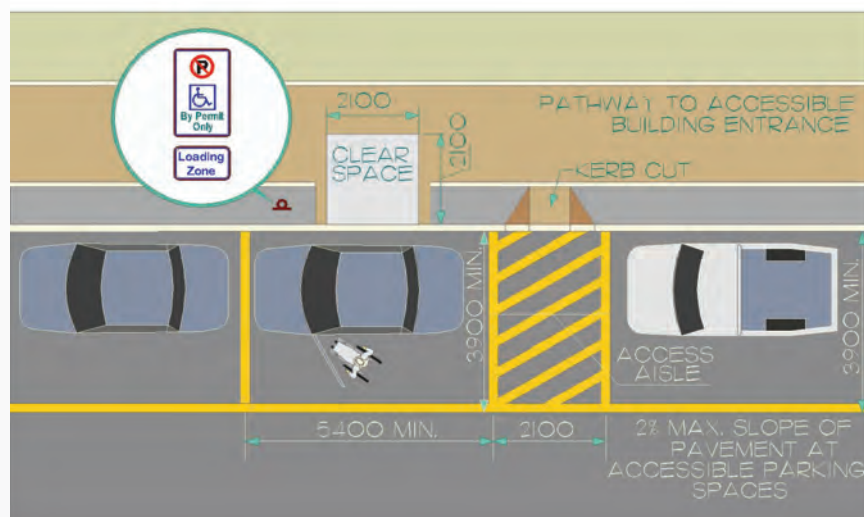


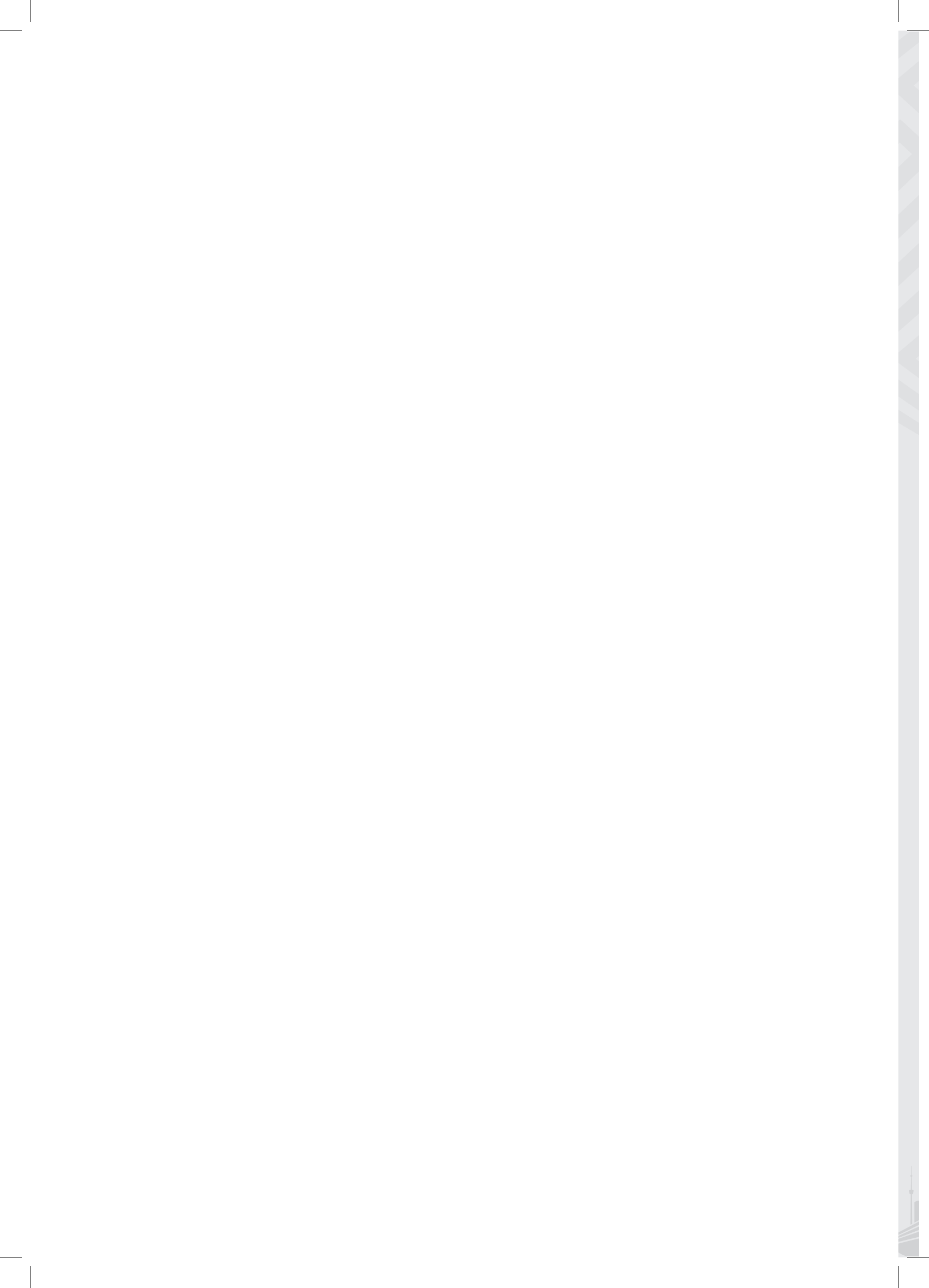
Figure 145: On-Street Passenger Loading Zone

Source: UDA & Associates

3.13.3.5 Other Considerations

- 2.3 Anthropometric Data
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.9 Signage
- Appendix 4 Illumination
- Appendix 5 Kerb cuts





Access of Multi-Deck Ferries with Car Deck(s)





4.0 Access of Multi-Deck Ferries with Car Deck(s)

4.1 Boarding via Car Ramp, Passenger Bridge, Gangways

4.1.1 Access Via Car Deck

4.1.1.1 Design Considerations

An alternative to gangway entrance is entrance via car decks; this will obviously be the preferred method of entry where passengers drive cars into the vessel deck themselves.

4.1.1.2 Application Guidelines

This part shall apply to all car decks where such entry is the preferred or alternative method of entrance to the marine vessel. It is the responsibility of the ferry operator to ensure that a person who uses a wheelchair and boards a ferry by way of the car deck equipped with a wheelchair-accessible elevator, or with another type of elevating device that is wheelchair-accessible, can freely get out of their vehicle and have access to this accessible route. (CTA, 1999)

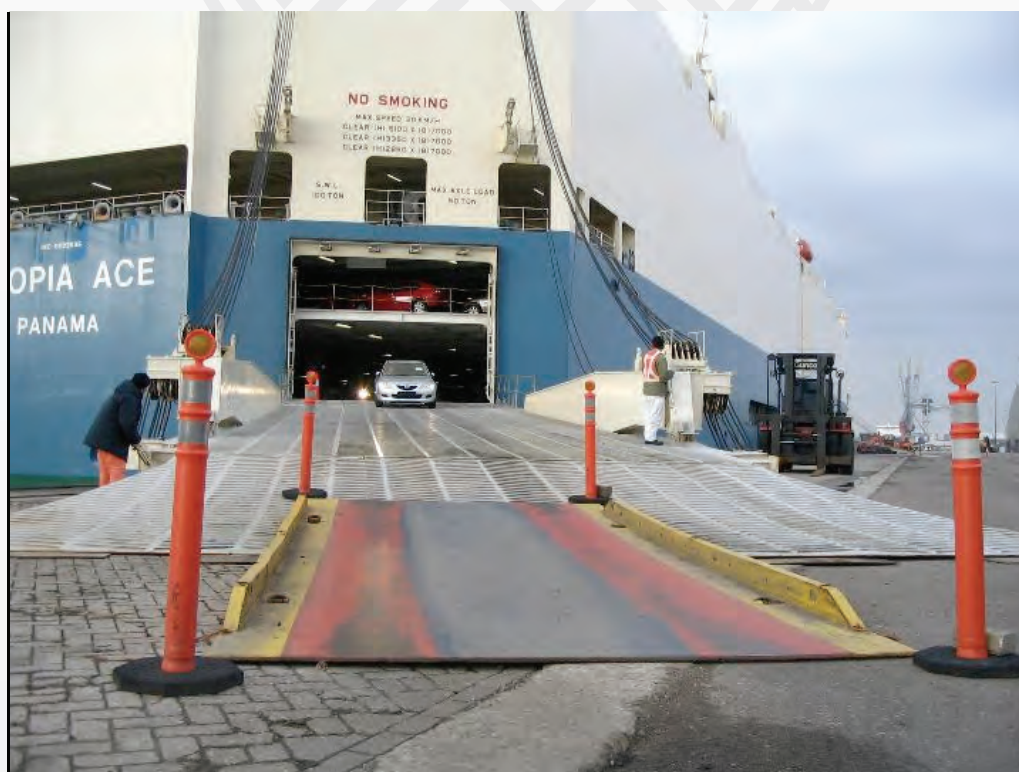


Figure 146: Car exiting ship via car ramp

Source: Wikimedia Commons





4.1.1.3 Technical Guidelines

a. Hazard lights during check-in: During the check-in stage within the port the individual who is disabled, once identified, should be asked to switch on his/her vehicle's hazard warning lights. This is to indicate a vehicle requiring priority loading. Once this vehicle has been identified, the crew should endeavor to load it such that it is parked on board next to a lift. Extra space should be provided on the driver's side or passenger's side (depending on whether the disabled person is the driver or passenger) will be needed to allow a wheelchair user to transfer to and from their car and wheelchair/walking aid. This extra space will also be provided for people who use walking aids or who have stiff and painful legs e.g. arthritis. (DPTAC, 2000)

b. Signage: The car deck should be clearly signposted for 'Disabled Access'. Refer to 3.2.9 Signage.

c. Accessible routes: Passengers with functional mobility limitations will generally need to use the lifts, but stairs should be designed so as to be accessible. The steps should be of uniform dimensions with closed risers. Passageways to which passengers have access should have a minimum width of 2000 mm where possible, subject to a minimum 1800 mm to enable, for example, a wheelchair user and a pram to pass.

4.1.1.5 Other Considerations

3.1.3 Access via Passenger Gangway



4.2 Pathway from Car Deck to Seat via Elevator (Lift), Stairs

4.2.1 Elevators (American English – ‘Lifts’: English)

4.2.1.1 Design Considerations

Elevators (Lifts) may be considered part of an accessible route and should incorporate appropriate accessible features to meet the requirements of the wide range of persons who will use them.

The design of buttons should anticipate a range of abilities in reach, dexterity and vision. Individuals with a visual impairment require audible cues that identify floor levels and the direction of travel. Doors should be equipped with a delay to allow persons using mobility devices ample time to reach, enter or exit the elevator car. A mirror is recommended to assist individuals using mobility devices as they back out of a elevator where there is insufficient space to turn around.

Multi-Deck Passenger Vessels. In multi-deck passenger vessels, there shall be at least one onboard accessible route connecting each passenger deck and mezzanine. In the case of passenger vessels having multiple entry decks, at least one onboard accessible route shall connect each entry deck. (ICCL, 2005)



Figure 147: Elevator showing an example of lowered and large interior call buttons, and colour definition on the floor.



Figure 148: An example of an elevator control panel featuring colour contrast and tactile bilingual text, buttons and symbols.

Source: UDA & Associates





4.2.1.2 Application Guidelines

Every level in multi-storey passenger vessels, should be served by a passenger elevator that complies with this section.

When more than one elevator is provided, each passenger elevator should comply with this section.

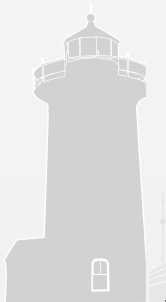
Freight elevators are exempt from the requirements of this section, unless the only elevator provided is both a passenger and freight elevator used by the public and employees.

Elevator access is not required:

- a. in elevator pits, elevator penthouses, mechanical rooms, and piping or equipment catwalks;
- b. when accessible ramps in compliance with 3.2.5 are used in lieu of a elevator;
- c. when platform lifts (wheelchair lifts) in compliance with 4.2.2 and applicable Codes, are used in lieu of an elevator. Platform lifts may be used only under the following conditions:
 - to provide an accessible route to a performing area in an
 - assembly occupancy;
 - to comply with wheelchair viewing position line-of-sight and
 - dispersion requirements;
 - to provide access to incidental occupied spaces and rooms that are not open to the general public and which house no more than five persons, including, but not limited to, equipment control rooms.

4.2.1.3 Technical Guidelines

a. General: Accessible elevators should be located on accessible routes that comply with Section 3.2.1, 3.2.2. Where a elevator serves only two floors, it should be provided with a system to sense entry into the cab and to move automatically to the next floor without the need for manual activation. Elevators should comply with all applicable current standards for installation.



- b. Signage:** Accessible elevators should be labeled with signage that complies with Section 3.2.9.
- c. Well posted signage** should include the times when the elevator may not be operational due to conditions where the ship's roll exceeds the elevator manufacturer's safe operating criteria. When this occurs, passengers should be directed to alternative routes or to locations where assistance is available. (CTA, 1999)
- d. Clear Width of Doors:** The clear width between elevator doors, when in the open position, should be at least 900 mm. In a renovation situation and where it technically infeasible to provide the required minimum clear width, the minimum clear width between doors may be reduced 850 mm.
- e. Colour Contrast:** Elevator doors should be colour contrasted to adjacent surfaces. Elevator sills should be colour contrasted to adjacent floor surfaces.
- f. Elevator Floor Designation Characters:** Floor designation characters should be provided on both exterior door jambs in raised characters and Braille. Characters should be at least 50 mm high, should protrude a minimum of 0.75 mm above the jamb surface and be fixed at 1475-1525 mm above the floor, measured to the centerline of the characters (Figure 150).
- g. Doors and Opening Time:** Elevator doors should slide horizontally and open and close automatically. Elevator doors should remain open for a minimum 8 seconds under automatic operation; a manual 'Close' button may be installed to allow users to override the waiting time, but the use of this 'Close' facility needs care, either by the control operation by a Lift Attendant, by key 'de-activation', or by local 'time re-setting' to less than 8 seconds, otherwise there is the risk of door closure striking disabled or older persons as result of other passenger's impatience.
- h. Elevator Leveling Device:** Elevators should incorporate a two-way automatic leveling device to maintain the cab floor elevation to within ± 13 mm of the floors that it serves.
- i. Door Re-opening Device:** Doors should include door re-opening devices that will automatically re-open the elevator door and an adjacent hoist way door to a minimum of 900 mm. Door re-opening devices should activate automatically without contacting obstructions that are between 100-150 mm and 700-760 mm above the floor.





j. Interior Cab Dimensions: The elevator cab interior width, measured between opposing side walls should be a minimum of 1725 mm and depth, measured between the rear wall and door, excluding return panels, should be a minimum of 1525 mm (Figure 149). In high occupancy on-board public facilities, such as arenas, libraries or entertainment theatres/cinemas, the minimum interior width of the elevator cab should be increased to 2025 mm. In renovation situations where it is technically infeasible to provide the required cab dimensions, a Limited Use/Limited Application (LU/LA) elevating device with a platform length of at least 1525 mm may be used.

k. Cabs Floors: Cab floors should be firm and slip-resistant.

l. Handrails: Handrails should be installed on all cab walls that do not have a door. Handrails should be mounted at a height of 800-900 mm above the cab floor and should have a 40-45 mm space between the rail and the cab wall surface.

m. Elevator Interior Controls: Elevator controls located at the interior of the cab should be positioned to permit easy access for persons in wheelchairs. Floor register button design may be raised, flush or recessed, and should have a minimum size of 19 mm across measured in any direction. Where flush or recessed buttons are used, the depth for activation or the depth of the recess should not exceed 10 mm. Elevator control buttons should be located between 900 mm and 1200 mm above the elevator floor, measured to the centerline of the button. When activated, each call should be confirmed with visual and audible indicators; when a call is answered, the visual indicator should be extinguished (Figure 151 and 152).

n. Control Markings: All controls located at the interior of the cab should include markings consisting of Grade 2 Braille in addition to raised characters for letters, numbers, and standard cab symbols. Markings should be located to the immediate left of the buttons to which they apply, and measure a minimum of 16 mm across in any direction. Raised characters only, are permitted to be located on the control button surface. Raised characters should project from the surface at least 0.75 mm.

o. Emergency Car Controls and Door-Operating Buttons: Emergency car controls and door-operating buttons should be grouped together at the bottom of the control panel.



- p. In Cab Indicator:** An illuminated display should be provided in the elevator cab that displays the floor level that the elevator cab is stopped at or passing. The illuminated display should have characters that are at least 16 mm high and are displayed against a colour contrasted background.
- q. Illumination:** The car controls, landing sill and floor should be illuminated by a minimum of 200 lux, measured at the control, sill and floor levels. The illumination level of cars should be equivalent to adjacent lobby spaces.
- r. Hall Call Buttons:** Elevator call buttons located at the exterior of the elevator cab (Hall Call buttons) should measure at least 20 mm across in any direction. Hall call buttons should be mounted one above the other, with the centre line of the configuration between 900-950 mm above the floor (Figure 150).
- s. Hall Visual Indication:** An illuminated display should be provided at the exterior of the elevator cab, that displays the floor level that the elevator cab is stopped at or passing.
- t. Hall or In-Car Lanterns:** Lanterns should be provided at the exterior and interior of elevator cabs that display the elevators direction of travel. Lanterns should be installed at a minimum height of 1825 mm above the floor. Lanterns should measure a minimum of 60 mm in any direction.
- u. Audible Signals and Voice-Annunciation:** An audible signal should be provided in the hall when a elevator makes a stop at a floor level. In addition, voice-annunciation technology should be used to announce floors and direction of travel within elevator cars.
- v. Emergency Call System:** All elevators should be linked directly to a monitored location through an emergency call system featuring two-way communication. Symbols adjacent to the emergency call buttons should measure at least 35 mm high and should project from the surface a minimum of 0.75 mm; permanently attached plates are acceptable. When a handset is provided as part of the emergency call system, the length of the cord connecting the handset to the panel should be a minimum of 750 mm in length. Additionally the handset should incorporate a receiver that generates a magnetic field in the area of the receiver cap, and the handset should have a volume control. Where the emergency call system is located in a closed compartment, the compartment door and hardware should conform to Appendix 1 (Controls and Operating





Mechanisms. The emergency call system should be capable of functioning without voice communication.

w. Mirrors: When mirrors or similar materials are installed inside elevator cabs/lift cars, they should not be located lower than 2000 mm above the floor. Mirrors or similar materials should not be installed on the wall opposite the door, unless any interior cab dimension is less than 1525 mm; then a slightly angled mirror should be provided on the wall opposite the door to assist persons using mobility devices to back out.

x. Alternative elevating device: When structural limitations of a passenger vessel prevent the installation of an accessible elevator as has been described above, the operator of the vessel is required to explore the possibility of installing another type of elevating device such as a platform lift described in section 4.2.2 that would permit persons with disabilities to access the various decks on the Ferry/Cruise Ship. The staff of the vessel should always be available to provide assistance, if requested, to a person with a disability in accessing any public areas of the vessel which are accessible. (CTA, 1999)

4.2.1.4 Illustrations

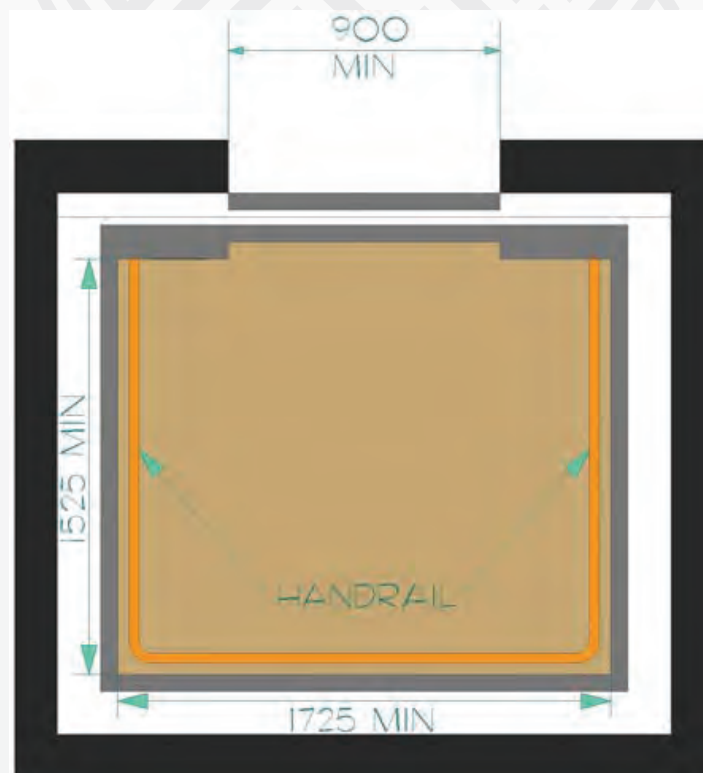


Figure 149: Elevator Dimensions
Source: UDA & Associates



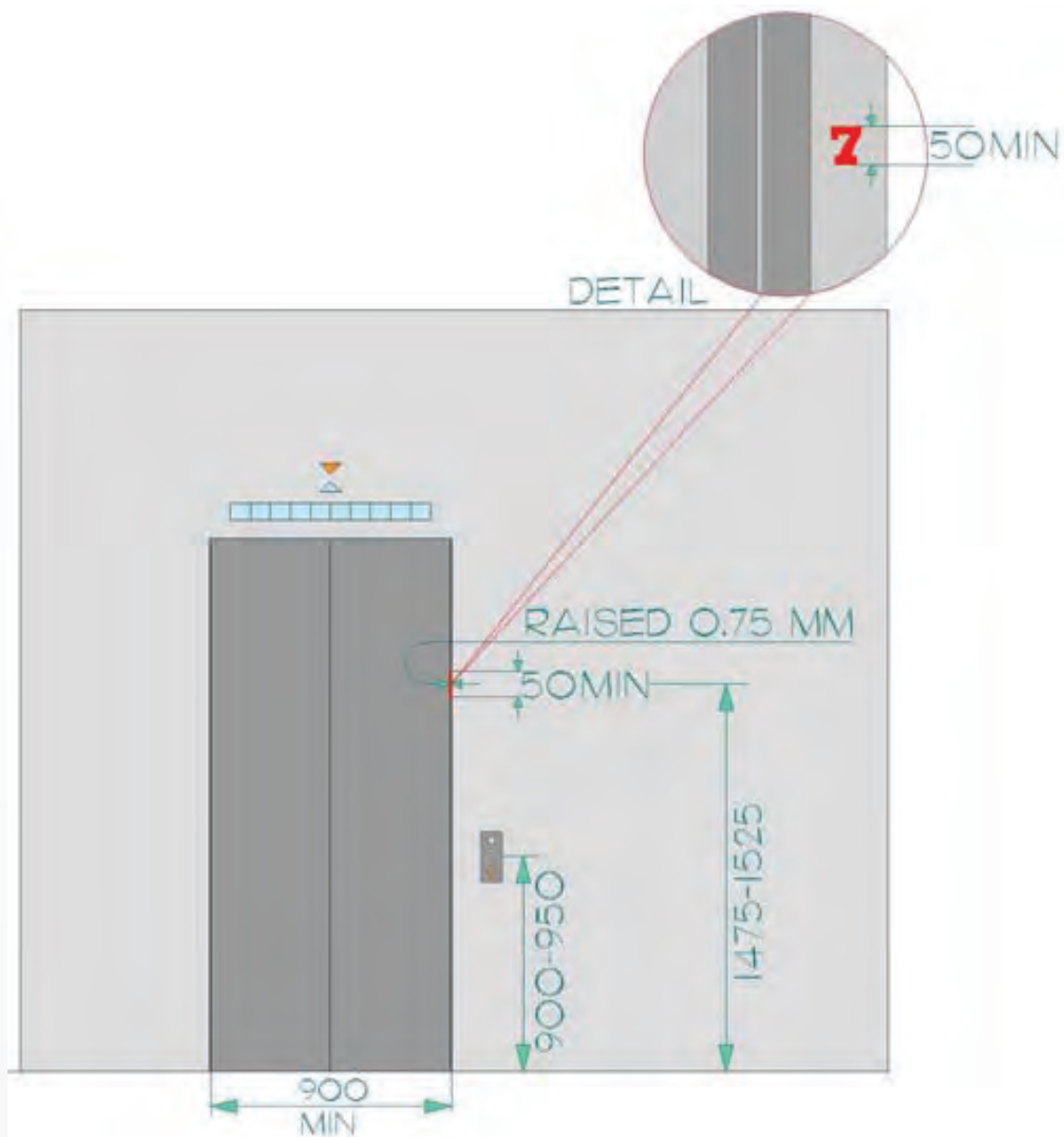


Figure 150: Elevator Entry
Source: UDA & Associates



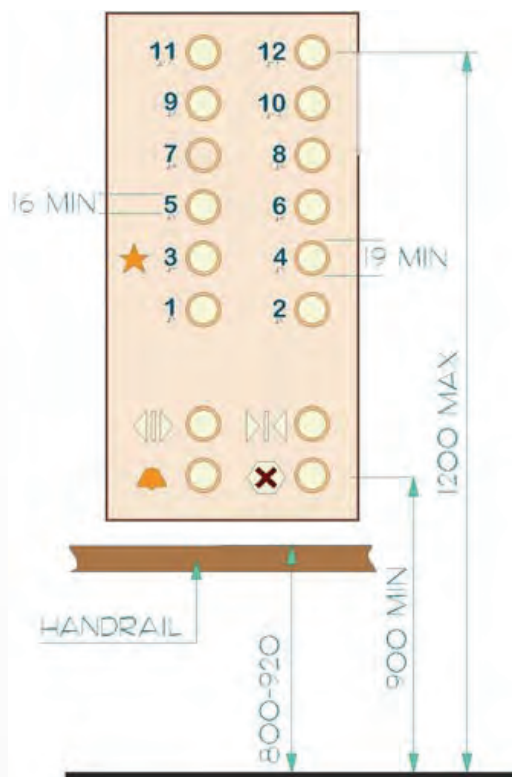


Figure 151: Control Panel

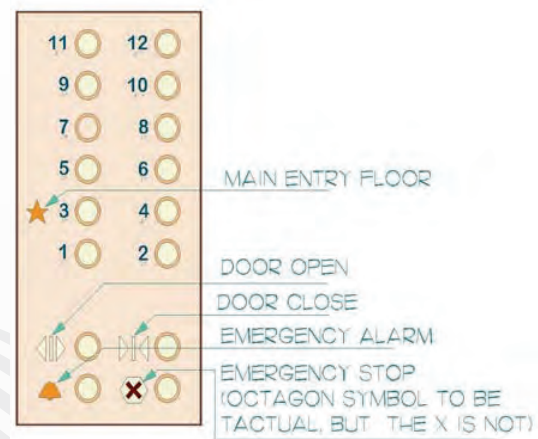
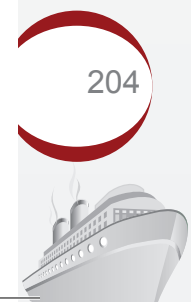


Figure 152: Tactile Symbols

Source: UDA & Associates

4.2.1.5 Other Considerations

- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.6 Stairways
- 3.2.7 Handrails
- 3.2.8 Doorways
- 3.2.9 Signage
- 4.2.2 Inclined and Vertical Platform Lifts
- 6.5.1 Public Announcements in Terminals
- Appendix 1 Controls and Operating Mechanisms



4.2.2 Inclined and Vertical Platform Lifts

4.2.2.1 Design Considerations

Elevators (Lifts) may be considered part of an accessible route and should incorporate appropriate accessible features to meet the requirements of the wide range of persons who will use them.

The design of buttons should anticipate a range of abilities in reach, dexterity and vision. Individuals with a visual impairment require audible cues that identify floor levels and the direction of travel. Doors should be equipped with a delay to allow persons using mobility devices ample time to reach, enter or exit the elevator car. A mirror is recommended to assist individuals using mobility devices as they back out of a elevator where there is insufficient space to turn around.

Multi-Deck Passenger Vessels. In multi-deck passenger vessels, there shall be at least one onboard accessible route connecting each passenger deck and mezzanine. In the case of passenger vessels having multiple entry decks, at least one onboard accessible route shall connect each entry deck. (ICCL, 2005)

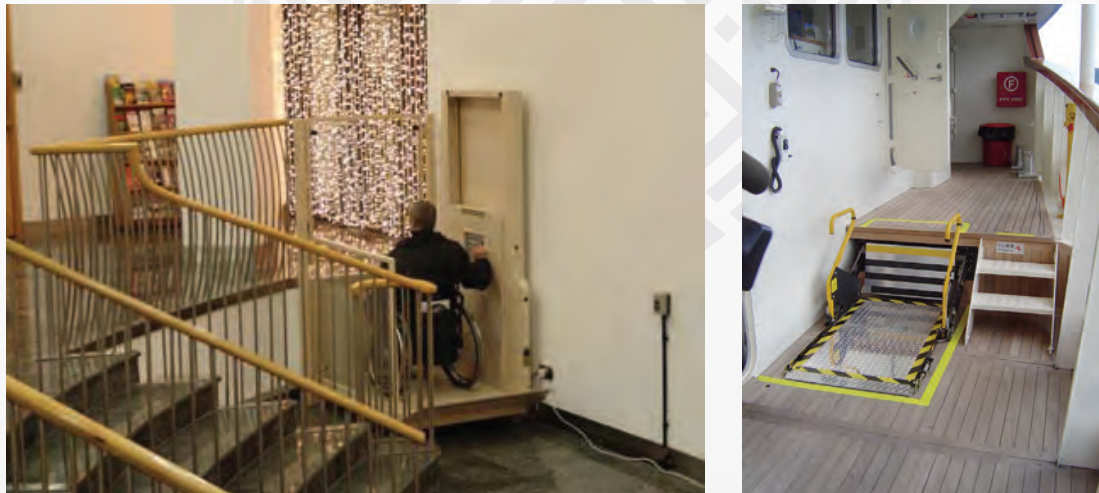


Figure 153: Platform Lifts; showing examples of lifts positioned adjacent to steps with independent user operations.
Source: UDA & Associates

4.2.2.2 Application Guidelines

Inclined platform lifts, vertical platform lifts and Limited Use/Limited Application (LU/LA) lifts should comply with this section. A LU/LA lift, or other accessible lifting device, may be used only where it is technically infeasible





to install a passenger elevator in compliance with Section 4.2.1 or a ramp in compliance with Section 3.2.5.

4.2.2.3 Technical Guidelines

- a. General: Platform lifts should be located on an accessible route that complies with Section 3.2.1, 3.2.2. The platform lift should comply with all current applicable standards relating to installation.
- b. Signage: Platform lifts should be identified with signage that complies with Section 3.2.9.
- c. Platform Size: The minimum platform size of a lift should be 890 mm wide and 1525 mm long.
- d. Floor Finishes: Floor finishes used on lift platforms should be slip resistant and should comply with Section 3.2.4.
- e. Guards: Safety guards should be provided along all edges of lift platforms.
- f. Doors: Doors to platform lifts should be designed to permit unassisted entry, operation, and exit from the lift and should comply with Section 3.2.8.
- g. Controls and Operating Mechanisms: Lift controls should be located between 900 - 1200 mm above the lift floor, measured to the centerline of the control. Controls and operating mechanisms should not require keys to be operated and should comply with Appendix 1 Control and Operating Mechanisms.
- h. Emergency Call System: Platform lifts should be linked directly to a monitored location through an emergency call system featuring two-way communication. When a handset is provided as part of the emergency call system, the length of the cord connecting the handset to the panel should be a minimum of 750 mm in length. Where the emergency call system is located in a closed compartment, the compartment door and hardware should conform to Appendix 1: Controls and Operating Mechanisms. The emergency call system should be capable of functioning without voice communication.



4.2.1.4 Illustrations

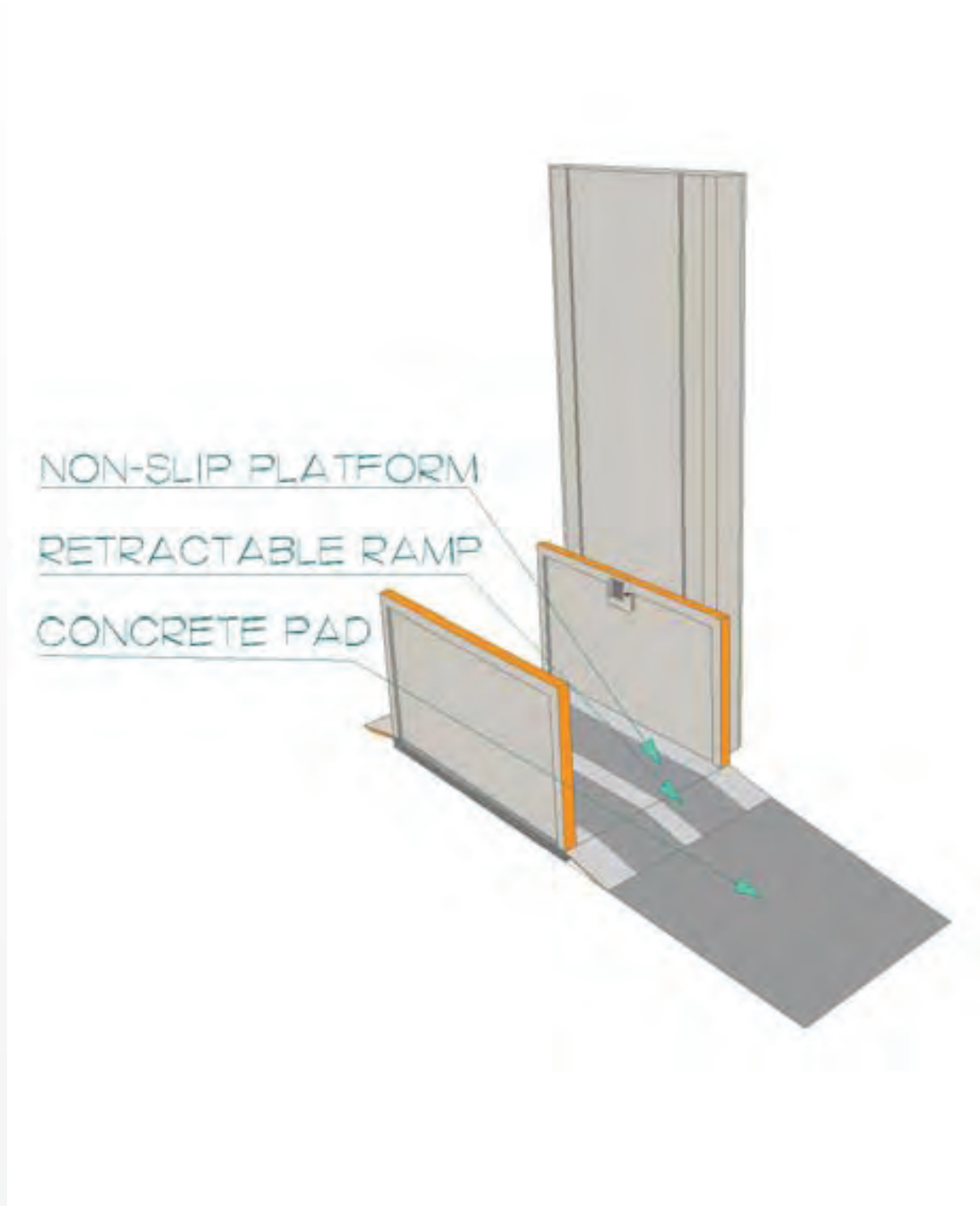


Figure 154: Vertical Platform Lift
Source: UDA & Associates



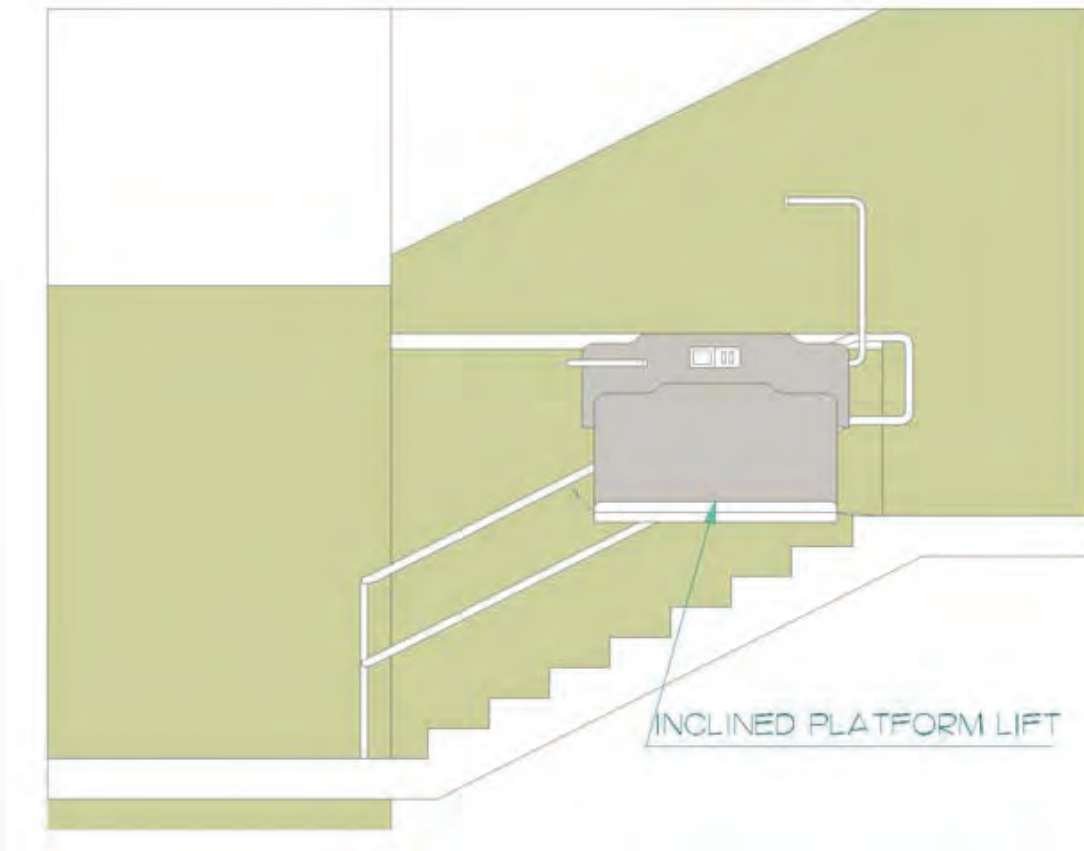


Figure 155: Inclined Platform/ Stair Lift
Source: UDA & Associates

4.2.2.5 Other Considerations

- 4.2.1 Elevators
- 3.2.8 Doorways
- 3.2.4 Surfaces/Floors/Walking Surfaces /Decks and Floors
- 3.2.7 Handrails
- 3.2.9 Signage
- 6.5.1 Public Announcements in Terminals
- Appendix 1 Controls and Operating Mechanisms



4.3 Pathway via Bridges to Seat (Corridors, Stairs, Ramps)

Refer to Section 3.2 Pathways to Seat (Corridors, Stairs, Ramps)

4.4 Wheelchair Positions and Securement

Refer to Section 3.3 Wheelchair Positions and Securements

4.5 Family and Gender Seating

Refer to Section 3.4 Family and Gender Seating

4.6 Access to Washroom (Wheelchair with Attendant)

Refer to Section 3.5 On-board Washrooms (Wheelchair with Attendant)

4.7 Access to Restaurants and Cafeterias

Refer to Section 3.6 On-board Restaurants, Cafeterias and Snack Bars

4.8 Onboard Public Information and Communication

Refer to Section 3.8 On-board Public Information and Communication Facilities (PA Systems, Monitors, E-Boards)

4.9 Individual Safety Briefings

Refer to Section 3.7 Individual Safety Briefing for Passengers who are Blind and Deaf

4.10 Emergency and Evacuation, Escape Routes

Refer to Section 3.9 Emergency and Evacuation, Information and Procedures





4.11 Emergency and Evacuation Equipment for Mobility Impaired

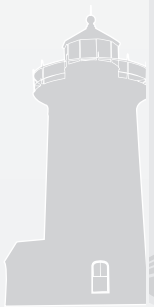
Refer to Section 3.10 Emergency and Evacuation Equipment for Mobility Impaired

4.12 Arrival Information

Refer to Section 3.11 Arrival Information

4.13 Baggage Retrieval

Refer to Section 3.12 Baggage Retrieval



Access of Cruise Vessel with Tender





5.0 Boarding via Passenger Bridge, Elevator, Walkway

5.1 Boarding via Car Ramp, Passenger Bridge, Gangways

Refer to Sections:

- 4.1 Boarding via Car Ramp, Passenger Bridge, Gangways
- 3.2.5 Ramps
- 3.2.6 Stairways
- 4.2.1 Elevators

5.2 Pathway to Cabin (Corridors, Stairs, Ramps, Elevator)

Refer to Sections:

- 3.2 Pathways to Seats (Corridors, Stairs, Ramps)
- 4.2 Pathway from Car Deck to Seat via Elevator, Stairs
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.6 Stairways
- 3.2.11 Lighting
- 4.2.1 Elevators

5.3 Wheelchair Positions and Securement in Public Areas

Refer to Sections:

- 3.3 Wheelchair Positions and Securement

5.4 Family and Gender Seating

Refer to Sections:

- 3.4 Family and Gender Seating

5.5 Access to Public Washroom (Wheelchair with Attendant)

Refer to Section :

- 3.5 On-board Washrooms (Wheelchair with Attendant)





5.6 Access to Restaurants and Cafeterias

Refer to Section :

3.6 On-board Restaurants, Cafeterias and Snack Bars

5.7 Access to On-board Swimming Pool(s), Theatres, and Conference/Meeting Rooms

5.7.1 Conference Facilities

5.7.1.1 Design Considerations

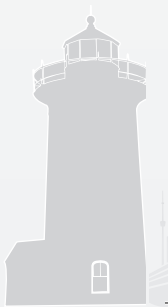
This part is to ensure the accessibility of conference facilities for persons with functional sensory limitations and functional physical/ mobility limitations.

5.7.1.2 Application Guidelines

These requirements should apply to all on-board conference or meeting venues.

5.7.1.3 Technical Guidelines

- a. **Seating options:** People who use mobility aids such as wheelchairs or walkers should have multiple options regarding seating, instead of being limited to the back of front of the room. It is important to allow choice.
- b. **Aisle width:** Aisles should be at least 1200 mm wide, but 1500 mm is recommended. Care needs to be taken in case of cross-code conflict, as in the case of some codes that require central hand railing in aisles.
- c. **Reserved seating:** Make sure to have seats reserved in front of the room for participants with functional visual and auditory limitations who may be more comfortable in the front.
- d. **Accessible speaking area:** Any speaking area should be accessible. If a raised platform is used for the presenter it should be equipped with a ramp and handrails. The platform itself should be large enough for a wheelchair user to manoeuvre and still allow room for a sign language interpreter. Presenters should have the option of a podium or table to use during a presentation.



e. Good quality sound system: Good quality sound system. Clear undistorted sound will facilitate communication for guests with functional hearing limitations, who do not employ hearing aids. Specialist acoustics design advice will be necessary to control the natural ambient soundfield in larger volume spaces.

f. Induction loop fitted for users of hearing aids, or infrared portable induction loops available on request. This will facilitate communication for guests with functional hearing limitations and who use hearing aids.

g. Lighting: There should be a good even lighting and/or spotlights with dimmers that allow lighting to focus on speakers. Persons with functional hearing limitations will rely on sign language and lip-reading. Good lighting levels are required to optimize communication and levels of 200 lux are recommended.

h. Persons with functional visual limitations require adequate levels of light in a Meeting Room. Lighting is also important if a sign language interpreter is used. If lights are dimmed for an audio-visual presentation, make sure that the interpreter has a spotlight to allow the participant to see the interpreter's hands and faces.

i. Microphones should be used to ensure that no-one has to strain to hear a speaker. If the participants ask questions during the presentation or contribute to a discussion, a microphone should be available to the audience. Cordless microphones work best. If a microphone is set up in an aisle, make sure it does not impeded traffic.

j. Sign language interpreter: If a sign language interpreter is used, it is important that they sit close to the speaker and participants and have appropriate.

k. Extra seating: People with disabilities who rely on assistance may bring a personal attendant to the meeting. Meeting planners should be prepared to provide extra seating for personal attendants.

5.7.1.5 Other Considerations

3.2.1 Accessible Routes, Access Paths and Corridors

6.5.1 Public Announcements in Terminals





5.7.2 Cinemas, Theatres, Swimming Pools and Other Public Areas

5.7.2.1 Design Considerations

5.7.2.2 Application Guidelines

These guidelines will apply to all passenger vessels with cinemas, theatres or swimming pool facilities.

5.7.2.3 Technical Guidelines

- a. **Dedicated seating areas for wheelchair users:** In Cinemas and theatres, dedicated seating areas for wheelchair users should be provided near to an evacuation route. If the space allows, dedicated wheelchair spaces should be arranged to allow a wheelchair user the choice of seating beside another wheelchair user or next to standard seating allowing for a companion.
- b. **Colour contrast:** The accessible seating should contrast visually with the surrounding surfaces.
- c. **Accessible passageways:** The passageways along the seating rows should suit Section 3.2.1 Accessible Routes, Access Paths and Corridors.
- d. **Hearing enhancement system:** There should be a hearing enhancement system installed for people with hearing impairments.
- e. **Audio descriptive facilities:** Cinemas and theatres should provide audio descriptive facilities for people with visual impairments.
- f. **Accessible facilities:** All leisure facilities on-board (including swimming pools, gyms, libraries, etc.) should be accessible. If the swimming pool is large enough to accommodate a suitable lifting or hoisting device to transfer the PwDs into the water for swimming, and platform lifting device(s) provided in an appropriate position so as to allow an individual in a wheelchair, safe access to this area. (DPTAC, 2007)

5.7.2.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors



5.7.3 Retail Sales Areas

5.7.2.1 Design Considerations

As a core component of passenger facilities, provision should be made for ensuring that retail sales areas are accessible to all passengers.

5.7.2.2 Application Guidelines

This part shall apply to all retail sales areas on-board marine vessels.

5.7.3.3 Technical Guidelines

a. Accessible aisles, counters: Where provided, check-out aisles, sales counters, service counters, food lines, queues, and waiting lines shall comply.

b. Where check-out aisles are provided, accessible check-out aisles shall be provided in accordance with Figure 156. Where check-out aisles serve different functions, check-out aisles shall be provided in accordance with Figure 156 for each function. Where check-out aisles are dispersed throughout the passenger vessel or facility, accessible check-out aisles shall be dispersed.

Figure 156

Number of Check-Out Aisles of Each Function	Min. number of Check-Out Aisles of Each Function Required to be Accessible.
1 to 4	1
5 to 8	2
9 to 15	3
16 and over	3, Plus 20 percent of additional Aisles

a. Where provided, at least one of each type of sales counter and service counter shall be accessible. Where counters are dispersed throughout a facility, accessible counters shall also be dispersed

b. Food service lines shall be accessible. Where self-service shelves are provided, at least 50 percent, but no less than one, of each type shall be accessible.





Appropriate separate and designated food services lines for families, males and females should be provided according to local customs. Clear signage should indicate the location(s). Refer to 6.3.2.

c. Queues and waiting lines servicing counters or check-out aisles are required to be accessible.

5.7.3.4 Other Considerations

Bathrooms associated with mobility accessible rooms should comply with:

- 3.5.1 Onboard Washrooms
- 3.5.2 Toilets
- 3.5.3 Washbasins
- 3.5.4 Urinals
- 3.5.5 Washroom Accessories



5.7.4 First Aid and Medical Facilities

5.7.4.1 Design Considerations

Persons with varying functional limitations may need to make more use of medical and first aid facilities than most passengers due to the varying complexities associated with functional limitations. Furthermore, provision for equalization of access to medical facilities is a right that should be made available to all passengers.

5.7.4.2 Application Guidelines

This part should apply to all marine vessels.

5.7.4.3 Technical Guidelines

Accessible rooms/cabins: Where patient sleeping rooms are provided in medical care facilities, at least 10 percent but no less than one, of the patient sleeping rooms shall be required to be accessible.

First-aid policy: Operators should decide their first-aid policy and make appropriate arrangements to ensure that in the event of a passenger with a disability becoming ill they can be given the same attention, including access to first-aid rooms, as any other passenger.

Accessible toilet and bathing rooms: Toilet and bathing rooms that are provided as part of a patient sleeping room that is accessible must themselves be accessible. Where patient sleeping rooms share common ablutions, no less than one lavatory, one water closet, one bathtub and one shower shall be accessible.

5.7.4.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.5.1 Onboard Washrooms
- 3.5.2 Toilets
- 3.5.3 Washbasins
- 3.5.4 Urinals
- 3.5.5 Washroom Accessories
- 5.16.1 Emergency Call Device





5.8 On-board Public Information and Communication (Captioning on Monitors)

Refer to Sections: 3.8 On-board Public Information and Communication Facilities (PA Systems, Monitors, E-Boards)

5.9 Real-Time Information in Audio and Text (By Crew for Emergencies and Evacuations in Public and Private Areas)

5.9.1 Real-Time Information in Audio and Text

5.9.1.1 Design Considerations

For all passenger vessels, it is very important to be aware of real-time information be it an announcement relating to evacuation of the vessel, a change in arrival wharf, or a change in sea conditions. This information needs to be accessible from all public access and private crew and passenger cabin areas on-board the vessel. It must be in multiple formats so that it is readily understood by individuals with disabilities and the elderly.

5.9.1.2 Application Guidelines

These guidelines should apply to all passenger vessels, in all public access and private crew and passenger cabin areas.

5.9.1.3 Technical Guidelines

Public Address System: On all passenger vessels, there should be a public address system covering all areas where passengers and crew have access, escape routes, and places of embarkation into survival craft. The system should be designed so that flooding or fire in any compartment does not render other parts of the system inoperable. Refer to Section 6.5.1.

Multiple Formats: The system should provide information in multiple formats such as visual and auditory formats.

Signage: All passenger vessels should be equipped with illuminated or luminous notices or video information system(s) including on the television screen visible to all sitting passengers, in cabins or on deck in order to notify them of safety measures. (MCA, 2000)



5.9.1.4 Other Considerations

- 3.2.10 Symbols, Graphics and Pictograms
- 3.7.2 Safety Announcements
- 3.8.1 Information and Announcements – Maritime Vessels and Facilities
- 3.8.2 Accessibility of Information in On-Board Facilities
- 3.11.1 Arrival/Departure Monitors and Other Electronic Signage





5.10 Emergency and Evacuation, Escape Routes (Handrails, Walking Surfaces, Audio, Visual and Tactile Information)

Refer to Sections:

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.9 Signage
- 3.2.7 Handrails
- 3.9 Emergency and Evacuation Information and Procedures

5.11 Evacuation Equipment for Passengers in Wheelchairs

Refer to Section 3.10 Evacuation Equipment for Mobility Impaired

5.12 Cabin Identification for Low Vision or Blind Passenger

5.12.1 Cabins: General Requirements

5.12.1.1 Design Considerations

As a large user-group of cruise ship passengers will be older persons, children and other persons with limited functional abilities, especially with regard to visual limitations, provision needs to be made to increase the ease of cabin accessibility.

5.12.1.2 Application Guidelines

This part should apply to all rooms in all places of cabin accommodation.

5.12.1.3 Technical Guidelines

- a. **Orientation offered to guest.** Persons with functional visual limitations need to be provided with an orientation of exactly where everything is in their bedroom in order for them to create a mental map.
- b. **Tactile signage** to be on outside of cabin door for orientation and location of cabin. Refer to Section 3.2.9.



- c. Emergency and evacuation procedures:** Guest is briefed on emergency and evacuation procedures. This is in order for guests with functional visual limitations to be fully conversant with emergency or evacuation procedures, especially if they cannot read Braille.
- d. Multiple format:** Escape route maps and emergency procedural information provided in large print and Braille. To provide readers with an accessible format mapping of all emergency routes and procedures to be employed in the event of an evacuation.
- e. All general information available in large print, Braille and audio format.** To enable guests with functional visual limitations access to information. Refer to 3.8.2 and 3.8.4.
- f. Circulation space:** 800 mm wide unimpeded circulation space around and between beds and furniture. Guests with functional visual limitations need free circulation when using a long cane in order to prevent bumping into furniture.
- g. Doors:** Bedroom doors should be able to be fully opened against adjacent bedroom walls. If doors are not flush against a wall, a person with a functional visual limitation can risk walking into the door and being harmed.
- h. Bedroom doors with sound activation.** A portable alarm system indicating that the bedroom door is being opened.
- i. Door handles:** Door handles and drawer knobs with contrasting colors. This provides an indication to a guest with a functional visual limitation of the position of the door handles
- j. On/off detectable power points and light switches:** Power points and light switches with rocker switches that are on/off detectable. This is necessary to provide a clear indication to guests with functional visual limitations that the light is on or off.
- k. Furniture selection:** All furniture with rounded edges and corners. In order to prevent injuring themselves, it is necessary that the furniture in the bedroom does not have sharp edges.
- l. Colour contrast:** All features of the cabin to be colour contrasted. No complicated patterned materials for the carpets and bedspreads. Complicated





patterned materials on curtains, wallpaper, carpets and bedspreads make it difficult for persons with functional visual limitations to perceive items of furniture or doorways.

m. Telephone handset with a raised pip on the five buttons. This allows guests with functional visual limitations to orientate themselves on the keypad.

5.12.1.4 Other Considerations

- 3.2.8 Doorways
- 3.2.9 Signage
- 3.2.10 Symbols, Graphics and Pictograms
- 3.2.11 Lighting
- 3.8.2 Accessibility of Information in On-Board Facilities
- 3.8.4 Provision of Tourism-Related Information in Multiple Formats
- 3.9.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- 3.9.2 Emergency Alarm Systems
- 5.9.1 Real-Time Information in Audio and Text
- 5.14.1 Accessible En-suite Bathrooms fitted with Mobility Features
- 5.14.2 Bath Fitted as Part of an Accessible Cabin

5.13 Wheelchair Access to Cabin

Refer to Sections:

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 4.2.1 Elevators
- 4.2.2 Inclined and Vertical Platform Lifts
- 3.2.5 Ramps

5.14 Cabin Identification for Low Vision or Blind Passenger



5.14 In-Cabin Accessible Washroom/Shower/Vanity (Wheelchair with Attendant)

5.14.1 Accessible En-suite Bathrooms Fitted with Mobility Features

5.14.1.1 Design Considerations

All individuals who are disabled should be able to wash or bathe independently or with the assistance of others.

An accessible cabin with en-suite facilities should comprise at least a WC, a washbasin and a level access shower or bath/shower.



Figure 157: Wheelchair Accessible En-suite
(Source : Princess Cruises: Island Princess, from website <http://www.wheelchaircruising.com/princess.html>)



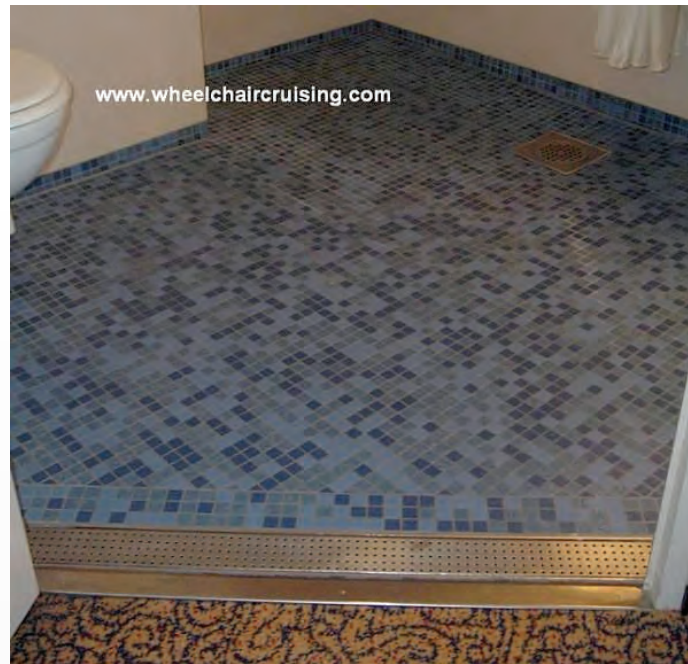


Figure 158: Level Access into Accessible En-suite
(Source : Princess Cruises: Island Princess, from website <http://www.wheelchaircruising.com/princess.html>)



Figure 159: Accessible En-suite – Shower
(Source : Cruise Critic.co.uk Cruise Reviews & News URL: <http://cruiseforums.cruisecritic.com/showthread.php?t=984577>
Accessed 20/08/09)



5.14.1.2 Application Guidelines

This part should apply to all bathrooms attached to rooms outfitted with mobility features i.e. those rooms contemplated in 5.15.1

5.14.1.3 Technical Guidelines

- a. **Fixed slip-resistant floor surface:** Wooden, tiles or pile carpet no longer than 13 mm to ensure that wheelchair users do not slip and injure themselves. Flooring should be slip resistant when wet or dry.
- b. **Non-reflective surfaces:** For visually impaired individuals, surfaces should be non-reflective, lighting should be adequate (Refer to section 3.2.11), and Furniture and fittings should colour contrast with their surroundings to help visually impaired people identify them; (DPTAC, 2007)
- c. **Clear opening width of doors to be 900 mm with the door in a 90 degree open position;**
- d. **Clear unobstructed space:** Size of clear unobstructed space in front of doors to be 1100 x 1500 mm. All bathrooms must have enough internal space in front of the doors to allow for door closure without any obstacle for the wheelchair user.
- e. **Provision of walk-in shower:** If there is only one accessible bedroom provided for disabled people it should have a roll-in shower facility rather than a bath. Many disabled people are only able to use a shower due to physical disability. If there is more than one accessible bedroom provided, there should be a choice of shower or bath and a choice of right or left hand transfer to wheelchair and shower or bath. Right hand transfer means to transfer to the right when a person is seated in their wheelchair.
- f. **Washroom accessories:** All usual accessories such as towels, sanitary provision and toiletries should be placed at a level reachable from a wheelchair. Refer to section 2.3 on Anthropometric Data; Refer section 3.5.5 Washroom Accessories.
- g. **Emergency alarm systems in the form of pull cords refer to section 5.16 for emergency call device.**





h. Wash-Hand Basin: Refer to section 3.5.3 Washbasins

- **General:** Basic adjacent to W.C. set at 800 mm height with 720 mm clear space under basin. Tap to be covered with heat resistant lagging if composition is heat-conducting. This is essential to enable the wheelchair user to comfortably manoeuvre under the basin to make proper use of it, and to avoid slow burns to legs lacking sensation, which might come into contact with the warm trap.
- **Lever action taps or mixer:** It is easier for a person with a functional physical limitation to use the taps if they are lever action rather than knobs which have to be gripped and turned.
- **Mirror location:** Mirror located between 75 mm and 150 mm above basin. This is to ensure that the wheelchair user is able to see his/her reflection at the basin while seated in the wheelchair and still make it possible for ambulatory persons to see their reflections. Refer section 3.5.5 Washroom Accessories.
- **Towel rails set at a height between 900 – 1000 mm.** It must be possible for wheelchair users to reach the towel rail comfortably.

i) Roll-in-Shower (preferable):

- **Shower seat provision:** 400 mm x 400 mm fold-down shower seat set at a height between 450 mm and 500 mm. The centerline of the shower seat must be set at 480 mm from the adjacent wall opposite the transfer space.
- **Grab bars:** Vertical and cranked grab bars on either side of shower seat. 600 long vertical grab bar and cranked grab bar at 800 mm at the lowest.
- **Lever action shower mixer and hand shower on adjustable rail:** The wheelchair user must be able to transfer from his/her wheelchair to the shower seat with ease and it must therefore be at the appropriate height and must not obstruct the ability of the wheelchair to maneuver into the shower.
- **Tiled run-off which negates threshold.** This means that there is a natural flow to the outlet with no threshold. However, it may be considered that in some situations the flooding hazard requires a wet-compartment (Bath and/or Shower Room) threshold, particularly where refurbishment does not allow the insertion of floor level continuous drainage channels, or where natural falls and flows to outlet are insufficient, in which case a 20mm threshold beveled on both sides may be considered.



- **Shower-Curtains:** Shower curtains and water-spray/splash control. All shower curtains and suspended devices on tracks at high level to control water splashing should have rigid wands (down to chair arm level), so that the curtains may be controlled on their tracks from this low level.
- j. **W.C. Pan:** General provisions for toileting facilities: Refer to section 3.5.2 Toilets.
- **Toilet location specifications:** 800 mm wide transfer space to side of pan. The wheelchair user would need to be able to maneuver the wheelchair beside the W.C. pan in order to transfer from the wheelchair to the W.C. and back again without any obstacles.
 - **Front edge of the pan to project at least 690 mm from rear wall.** This allows for enough space for a wheelchair user to gain access to the W.C. pan.
 - **Center line of the toilet not more than 480 mm from wall opposite transfer space.** This is to ensure that the wheelchair user may use this space to ensure safe and secure transfer from the wheelchair to the W.C. and back again.
 - **W.C. seat height between 450 mm and 500 mm.** This is to enable persons with functional physical limitations to comfortably transfer onto the seat and off again. The ill and elderly may also be too weak to transfer to a seat which is too low or too high.
 - **Extended flush-handle located on side of transfer space of cistern.** This enables the person with a functional physical limitation to comfortably reach the flush handle and use it effectively from the position of the wheelchair or W.C. seat.
 - **Cranked grab bar should be located 800 mm above floor finish.** This must be measured to the centerline of the horizontal portion to enable the person with the functional physical limitation to use the bar to lift him/herself off the W.C. seat onto the wheelchair and back again.
 - **Horizontal grab bar located at 800 mm above floor finish.** This must be measured to the centerline of the horizontal portion to enable the person with the functional physical limitation to use it to lift and support his/her weight to transfer.
 - **Toilet paper holder within 160 mm of the seat.**





k. Bathtub (Optional)

- **Access space at the side of the bathtub should be 1000 mm.** This is essential so that the wheelchair user may transfer comfortably from the wheelchair to the bathtub without any obstacles at the side of the bath.
- **Height of the edge of the bathtub between 450 mm and 500 mm.** This would enable the wheelchair user to transfer across from the wheelchair to the bathtub at the same height and back again – varying heights can make it impossible for the user to transfer into or out of the bathtub.
- **300 mm bench seat at the end of the bathtub.** This enables the person with the functional physical limitation to have support of a suitable width to take a seated position at the height of the edge of the bathtub when transferring from the wheelchair onto the bathtub – before getting into the bathtub.
- **Lever action bath-mixer with hand shower.** The person with functional physical limitations will find it easier to use a hand-shower with a lever action mixer rather than having to grasp and turn the different hot and cold knobs, which can often result in getting severe burns from hot water, which cannot be properly controlled.
- **“T”-Grab bar opposite transfer space.** The horizontal bar must be 200 mm above the bathtub rim so that the user may lift himself from the bathtub onto the transfer space and across to the wheelchair.
- **Removable bath seat. Refer to transfer bench in Section 5.14.2.** People with certain functional physical limitations might need to have a removable bath seat due to a physical inability to transfer in and out of the bath. Elderly people who are too ill or weak would also require this, as they do not have the strength to get in and out of a bathtub.



5.14.1.4 Illustrations

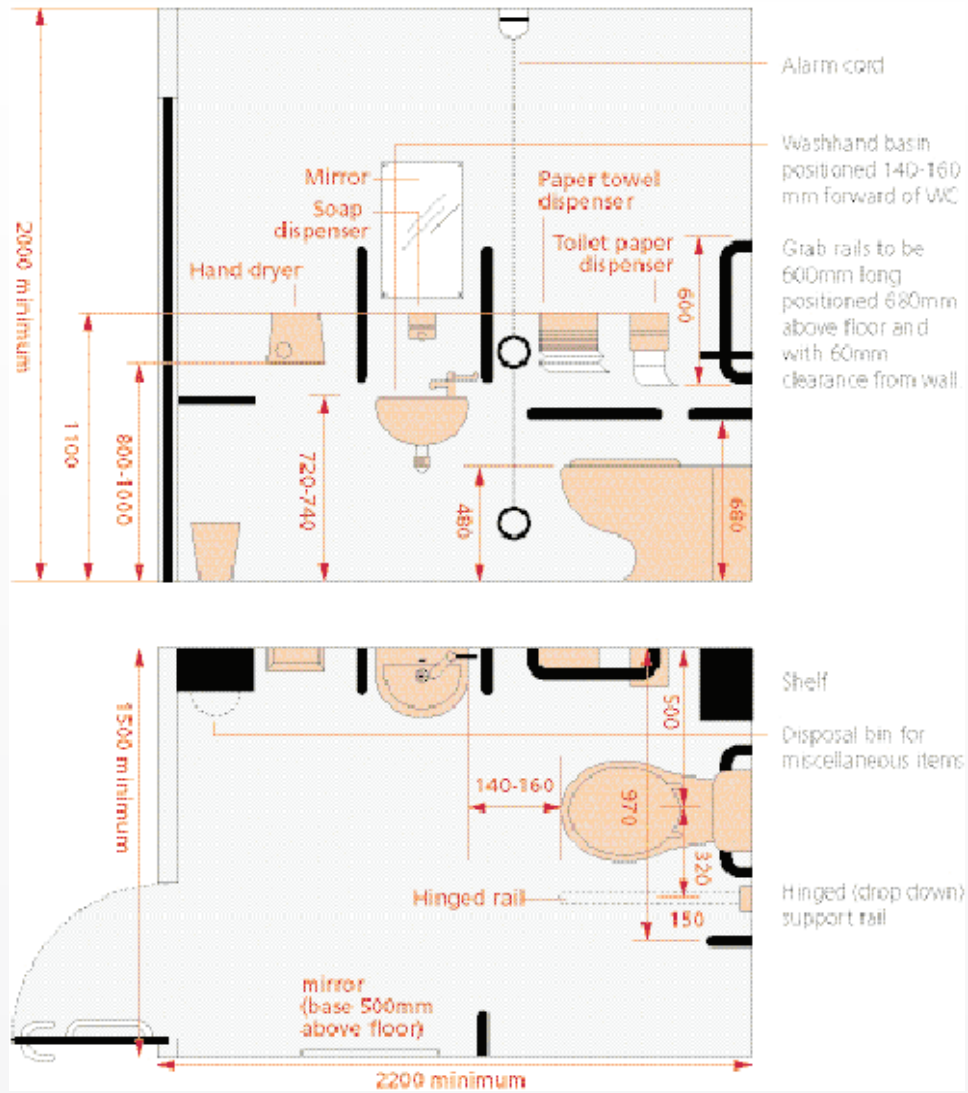


Figure 160: Preferred Layout for En-suite Washroom Facilities
Source: DPTAC, 2007



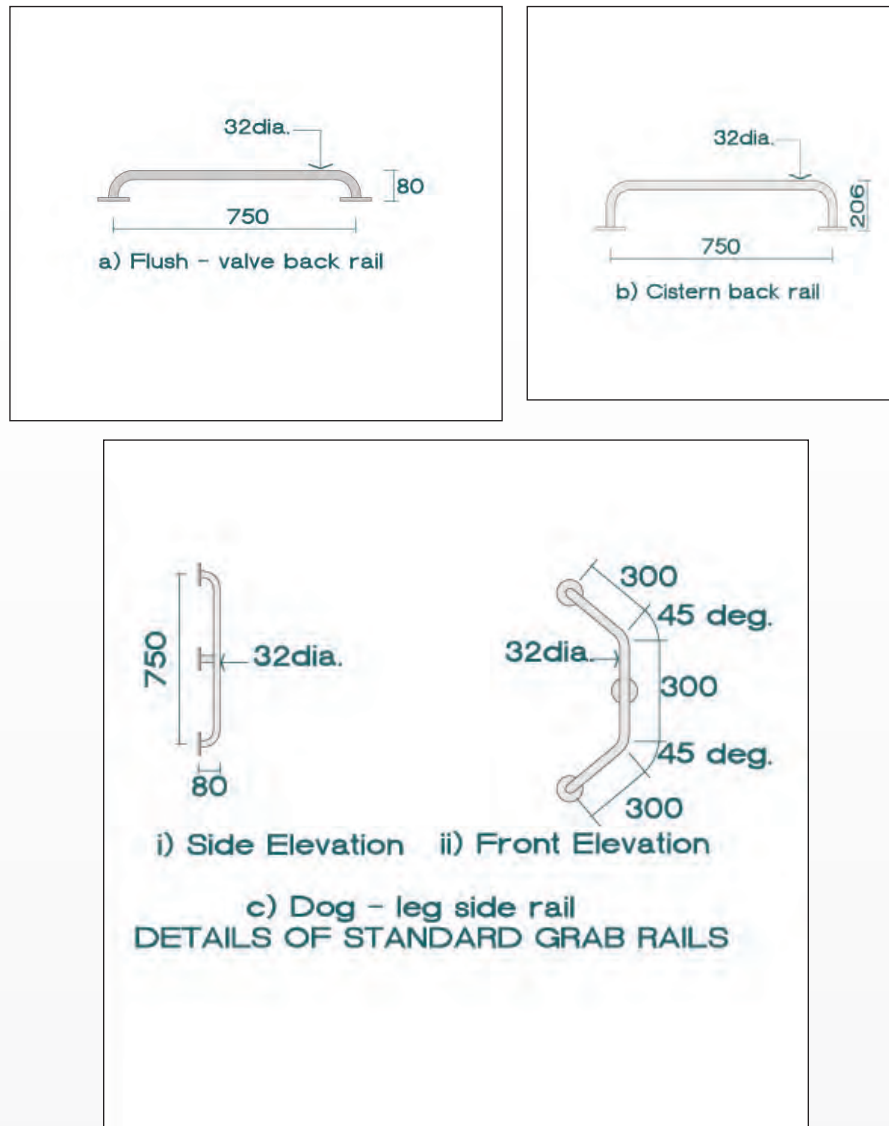


Figure 161: Details of Standard Grab-Rails to be employed in Bathrooms.
Source: UDA & Associates

Unless otherwise noted, all dimensions are in millimetres.

5.14.1.5 Other Considerations

- 3.5.1 Onboard Washrooms
- 3.5.2 Toilets
- 3.5.3 Washbasins
- 3.5.4 Urinals
- 3.5.5 Washroom Accessories
- 5.16.1 Emergency Call Devise



5.14.2 Bathtub Fitted as Part of an Accessible Cabin

5.14.2.1 Design Considerations

Bathtubs should be designed with safety in mind. Slip-resistant surfaces and grab bars reduce slipping hazards, while accessible operating systems address limitations in hand strength, dexterity and reach.



Figure 162: Bathtub

Showing an accessible bathtub with a slip resistant transfer pad, vertical and horizontal grab bars, and a hand held shower head on a sliding vertical bar allowing maximum flexibility. Note (from previous section) there should be a wand to control the operation of the shower curtain from low level.

Source: UDA & Associates

5.14.2.2 Application Guidelines

All bathtubs in accessible cabins should comply with this section.

In a renovation situation where it is technically infeasible to have all bathtubs comply with this section, at least 10% but never less than one, of bathtubs in accessible cabins should comply with this section.

5.14.2.3 Technical Guidelines

- a. A choice of layouts suitable for left-hand and right-hand transfer should be provided when there is more than one accessible bathroom available.
- b. In accessible bathrooms, the direction of transfer to both bath and toilet should be consistent. When more than one accessible bathroom is provided a choice of left and right-hand transfer layouts should be provided.



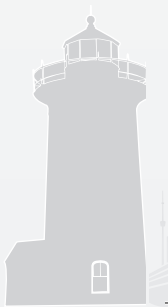


c. Clear Floor Space: A clear floor space should be provided adjacent to the open side of the bathtub. The clear floor space should be a minimum of 750 mm wide and should extend the full length of the tub plus the length of clear floor space required adjacent to transfer benches; Clear floor space measuring a minimum of 900 mm wide x 750 mm deep should be provided at the end of an accessible bathtub adjacent to the transfer bench. A washbasin is permitted to overlap the transfer space no more than 300 mm, provided required clear floor space that complies with Section 3.5.3 is provided. (Figure 163) The bath should have a length of either 1600 mm or 1700 mm by 700 mm width with a slip resistant base; there should be a distance of 800 mm allowed between the end of the bath and the wall to allow for the provision of a transfer seat; (DPTAC, 2007)

d. Grab Bars: With the exception of freestanding bathtubs, all accessible bathtubs should be equipped with two grab bars. The first grab bar should be located on the side wall, adjacent to the longest side of the tub, and the second located on the wall at the foot end of the tub. The side grab bar, shaped like an inverted letter “T”, should include a horizontal member that is at least 1200 mm long and a vertical member that is at least 800 mm long and centred on the horizontal member. The side grab bar should be mounted so that the horizontal member is positioned 800 mm above the floor level and the vertical member is positioned 300 mm away from the head end, toward the foot end, of the tub. The end grab bar, located on the foot end wall, should measure at least 1200 mm long and be mounted vertically. The vertical grab bar should be positioned 100 mm away from the edge of the tub, toward the side wall, with its lowest surface 200 mm above the bathtub. All grab bars should also comply with Section 3.5.2.3 e). (Figures 163, 164 and 165)

e. Transfer Bench: If it is provided, a transfer bench should be provided at the head end of an accessible bathtub. It should extend the full width of the tub, measure at least 400 mm deep and the top of the bench should be level with the top surface of the tub. The seat surface should be smooth without rough edges, non-slip and should be minimally sloped towards the bathtub, not steeper than a 1:50 ratio, to drain accumulated water. (Figure 163) Transfer benches can be fixed or movable. If the transfer bench is movable, it should be supported on the rim of the bath. The rim of the accessible bath should be 480 mm above floor level; (DPTAC, 2007)

f. Faucets and Controls: An accessible bathtub should have two faucet controls; the first to control water to the bath spout, should be centred on the



foot-end of the tub, located with its centreline no higher than 450 above the top of the tub. The second to control water to the shower should be mounted on the side wall below the horizontal component of the side grab bar, 100 mm from the end of the grab bar closest to the foot end of the tub. Faucet control handles should be of the long lever type (but not spring-loaded). The controls should be equipped with a pressure-equalizing or thermostatic-mixing valve in compliance with Appendix 1 (Controls and Operating Mechanisms). The water temperature of the water supply should not exceed 55 degrees C. Controls and faucets should be colour contrasted with the surrounding tub and its enclosure surfaces. The hot and cold settings should be simple and intuitive to understand and set. (Figures 164 and 165)

g. Shower Head: The shower faucet control located at the side of the tub should be connected to a shower head with at least 1500 mm of flexible hose that can be used both as a fixed position shower head and as a hand held shower head. The shower head should comply with appropriate parts of Appendix 1: Controls and Operating Mechanisms, and have an on/off control. It should be mounted on a vertical bar, adjustable from a height of 1000 mm upwards above the floor. The vertical bar should be installed 100 mm towards the toe end of the tub, from the end of “T” shaped grab bar. The vertical bar for the shower head should be designed as a grab bar in compliance Section 3.5.2.3 e). (Figures 164 and 165).

h. Soap Holders: Two recessed soap holders should be provided at accessible bathtubs; one should be located so that it can be reached from a seated position within the tub that provides reach ranges complying with Section 2.3, and the other located so that it can be reached from a standing position. (Figure 164)

i. Emergency Call Strip: A waterproof emergency call strip should be provided at accessible bathtubs. The emergency strip should be located on the wall adjacent to the longest side of the tub, and positioned 75 mm above the bathtub beginning 150 mm away from the corner of the side wall, near the head of the tub. Emergency call strips should be colour and texture contrasted with surrounding surfaces. Emergency call strip activation should be monitored from a location within the facility. (Figure 164)

j. Surface: All interior surfaces of the bathtub should be slip resistant.

k. Bathtub Enclosures: Enclosures for bathtubs should not obstruct controls, interfere with a person transferring into/out of a tub, or have tracks mounted





on the bathtub rim. Shower curtains that do not obstruct the clear floor space in front of the tub are permitted. Shower curtain rods where used should be reinforced and attached securely to resist displacement if grabbed. Shower curtain control wands should extend from curtain heads down to operation level, and fixed with frangible rings so that they detach under emergency stress, and not cause the collapse of the whole curtain assembly.

1. Illumination Levels: Illumination levels in the bath tub area should be at least at 200 lux.

m. Colour Contrast: There should be pronounced colour contrast between wall/fixtures/controls, wall/grab bars, and wall/washroom accessories.

5.14.2.4 Illustrations

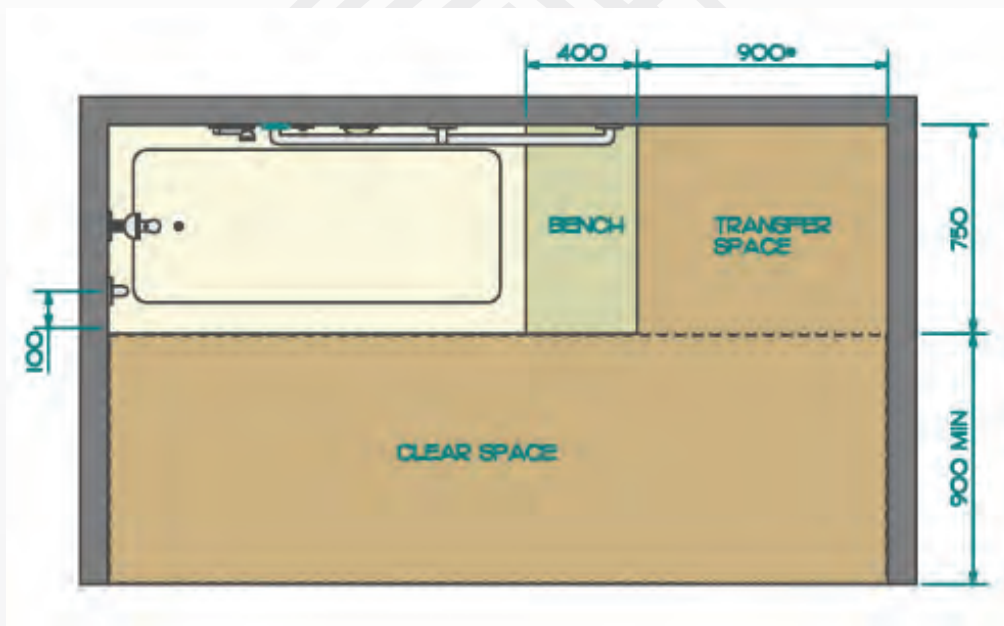


Figure 163: Bathtub
Source: UDA & Associates



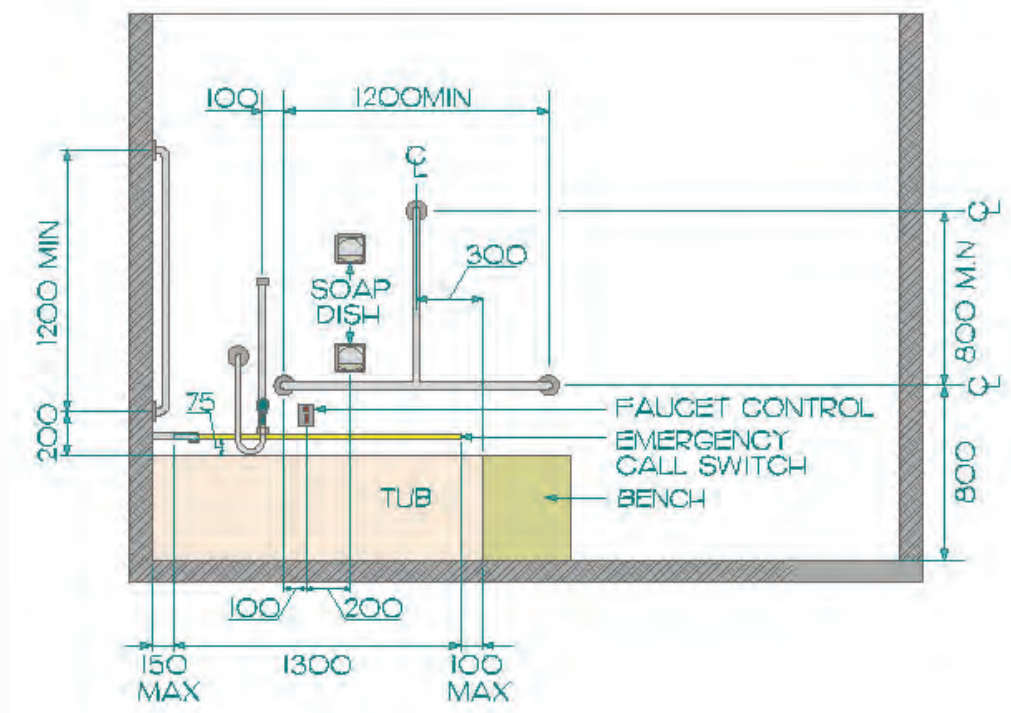


Figure 164: Bathtub
Source: UDA & Associates

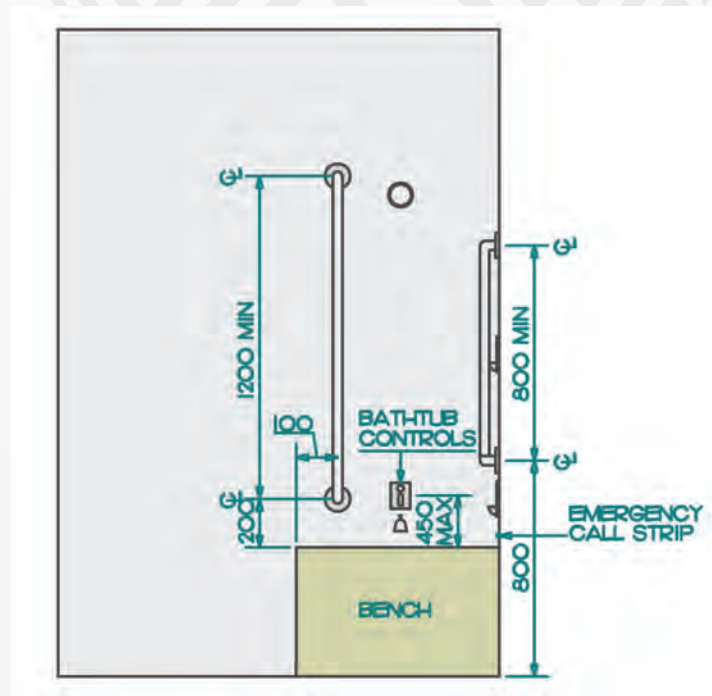


Figure 165: Bathtub
Source: UDA & Associates





5.14.2.5 Other Considerations

- 2.3 Anthropometric Data
- 3.5.5 Washroom Accessories
- Appendix 1 Controls and Operating Mechanisms
- Appendix 4 Illumination
- 3.5.2.3 e) Grab Bars

5.15 Wheelchair Accessible Cabin/Bedroom Compartment

5.15.1 Cabins

5.15.1.1 Design Considerations

When cabins are provided on passenger vessels, at least 5 per cent of them should be accessible to people with disabilities including people using wheelchairs through all classes of accommodation. (CTA, 1999).

Persons with functional mobility and communication limitations who are traveling will require specific provision for accessible rooms; in the case of persons with functional mobility limitations, this will refer to such items as lower beds, the provision of accessible W.C.s and bathrooms; in the case of persons with functional communication limitations, this will refer to provision for TTY devices and alternative warning mechanisms.



Figure 166: Accessible Cabin

(Source : Princess Cruises: Island Princess, from website <http://www.wheelchaircruising.com/princess.html>)





Figure 167: Accessible Cabin

(Source : Cruise Critic.co.uk Cruise Reviews & News URL: <http://cruiseforums.cruisecritic.com/showthread.php?t=984577>
Accessed 20/08/09)



Figure 168: Accessible Cabin with Balcony

(Source: Connie George Travel Associates. URL: <http://www.wheelchaircruising.com/> Holland America, Zaandam. Accessed 20/08/09.)



Figure 169: Layout of accessible cabins

(Source : Carnival Splendor, 2008 URL: carnival.com, accessed 22-06-09)





5.15.1.2 Application Guidelines

The provision of this part should apply to all marine vessels.

5.15.1.3 Technical Guidelines

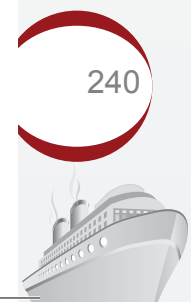
a. Accessible routes: The routes to accessible cabins should be accessible and free from any obstructions. (refer Sections 3.2.1, 3.2.2)

b. Emergency procedures: There should be a list of cabins occupied by passengers who may need assistance from the crew available and arranged as part of the vessels emergency procedures. (DPTAC 2007)

c. Accessible rooms: Guest rooms that are accessible to persons with moderate to severe functional physical limitations should be provided in accordance with Figure 170:

Figure 170: Guest Rooms with Mobility Features [Technical Provisions adapted from the ADA]

Total Number of Guest Rooms Provided	Min. Required Number of Rooms required to be accessible	Min. Number of Rooms required to have roll-in Showers	Total
1 to 25	1	0	1
26 to 50	2	0	2
51 to 75	3	1	4
76 to 100	4	1	5
101 to 150	5	2	7
151 to 200	6	2	8
201 to 300	7	3	10
301 to 400	8	4	12
401 to 500	9	4	13
501 and over	2 % of total	1 % of total	3 % of total



d. Guest rooms that are accessible to persons with moderate to severe functional communication limitations should be provided in accordance with Figure 171:

*Figure 171: Guest Rooms with Communication Features
[Technical Provisions adapted from the ADA]*

Total Number of Guest Rooms Provided Communication	Min. Number of required guest rooms with features
2 to 25	2
26 to 50	4
51 to 75	7
76 to 100	9
101 to 150	12
151 to 200	14
201 to 300	17
301 to 400	20
401 to 500	22
501 to 1000	5 % of total
1001 and over	50, plus 3 for each 100 over 1000

e. Cabin location: In ships with cabins, the elderly and persons with disabilities who may need assistance in an emergency should be assigned cabins situated in the proximity of the embarkation deck, so that they may be assisted to the survival craft quickly and easily. A list of cabins occupied by passengers who may need assistance from the crew should be available.

f. Emergency evacuation notice: Height of emergency evacuation notice and door peep-hole should be at 1100 mm above finished floor level.





g. Remote emergency alarm calls system in room: These should be within easy reach for the wheelchair user in the event of an emergency or the need for assistance. (refer to section 3.9.1)

h. Fire extinguisher location: Fire extinguisher or fire blanket located between 800 – 1200 mm above floor level. In this way the fire extinguisher or fire blanket is accessible.

i. Accessible cabins should be positioned on the vessel in order to facilitate egress in the event of an emergency as well as locating the cabins on convenient routes to ship amenities. Design concerns also often lead to the concentration of accessible cabins within certain vertical zones of the vessel to facilitate i.e. the provisions of plumbing lines, etc.

g. En-suite facilities: The cabin should include en-suite facilities; (refer to Section 5.14). (DPTAC, 2007)

k. Accessible room options: Factors to be considered in providing an equivalent range of options may include, but are not limited to, size of cabin, size of bed, cost, view, bathroom fixtures such as roll in shower or bath, and left or right hand side set ups for ease of transferring from wheelchair to and from bed/toilet/shower etc, smoking and nonsmoking and the number of beds. (PVAAC, 2000)

1. Rooms Equipped with Mobility Features:

- Cabins and toilets suitable for users of wheelchairs should be placed in the open spaces which are found between cabin sections (IMO, 2000). Automatic doors are preferable. If doors are provided with door pumps, the doors should have automatic door opening. Ideally the sum of the width of the corridor plus the width of a corridor or door opening at a 90 degree angle to the corridor should be 2200 mm. Corridors in the cabin section of the accommodation are traditionally 900 mm wide (IMO, 2000). The problem of cabin doors and toilet doors for wheelchair users in such corridors may as a last resort be solved with sliding doors with a 1000 mm free opening (IMO, 2000). The wider door opening is necessary to permit wheelchairs to turn and wheel into the cabin. (refer to Section 5.14).
- Door openings to public spaces should be wide enough for wheelchairs to pass through unimpeded with a free opening of at least 900 mm (IMO, 2000). Doors should be automatic or kept in open position where this does not interfere with safety requirements. Obstructions caused by coamings, etc. should be avoided in passenger spaces and eliminated elsewhere, for



instance, by means of ramps or retractable coamings. However, coamings required by the Load Line Convention or any other safety requirements must not be removed. Ramps and coamings should be marked in contrasting colors. (IMO, 2000). (refer to Section 3.2.8)

- If a cabin door is operated by use of an electronic card-activated lock and power-opening entrance door, this would avoid the need for the 300 mm access space adjacent to the leading edge of the door;
- If the cabin door is non-powered, it should be of the side sliding type unless enough space is available in the cabin to permit the door to swing inwards and for a wheelchair to manoeuvre. The free door opening width should be at least 800 mm;
- There should be consideration given to providing a connecting door to an adjacent cabin for a disabled person's family, companion or assistant; (DPTAC, 2007)
- The cabin door should be of the sliding type or swing outwards, unless enough space is available in the cabin to permit the door to swing inwards and allows for a wheelchair. The free door opening width should be at least 900 mm. (MCA, 2006)
- Doors should be distinguished by color or other appropriate contrast. (refer to Section 3.2.8)
- Accessible exterior spaces: Exterior spaces, including patios, terraces and balconies that serve the guest room shall be accessible.
- At least one bathroom that is provided as part of a guest room shall be accessible.
- If vanity counter top space is provided in a non-accessible guest toilet or en-suite, then a comparable vanity counter top space in terms of size and proximity to the bathroom, must also be provided in the accessible guest toilet or en-suite. (PVAAC, 2008) (refer to Section 5.14).
- The free space in front of the bed or resting place should be at least 1400mm (IMO, 2000).
- Wheelchair circulation space: Wheelchair-accessible cabins should allow for a wheelchair user to manoeuvre the wheelchair to the side of a bed, then transfer independently to it; (DPTAC, 2007)





- Beds should be used instead of bunks (low front edge), as person with disabilities should be able to sit on the bed and undressed. If bunks are used, the lower bunk should have a free height above it of at least 1100mm to permit a person to sit (IMO, 2000).
- Bed height: Passengers with functional physical limitations need a firm surface to help their arms to lift the lower body. The height of the bed is also crucial, as it needs to be in alignment with the wheelchair that will be used for transfers. With the appropriate height of the bed there is less effort and less energy used in getting out of the bed
- The bed should be at least 500 mm above the floor (IMO, 2000).
- Location of electrical switches: The switch for the reading light over the bed should be placed so that it can be reached from a wheelchair and from the bed. Bedside light controls should be provided. If there are no easily accessible controls, a person with a functional mobility limitation consumes enormous energy switching lights on and off. To conserve energy and avoid injury, light controls should be reachable from the bed. (refer to Appendix 1: Controls and Operating Mechanisms)
- Electrical switches should be within easy reach and placed 900 mm above the floor (IMO, 2000).
- Provision for a remote-operated television
- Provision for a bedside telephone: When a bedside telephone is provided, it should be located on the wheelchair manoeuvring side. If a telephone is situated between twin beds, a second telephone should be provided elsewhere in the room. The provided telephone should be usable by a person with a hearing impairment. (DPTAC, 2007)
- Handhold positioning: Handholds should be positioned at the bed
- If a hand-basin is placed in the cabin it should be arranged as a wash-hand basin in a lavatory. (refer to Section 5.14).
- Emergency call device: The cabin should be equipped with a means of calling assistance.
- Curtains fitted with pull rods or closing cords. This is for easy reach and conservation of energy.



- Desk and tables to have a clear space of 760 mm below the work surface. To provide easy access to a work surface, a wheelchair user would be able to slide under the table.
- Cupboard handles heights should be at 800 – 1200 mm so that they are within easy reach. This is important so that wheelchair users can easily reach their clothing. Cupboard hanging rail height 1400 mm.
- Service Animal: Not only should accessible cabins be spacious enough to enable independent and accompanied use by wheelchair users providing easy access to all the facilities, but disabled users may also need to be accompanied by assistance or guide dogs. (DPTAC, 2007)
- When an adjoining balcony to a bedroom is provided, wheelchair users should have access to it, preferably with adequate space for a companion. (DPTAC, 2007)

m. Rooms equipped with Communication Features:

- Visible notification devices shall be provided to alert room occupants of incoming telephone calls and a door knock or bell. Notification devices shall not be connected to visible alarm signal appliances.
- Emergency I.D. door hangers: Identification of persons with functional communication limitations in the passenger vessel can greatly facilitate services that require access to that room. Ideally the provision of a flashing door-bell is the most reliable system. Keep in mind the use of door hangers is at the discretion of the guest.
- Flashing lights and vibrating pads linked to alarm. All emergency evacuation systems should be linked to a flashing emergency alarm light in the bedroom and the vibrating alarm pads that are placed under pillows. (refer to section 3.9.1)
- TV. Listening devices: Where televisions are provided, TV. Listening devices should be available. TV. Extension headsets or earphones can be used by guest with functional hearing limitations. Inductive loop extensions are very useful for users of hearing-aids. Where sub-titling is available, especially on video systems, this should be activated.
- Closed-captioned televisions should be available in all cabins.
- Telephone with voice amplification.





- Flashing alarm clock with vibrating pad. A flashing alarm clock with vibrating pad that is located under the guest's pillow is a simple plug-in device.
- Flashing light doorbell: It is essential that a flashing doorbell is provided to facilitate all services delivered at the room.
- When notification devices are installed permanently, no more than ten percent, but not less than one, of the staterooms required to comply with 'Rooms Equipped with Mobility Features', and shall also comply with 'Rooms equipped with Communication Features'. (PVAAC, 2000)
- Tactile labels on room controls: Passenger vessel operators should place tactile labels on the controls which identify both the name and function of the controls on appliances and the thermostats in all sleeping rooms for use by persons with visual impairments.
- Operating instructions in multiple formats: Passenger vessel operators should also provide operating instructions in each sleeping room for electronic items such as telephones, televisions, alarm clocks and radios. These instructions are to be made available in a number of formats including Braille, large print, and audio tape. (refer to Sections 3.8.3 and 3.8.4) (PVAAC, 2000)
- An option to temporarily equip cabins with communication features may be use of a portable room kit which includes a visual-tactile alert system that provides alerts for door knocking, telephone ringing, alarm clock and smoke detector, as found on cruise liners such as Royal Caribbean International Cruise liners. (Royal Caribbean International, accessed 12-07-09)

n. General Provisions:

The furnishings and beddings should be as far as possible be made from non-allergic materials. Certain areas of the passenger vessel should not be available to passengers who are accompanied by furred animals where practicable to further enhance non-allergenic surroundings. (DPTAC, 2007)

o. Employee Cabins:

Where employee cabins are provided, accessible employee cabins shall comply with 5.13, 5.14 and 5.15. The ADA provides two options for the number of accessible rooms: Option A 1.5% but not less than one employee cabin, shall be accessible. Option B (i) 1% but not less than one employee cabin, shall be accessible; and (ii) where 50 or more employee cabins are provided, an additional 1% of the employee cabins shall be connected to an accessible route and shall have an entry door and bathroom door which comply with 3.2.8. (ADAAG, 1991)



p. **Except for employee work areas covered by 5.15.1.3 o),** employee work areas are not required to be accessible but shall be located on an accessible route in compliance with 3.2.1 and 3.2.2 where the work areas are on or above the bulkhead deck and the work areas are located on a deck where there is a passenger space to which access is required. There are 2 exceptions to this. The first being work areas on the bulkhead deck that primarily contain stairs or ladders which connect to work areas below the deck are not required to be connected by an accessible route. And the second specifies that work areas on the weather decks of sailing vessels are not required to be connected by an accessible route.

q. **Employee work areas will have an accessible approach,** entrance and exit, but are not required to be constructed to permit maneuvering within the work area or to be constructed or equipped to be accessible. These work areas are not open to passengers. (ADAAG, 1991)

5.15.1.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.8 Doorways
- 3.9.1 Emergency Exits, Fire Evacuation and Areas of Rescue Assistance
- 3.9.2 Emergency Alarm Systems
- Appendix 1 Controls and Operating Mechanisms



5.16 Emergency Call Device

5.16.1 Emergency Call Device

5.16.1.1 Design Considerations

Emergency call devices can be life-saving equipment. When they are installed in public accessible bathrooms or private en-suites and a passenger requires assistance, 24 hour help is available for these emergency situations.

5.16.1.2 Application Guidelines

This section should apply to all accessible rooms and areas on a passenger vessel.

5.16.1.3 Technical Guidelines

- a. **24 hour assistance:** In cabin bedrooms, there should be a bedside “panic” button linked to the navigation bridge (which is staffed 24 hours a day).
- b. **Panic buttons and Pull-cords:** In the cabin en-suites and public bathrooms there should be an emergency red coloured (panic) button or red coloured pull-cord in or adjacent to shower and/or toilet depending on the space between the two facilities (for falls or other emergency). These pull cords should be located as close to a wall as possible, and have two red 50 mm diameter bangles; one set at 100 mm and the other set between 800 mm and 1000 mm above the floor (DPTAC, 2007)
- c. **Positioning:** Emergency pull cords and panic buttons must be positioned so that they are easily accessible and usable by a person both a wheelchair and on the floor (if they have fallen). Refer to Appendix 1 controls and operating mechanisms.
- d. **All emergency assistance systems including panic buttons and pull cords should send signals that can reach staff at all times. Pull cords should never be tied up, they should be available for use at all times. (DPTAC, 2007)**
- e. **Reset control:** On all emergency assistance alarms, a reset control should be clearly marked as such and reachable from wheelchair and toilet height. (DPTAC, 2007).



5.16.1.4 Other Considerations

- 3.5.2 Toilets
- 3.9.1 Emergency Exits, Fire Evacuation and Areas of Rescue
- 5.14 In-Cabin Accessible Washroom/Shower/Vanity
(Wheelchair with Attendant)

Refer to Emergency Call Strip in sections:

- 5.14.1 Accessible En-suite Bathrooms fitted with Mobility Features
- 5.14.2 Bath Fitted as Part of an Accessible Cabins

5.17 In-cabin Information and Communication (captioning on monitors)

Refer to Section 3.8 Onboard Public Information and Communication Facilities (PA Systems, Monitors, E-Boards)

5.18 Individual Safety Briefings for Passengers who are Blind and Deaf

Refer to Section 3.7 Individual Safety Briefings for Passengers who are Blind and Deaf .

5.19 Arrival Information

Refer to Section 3.11 Arrival Information.

5.21 Cruise Vessel Interface with Terminal/Passenger Bridge (Walkways, Elevators)

Refer to Section 5.1 Boarding via Passenger Bridge, Elevator, Walkways
4.2.1 Elevators





5.22

Cruise Vessel Interface with Tender (Lift, Platform, Stairs)

5.22.1 Tendering Ashore

5.22.1.1 Design Considerations

When the passenger vessel is at anchor and unable to dock, passengers in wheelchairs may experience difficulty in transferring from the vessel into the tender.

5.22.1.2 Application Guidelines

This section applies to all passenger vessels who engage a tender in order to travel from the vessel to the pier/dock.

The definition of a Tender includes “vessels that are used for both emergency and non-emergency purposes to transport passengers between passenger vessels and shore side facilities”. (ADA, 2006)

5.22.1.3 Technical Guidelines

a. For safe tender transfers, the Shore Tender Accessibility Project should be closely followed. This system of transferring to a tender was first introduced on Holland/America Lines in 2000. This is a custom-built system providing a safe and dignified means of transporting a guest using a wheelchair down the gangway and onto the tender while remaining in the chair.

b. The transfer process is as follows: To access a tender, a passenger in a wheelchair will be secured onto a lift that runs on an inclined track from the top of the vessel’s gangway to the tender. A ramp situated on the tender allows the wheelchair to be wheeled directly aboard and locked into place atop a specially designed scissor-lift. This lift is then raised to provide a clear view through the tender’s window for the passenger. Once the tender reaches the dockside, the tender has a hydraulic leveling system which adjusts for the height differences between the dock and the tender. The wheelchair can now be rolled directly off the tender and onto the dock. (cruiselinefans.com, 2000-2009) This process only allows for use by light-weight wheelchairs, it does not accommodate power wheelchairs or scooters. (Harrington. C, 2005)



c. If the provided tender boats are too large for shallow waterways, alternate means of tendering such as Zodiac watercrafts may be utilized. The size and structure of these boats do not allow for safe transfers between the passenger vessel and the Zodiac tender, and they cannot accommodate any apparatus such as scissor lifts while maintaining a stable and safe environment for the guests and crew.

d. Wheelchair accessible spaces on tenders: At least two wheelchair accessible spaces should be provided on tenders.

e. Provisions for a single wheelchair space shall be 915 mm wide minimum. And where two adjacent wheelchair spaces are provided, each wheelchair space shall be 840 mm wide minimum. All provided wheelchair spaces shall be 1220 mm (48 inches) deep minimum.

f. Deck and floor surfaces: The surface of the deck will comply with section on Flooring.

g. Securement: Spaces provided for wheelchairs shall have securement systems which limit the movement of occupied wheelchairs or mobility aids under normal tender operating conditions.

h. Accessible Route: There must be at least one onboard accessible route complying with section accessible routes connecting each wheelchair space to each entry and departure point of the tender used by passengers in non-emergency conditions. (ADA, 2006).

i. When tender vessels interface with other vessels, fixed piers, floating piers, or landside structures, a method complying with 5.23 Tender interface with land structures, floating piers, platforms shall be provided to facilitate the embarkation and disembarkation of passengers with disabilities. (ADA, 2006)

j. Platform Lifts: Platform lifts may be used in new construction to access tender boarding platforms. A manually powered boarding lift is allowed to be used as a component in an accessible passenger boarding system. This lift is also allowed to be utilized when accessing a tender boarding platform when platform lifts would be exposed to waves and the tender boarding platform is less than 28 sq m (300 square feet).

j. If the sea is choppy or rough, the passenger in a wheelchair should reconsider use of the tender if it is not essential to do so (meaning in effect that the passenger should stay ashore or on-board the vessel until conditions are suitable for Tender transfer). (Cruises.co.uk Accessed 02-06-09)





5.22.1.4 Other Considerations

- 3.2.6 Stairways
- 4.2.1 Elevators
- 4.2.2 Inclined and Vertical Platform Lifts

5.23 Tender Interface with Land Structures, Floating Piers, Platforms

5.23.1 Tender Interface with Land Structures

5.23.1.1 Design Considerations

There are many factors to take into account for tender interfacing such as, tidal flow, bad weather, and accommodating both small and large passenger vessels.

5.23.1.2 Application Guidelines

This applies to all tenders requiring interface with land structures including floating piers and platforms.

5.22.1.3 Technical Guidelines

a. Pathway of Access: The pathway of access between vessel and shore involves transit along three accessible path-of-travel elements: stable approach (which is the start point of the path of travel, land and/or fixed pier), passenger loading platform (this is the floating dock, but it is not always incorporated. Sometimes the path of travel involves using only the stable approach and vessel deck), and vessel deck (which is the end of the shore facility and start of the vessel facility) (refer to Figure 172). Barriers to access can result from the intervening differences in height among those elements. (Access Board Research, 1996)

b. Nominal marine conditions: The systems to overcome these barriers to access will comply with a set of “nominal marine conditions”. These conditions range from tidal or non-tidal height limits of ten and twenty feet, respectively, and the assumption that severe weather is not causing excessive motions. Specific combinations of the physical access barriers along the path of travel determine the designs of the proposed access solutions. These barriers include the height



difference between the stable approach and the water (this approach is usually high enough to prevent submergence above the average water level in all but extreme conditions). Based on historical data, the height of the stable approach can range from several feet to over 6m (20 feet). Water level changes experienced by coastal facilities, caused by tidal changes occur twice a day. Normal ranges are from little more than 300 mm (1 foot) to over 6 m (20 feet). Non-tidal facilities such as facilities inland also experience changes in water level resulting from rain, dam releases, snowmelt etc. These tend to occur in predictable time patterns and are less frequent than at tidal facilities however these water level changes can be more severe- normal ranges can be in excess of 6m (20 feet). In all cases, extreme weather can considerably change the conditions at all facilities. Another barrier can be the height difference between the passenger loading platform and the vessel. When the dock is incorporated into the accessible pathway between the stable approach and the passenger vessel, the barrier is the freeboard difference between the dock and the vessel. Freeboards of docks and vessels will vary widely to cater for unique height differences for dock-vessel combinations. (Access Board Research, 1996)

c. Outdoor shore facilities are continually exposed to a dynamic marine environment, with the impact of waves, wind, tides, current, weather, and salt. The functional design of access features must account for the resulting loads and motions. The accessible outdoor system must remain durable and reliable by being built to withstand all these harsh effects. (Access Board Research, 1996)

d. Classification of Marine Facilities (and Riparian Facilities): the development of solutions to access requires a system for facility classification. The system includes the normal range of water height which can vary from less than 300 mm (1 foot) to in excess of 7.60 m (25 feet). Available water sheet, “which is the area over the water available for docks and piers and vessel maneuvering”, is often a critical issue and is defined by issues of property ownership and navigable waterways. When considering scheduled versus unscheduled service, there is generally a greater presumption that services which are scheduled will be accessible. Type and size of vessel using the shore to vessel facility will relate directly to the passenger volumes. (Access Board Research, 1996)

e. Proposed Access Solutions: Access solutions must apply to the broadest cross section of shore facilities. All solutions are to satisfy section 3.2.5 ramp specifications for gradient, slip resistant and weather proof surfaces, handrails, clearance and load maximums. These access solutions should provide unassisted

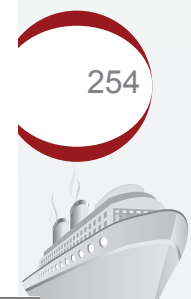




vessel access. Low maintenance of the system is imperative for its enduring ability to provide safe access. It is always preferable to have a low installation cost which can lead to faster compliance. Low cost will not compromise on safety at all times. Refer to section 3.2.2, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.9, 4.2.1, 4.2.2. Assistance provided by trained staff for all passengers in the marine environment is standard practice due to its dynamic nature and will increase the level of safety for all who use the accessible pathway.

f. Four access solutions have been developed for use in accessible pathway between the vessel and land structure. Refer to Figures below for detail.

- Solution 1: “Either an 18m-24m (60’-80’) accessible gangway (1) or a “Double entry” ramp (1a) and twin 9m (30’) accessible gangways (1b) from stable approach to passenger loading platform. Double entry means that there are two start points on the land at different heights; one of the start points will require a fixed ramp”.
- Solution 2: “36.5m (120’) fixed ramp system (2a) and associated floating platform (2b)”.
- Solution 3: “3.6m (12’) accessible boarding gangway”.
- Selected combinations of these solutions form five solutions which have been found to be feasible applications.
- Solutions 4 and 5 are possible variations on the simplest design incorporating only the stable approach and vessel deck.
- All of the high access solutions may be varied to suit greater height differences for the small percentage of such facilities. (Access Board Research, 1996)



5.23.1.4 Illustrations

Figures 172, 173-177 below are reproduced with courtesy of the United States Access Board.

ACCESS BARRIERS

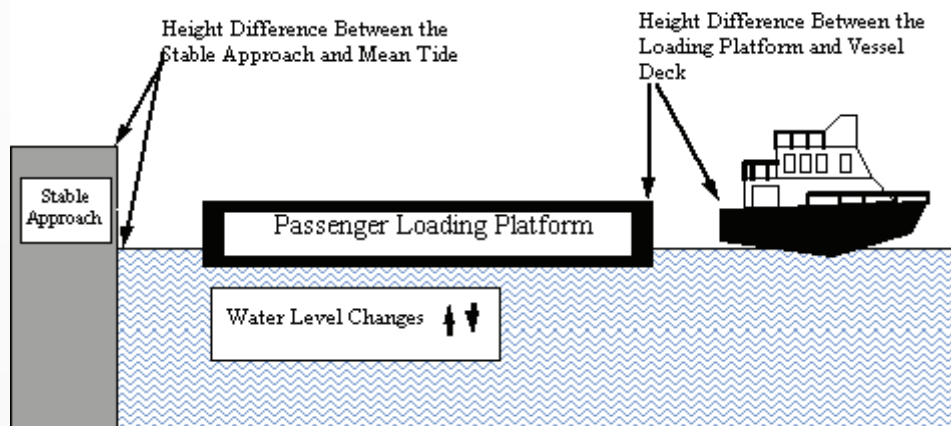


Figure 172: Physical Access Barriers from Dock to Vessel
Source: US DOT, 1996

ACCESS SOLUTION 1

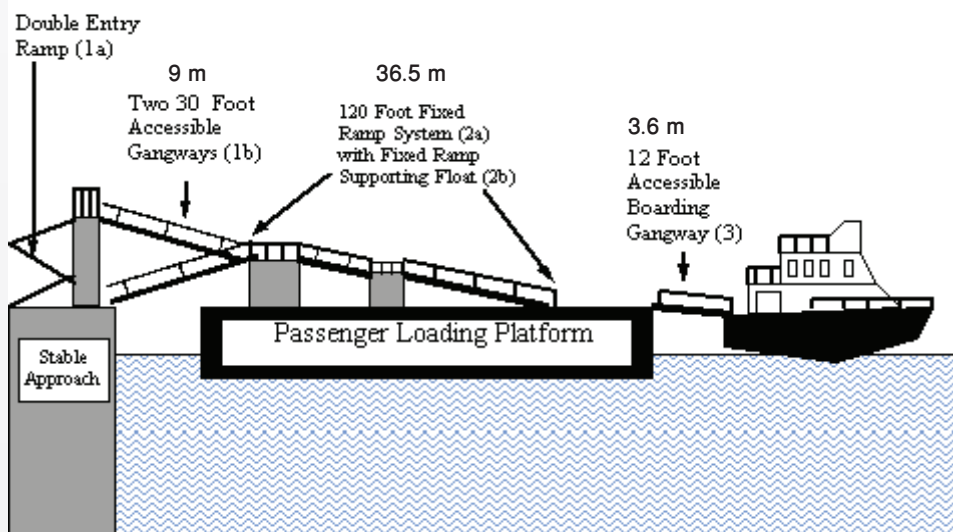


Figure 173: "High Access" solution with Components 1a, 1b, 2a, 2b and 3
Source: US DOT, 1996





ACCESS SOLUTION 2

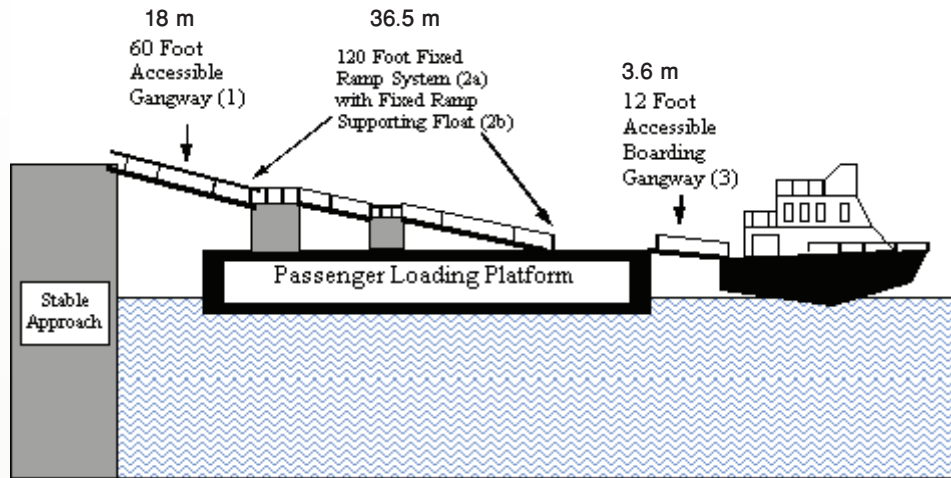


Figure 174: High Access solution with Components 1, 2a, 2b, and 3
Source: US DOT, 1996

ACCESS SOLUTION 3

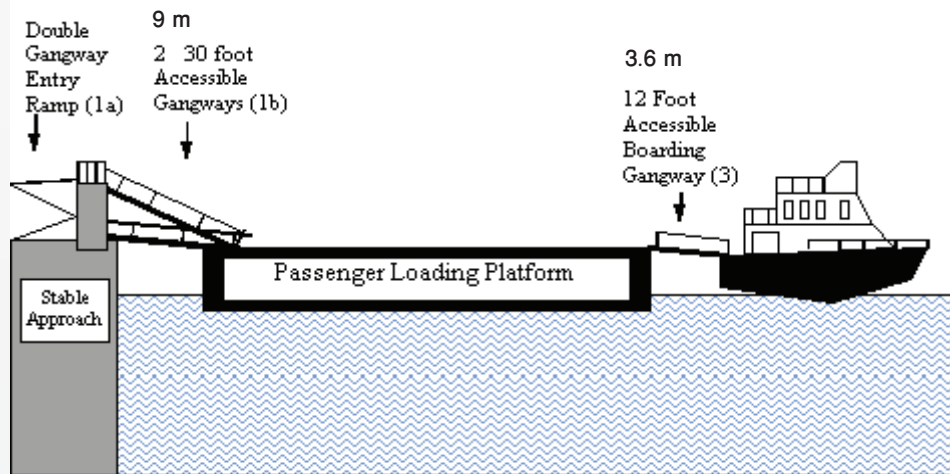


Figure 175: High Access solution with Components 1a, 1b, and 3
Source: US DOT, 1996



ACCESS SOLUTION 4

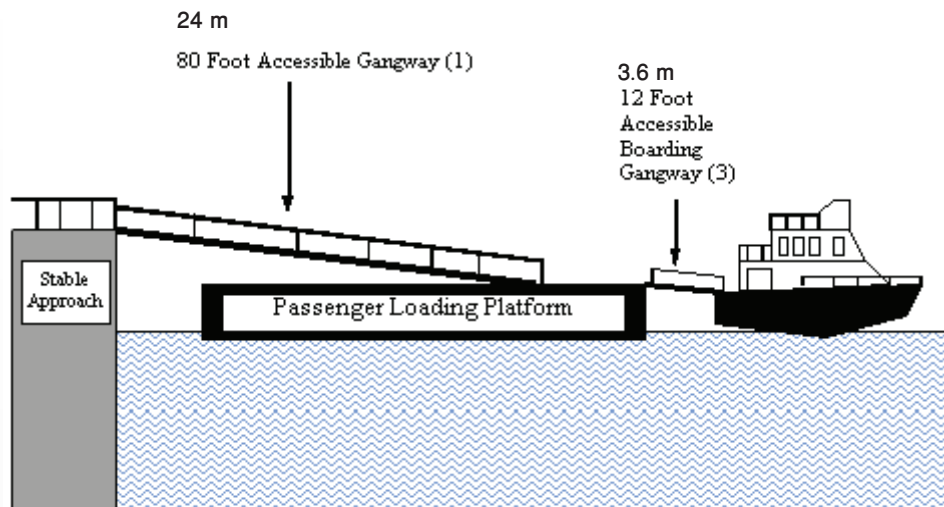


Figure 176: High or Low Access solution with Components 1 and 3
Source: US DOT, 1996

ACCESS SOLUTION 5

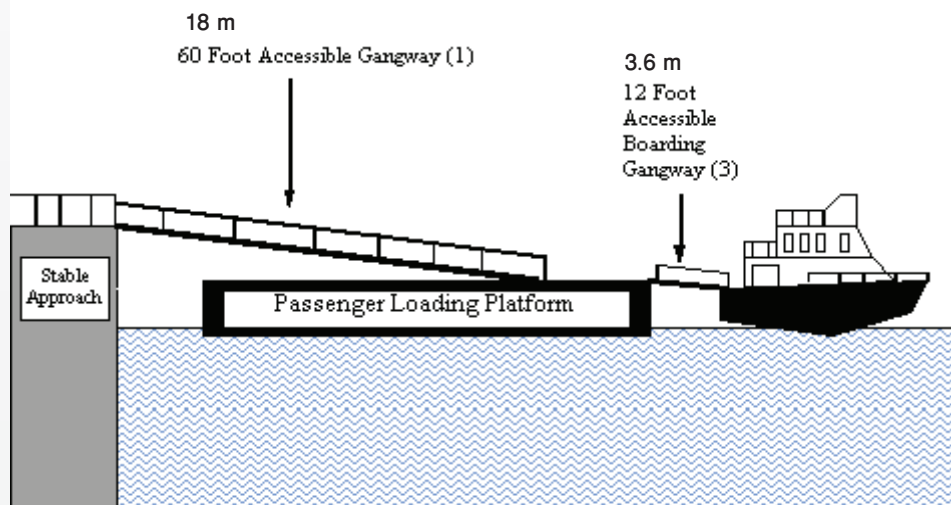


Figure 177: "Low Access" solution with Components 1 and 3
Source: US DOT, 1996



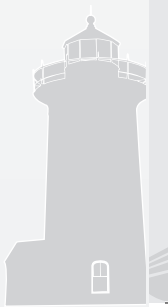


5.23.1.5 Other Considerations

- 3.1.2 Access to the Vessel
- 3.1.3 Access Via Passenger Gangway
- 3.2.1 Accessible Routes, Access Paths and corridors
- 5.22.1 Tendering Ashore

5.24 Wheelchair Position/Securement on Tender

Refer to Section 3.3.1 Wheelchair Positions and Securements



Terminal Access





6.0 Terminal Access

6.1 Orientation and Wayfinding

6.1.1 Port Terminals (Ferries and Cruise Ships): Access to and Within Terminals

6.1.1.1 Design Considerations

Port Terminals are areas often characterized with large volumes of pedestrian traffic as well as being slippery and wet environments. The provision of specific requirements for ensuring accessibility of information and way-finding is important to assist PwDs and the elderly in moving through terminals.

6.1.1.2 Application Guidelines

This part shall apply to all port terminals where the public is permitted access and areas that are intended for general pedestrian usage.

6.1.1.3 Technical Guidelines

- a. **Signage:** Tactile signs are essential for persons with functional visual limitations.
- b. **Signage:** Characters on tactile signs should be embossed, not engraved, and should be raised from the sign's background by 1 – 1.5 mm with a stroke width of 1.5 – 2 mm. The signs should be located so that they can comfortably be touched; an ideal height range is between 1400 mm and 1700 mm from the floor, with a maximum horizontal stretching distance of 500 mm. Refer to Section 3.2.9.

Where overhead signs are used, care must be taken to position so that they are not seen against a backdrop of light fittings.

Signs should be positioned so that their faces are well illuminated, or alternatively back-illuminated signs may be used. Care is needed to avoid glare.

Audible and dynamic electronic signs should be used where appropriate.





c. Telephones: Acoustic hoods, if provided, should be designed so as not to present a hazard. If made from glass or transparent materials, they must be adequately highlighted with the side panels extended to near ground level.

d. Information Systems: All information should be available in multiple formats. VDUs should be positioned at a height where a passenger can get very close. Screen should be non-reflective. Character size should be at least 18 point. If the signs are dynamic, the message should change or scroll slowly. The screen covers should provide good contrast. Travel emergency information and all essential information should be provided through clear audible announcements and clear visual displays.

e. Induction loops and a textphone should be provided at all appropriate positions, such as reception areas, ticket offices, enquiry bureau and bureau de change.

f. Multiple format information: In retail sales areas, price lists should be available in large print and Braille, and in restaurants and cafeterias menus and tariffs should be available in large print and Braille. Refer to Sections 3.8.3 and 3.8.4.

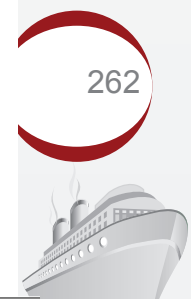
g. From the first phase of planning new public buildings or refurbishing existing ones, passenger vessel operators should ensure that the needs of persons with functional limitations are central to the design brief.

h. Operators are to ensure that accessibility features are maintained in good working order.

i. Accessible paths of travel: To avoid the creation of new barriers, the repair of uneven surfaces and the removal of furniture, fixtures or obstructions that encroach on corridors or accessible paths of travel and other such maintenance is to be performed on a regular basis. If repairs or maintenance is required, or if an obstruction must remain in the path of travel, terminal operators are to ensure that the obstruction is detectable by those persons using canes to guide them and clearly color-contrasted so as to be detectable by a person with a functional visual limitation.

j. Wayfinding

- During the design phase of new construction and renovations, terminal operators are to incorporate wayfinding methods that allow a person to find his or her way to a given destination. Terminal buildings should be designed to minimize reliance on directional signage. Considerations for wayfinding



include, among other things, the positioning of entrances and exits, use of colour contrasting, tactile markings, the arrangement of architectural features such as walls or columns, acoustics, and lighting. These are all features which can assist in the direction of people to their intended destination.

- Use of colour: Colour is an important factor in identifying routes, doors, walls and hazards such as furniture, especially for individuals with visual impairments.
- Floor patterns should be avoided to avoid visual confusion.
- Bright colors and/or a highly contrasting tone should be used to assist orientation and with way finding. End walls or return walls in long corridors should be visually defined using highly contrasting colors or tone to enhance a change of direction or the end of the space. New technologies should be used to assist persons who are blind, such as RIAS.
- Clear markings on glass doorways/panels: When glass doorways, walls or windows are utilized, the glass should be marked with contrasted graphics or lettering at eye level so that people will not accidentally walk into the glass.
- Tactile systems should be used on flooring to inform individuals of a change in area, for example, they are approaching stairs, or they are leaving one room and entering another. These systems should remain consistent throughout the terminal, and when they are identifying a hazard such as stairs, they should always appear sufficiently in advance of the hazard. For a surface to be tactile, it does not have to have a raised surface, it can be a change in floor covering from tile to carpet for example. Different floorings may produce very distinctive sounds and thus be of use in wayfinding.
- Tactile surfaces can also be used on walls in the aid of orientation.
- Good lighting is essential in assisting those with a visual impairment to see better and allows people who have a hearing disability to lip read more easily. Care should be taken to properly direct lighting and to use matte finishes on floors, walls and signage, so as not to create glare which may create difficulties for all travelers.
- Avoid large mirrors: It is important to avoid floor to ceiling mirrors as they can distort space perception.
- Consistent Wayfinding design: All wayfinding design elements should be consistent throughout the terminal to avoid confusion for passengers who are relying on visual cues to orient themselves. (CTA Guide, 2007)





k. Rest Areas

- Terminal operators are to provide seating along circulation paths at regular intervals to ensure that persons, who need to rest, have a place to do so. If seating is not possible, some other means is to be available on request, to assist passengers with functional mobility limitations in getting to their destination.
- In some area there may be long waiting periods and inherent problems in providing fixed seating due to queuing systems e.g. ticket sale counters, check-in counters, and secured screening and custom areas.
- Marine terminal operators are to discuss with the authorities who operate and maintain those areas, the provision of alternative means for persons with disabilities to avoid having to stand for long periods of time.

l. Landside

- Signage throughout this area should be clear and unambiguous. Wherever possible pictograms should be used and where appropriate, tactile symbols should be used where the sign is within reach of passengers e.g. on toilet doors.
- Regardless of how they arrive at the terminal it should be possible for a person with a disability to summon assistance to get them to the check-in counters.

m. Check-in Facilities (DFT, 2003):

- Check-in facilities should be designed to be accessible to passengers in wheelchairs as well as ambulant passengers. Provision should also be made to ensure that staff can communicate with passengers with functional hearing limitations.
- Check-in staff should check reservation arrangements to ensure that pre-booked assistance will be provided. Where no such notice is recorded, and the staff considers that assistance might be needed, they should ask the passenger concerned and arrange such assistance, as necessary. In assisting whether assistance will be required, staff should advise passengers of the likely distance to the gate or departure lounge.
- Where a passenger has identified the nature of their functional limitation, the check-in staff, should, before assigning that passenger a seat, inform the passenger of the available seats that are most accessible and then establish



with that passenger an appropriate seat assignment, for them and any escort, on a first come, first served basis.

n. Self-Service Equipment

- Where self-service check-in facilities are provided they should be supported by a staffed check-in desk for those who are unable to access self-service equipment. The availability of the desk should be clearly indicated at the self-service machine. In any event, a help point should be provided for those who may experience difficulty with the self-service machine.
- Similarly where automatic ticket machines are provided, they too should be supported by staffed ticket desks and help points.

o. Reserved Seating Areas (DFT, 2003)

- Where seating areas are reserved for passengers with functional limitations, and others requiring special assistance, these should be within close proximity to a staffed desk. In addition, or as an alternative, help points should be provided in those areas. These can be telephone-based systems. In all cases the system should be capable of meeting the needs of people with functional sensory limitations.
- Arrival and departure information should be available to customers with functional limitations in these areas e.g. information screens should be visible from these areas.
- Staff will need to check back regularly with passengers with disabilities seated in these areas. This is particularly important for passengers with function visual limitations who cannot read customer information screens.

p. Public Facilities (DFT, 2003)

- All areas and services in the terminal building that are open to the public should also be accessible to persons with disabilities e.g. toilets, showers, restaurants and shops, business centers, executive lounges, leisure facilities, viewing galleries and places for prayer.
- Where facilities are provided for the sole or main use by people with disabilities they should be appropriately signed using pictograms and where appropriate, embossed tactile markings e.g. on the doors to toilets.

q. Turnstiles (Figure 179) should be eliminated for use by mobility impaired persons and persons with strollers wherever possible. If turnstiles are required





in a system for any reason, they should be at least 950 mm wide for persons in wheelchairs, scooters and strollers to pass. There should also be a button to deactivate the barriers.

r. Fare Payment, Collection and Fare Gates

- A wide fare gate with a clear width of at least 900 mm should be provided for passengers using mobility aids.
- In Marine Terminals, for ticket and schedule information, printed material, and alternative information at ticket counters for person who are deaf/hard of hearing should be provided via induction loop systems, or sign language.
- Automatic Ticket Vending Machines (Figure 180) in Marine Terminals should address the requirements of travelers with disabilities with regard to information provided and legibility. The controls and operating mechanisms on vending and ticketing machines (including input and retrieval areas) should be at a maximum height from the floor of 1200 mm and at a minimum height from the floor of 450 mm to their centerlines. Controls and operating mechanisms should be operable with one hand, without tight grasping, pinching, or twisting of the wrist, and with a force of less than 20N.
- Signage on machines should be tactile, contain Braille explanations, and have pictograms available.

6.1.1.4 Illustration



Figure 178: A marine terminal with clear signage
Source: UDA & Associates



Figure 179: Access Gate Designed to Accommodate Mobility Aid

Source: <http://www.ukstudentlife.com/Travel/Transport/London/Underground/>





*Figure 180: Automatic Ticket Vending Machine
Source: UDA & Associates*



*Figure 181: Example of wheelchair-accessible phone. These sorts of provisions are important in the provision of services to persons using wheelchairs or persons of diminutive stature.
Source: UDA & Associates*





Figure 182: Signage related to the wheelchair accessible phone
Source: UDA & Associates

6.1.1.5 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
 - 3.2.2 On-Board Accessible Routes
 - 3.2.3 Protruding and Overhead Objects
 - 3.2.4 Walking Surfaces/Decks and Floors
 - 3.2.5 Ramps
 - 3.2.6 Stairways
 - 3.2.7 Handrails
 - 3.2.9. Signage
 - 3.5 Onboard Washrooms
 - 3.8.1 Information and Announcements – Maritime Vessels and Facilities
 - 3.9.1 Emergency Exits, Fire Evacuation and Areas of Refuge Assistance
 - 4.2.1 Elevators
 - 4.2.2 Platform Lifts
 - 6.3.1 Information, Reception and Service Counters
 - 6.3.2. Waiting and Queuing Areas
 - 6.5.1. Public Announcements in Terminals
- Appendix 4: Illumination



6.2 Security Screening

6.2.1 Security Screening

6.2.1.1 Design Considerations

The privacy of passengers should be considered of utmost importance. Security screening of passengers should be treated with care and respect especially when involving individuals with disabilities. Staff should have received appropriate sensitivity training in case an alternative method of screening is required.

6.2.1.2 Application Guidelines

These guidelines apply to security agencies or authorities responsible for pre-board screening of passengers and their belongings, operating in any ferry terminal. People with disabilities may experience some challenges with security screening for example if they are traveling with service animals, if there are long queues and they may not be able to stand for extended periods of time, different search procedures may be necessary, or certain mobility aids may be too wide for screening devices and the mobility aids will most likely be made from metal. It is essential to treat with respect and dignity all persons subject to the screening process. Refer to Appendix 3: Technical Guidelines on Staff Training and Operational Issues in the Tourism Sector. (CTA Code of Practice, 2007)

6.2.1.3 Technical Guidelines

- a. Private screening areas:** Provide private screening areas, separated by gender for passengers when passing security screening. Female passengers shall be screened by female staff, and male passengers by male staff. Alternative communication should be provided for passenger who are deaf/hard of hearing, speech and cognitively impaired foreigners and illiterate persons. Seats should be provided for passengers to rest while waiting in a long queue and for wearing or removing footwear.
- b. Alternative queuing system:** An alternative means to the queuing system should be available for people with disabilities. Refer to 6.3.2.
- c. Multiple communication methods:** Both audible and visual means should be used to communicate with passengers during the screening process.





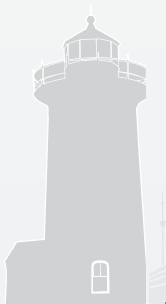
d. Some passengers may not be able to undergo screening using either walk-through and/or hand-held metal detection equipment. In such cases, screening offices should offer a physical search in lieu of metal detection screening, with the option of it being performed in a search area which is not open to public viewing. Such a search area should be capable of accommodating a passenger in a large powered wheelchair and the security personnel.

e. Assistance from staff: Some assistance with the screening process should be provided to the passenger upon request. Assistance includes, for example, ensuring a passenger is stable while his cane is processed through an X-ray machine, and picking up a boarding pass on the floor if a passenger drops it and has difficulty picking it up.

f. There should be a means available to make accessibility services of security agencies or authorities known to travellers. This would allow travellers to be aware of what accessibility services are available prior to travel. Public concern process: There should be a process in place to deal with public concerns or complaints. These concerns or complaints should be treated as expeditiously and effectively as possible. This process should include a selected person or group to deal with accessibility-related concerns or complaints. Accessible web sites and written materials should also provide information about this service. (CTA Code of Practice, 2007)

6.2.1.4 Other Considerations

- 3.8.4 Provision of Tourism-Related Information in Multiple Formats
- 6.3.2 Waiting and Queuing Areas



6.3 Information Counters

6.3.1 Information, Reception & Service Counters

6.2.1.1 Design Considerations

All persons should have access to information, reception and service counters (including Commercial/Retail), regardless of mobility or functional profile. For persons with a mobility device, children, persons short in stature or persons with balance problems that may require them to be seated, a lowered counter height is recommended. However, other users may require a taller design, and it is preferable to incorporate a selection of counter heights into information, reception and service areas. The choice of heights should include speaking ports and writing surfaces.

The depth of counters should account for the provision of knee space for persons using a wheelchair or mobility scooter.

For persons with visual impairments, the use of colour contrast, tactile difference or audio landmarks (e.g., receptionist voice or music source) provide navigational cues to the location of service counters or speaking ports.



Figure 183: Accessible Info. Counter
Source: UDA & Associates





6.3.1.2 Application Guidelines

At least one section of all counters used for reception, or for providing information or service should comply with this section.

6.3.1.3 Technical Guidelines

a. Location: Information, reception and service counters should be located on accessible routes that comply with Section 3.2.1, 3.2.2 for exterior locations or interior locations.

b. Waiting and Queuing Areas: Waiting and queuing areas associated to service and information counters should comply with Section 6.3.2.

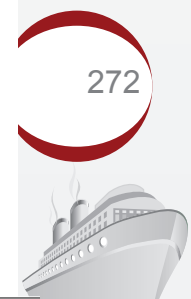
c. Clear Floor or Ground Space: A clear floor space measuring a minimum of 800 mm x 1400 mm should be provided at accessible sections of information, reception, and service counters for a forward approach.

d. Height: Counters for information, reception or service should incorporate at least one accessible section. Each accessible section of counter should extend for a minimum length of 900 mm. Counter surfaces at accessible sections should be located between 725-850 mm above the finished floor or ground.

e. Knee and Toe Space: Counters for information, reception, or service should incorporate knee and toe space that complies with Section 2.3.

f. Speaking Ports: Where glazing or other partitions separate opposite sides of a service, information or reception counter, a speaking port should be provided. Speaking ports should be positioned at a maximum height of 1060 mm above the floor.

g. Identification: Methods and systems to identify the location of information, reception or service counters to persons with visual impairments should be provided. Examples of such methods and systems include: music, auditory cues, and tactile pathways.



6.3.1.4 Illustrations

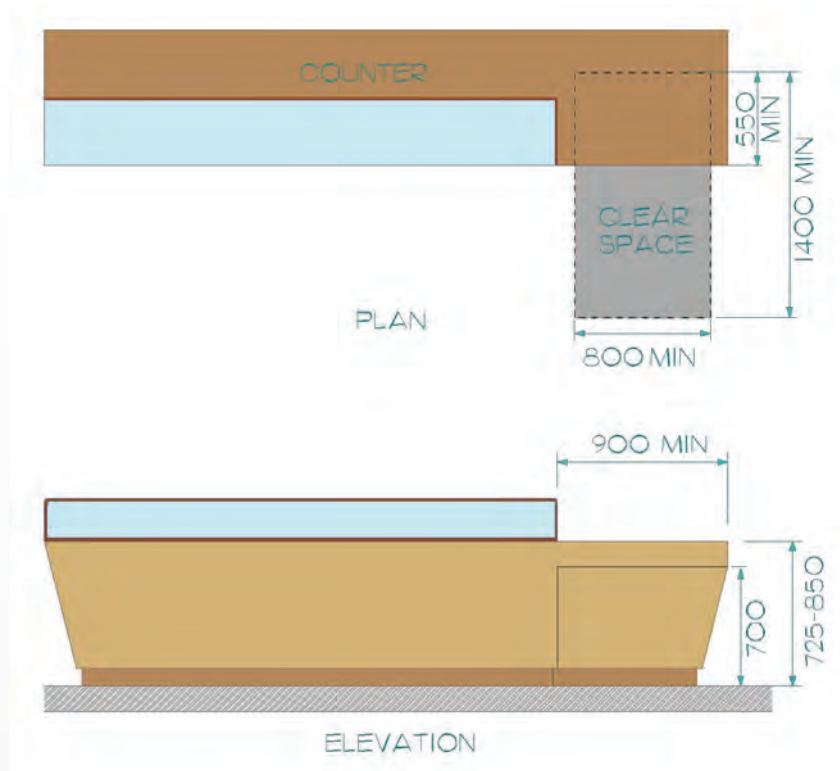


Figure 184: Service Counter
Source: UDA & Associates

6.3.1.4 Other Considerations

- 2.3 Anthropometric Data
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.9 Signage
- 6.5.1 Public Announcements in Terminals
- 3.8.1 Information and Announcements – Maritime Vessels and Facilities
- Appendix 4 Illumination





6.3.2 Waiting and Queuing Areas

6.3.2.1 Design Considerations

Waiting and queuing areas for information, tickets, or services should present safe and convenient routes of travel for persons who use wheelchairs, mobility scooters, and other mobility devices, as well as, persons with a varying range of user ability.

Waiting areas should be designed to accommodate wheelchairs and mobility scooters, and queuing lines that turn corners or double back on themselves should provide adequate space to manoeuvre mobility devices. A by-pass lane or alternative service system should be considered for those persons who have difficulty walking and/or standing in queues for long periods. Queuing lines should be marked with handrails to support persons with balance problems and guide individuals with visual impairments. The installation of benches adjacent to waiting or queuing areas is recommended for all users.

6.3.2.2 Application Guidelines

All waiting and queuing areas should comply with this section.

6.3.2.3 Technical Guidelines

a. Layout: Guide barriers should be laid out in parallel, logical lines. Layout of queuing areas should include by-pass lane identified with the international symbol of accessibility.

b. Gender separation: Appropriate separate and designated queuing for families, males and females should be provided according to local customs. Clear signage should indicate the location(s).

c. Space between Barriers: Guide barriers at queuing areas should be spaced to provide a minimum clear width of 1200 mm between them. Manoeuvring spaces measuring at least 1500 mm x 1500 mm should be provided at the entrance and exit locations of line-up/queuing areas and at changes of direction along the line-up/queuing route.

d. Barrier Mounting: Guide barriers intended to streamline pedestrian movement should be securely fixed to the floor and should be capable of



providing support for waiting persons through the use of rigid rails and/or solid sides. Where floor pockets are installed to support temporary or occasional supports, they should be level with the floor finish and have an integrated cover to prevent tripping hazards.

e. Directional Floor Markings: Permanent queuing areas should be marked with distinct floor patterns, colours or textures to guide persons with a visual impairment.

f. Contrasting Colour: Contrasting colours should be used in queuing areas to help differentiate ropes, bars, and solid barriers from the surrounding environment.

g. Cane Detection: Barriers should be cane detectable and should comply with Section 3.2.3.

h. Seating: Seating that complies with Section 3.4.1 should be provided along or immediately adjacent to line-up/queuing area routes.

6.3.2.4 Illustrations

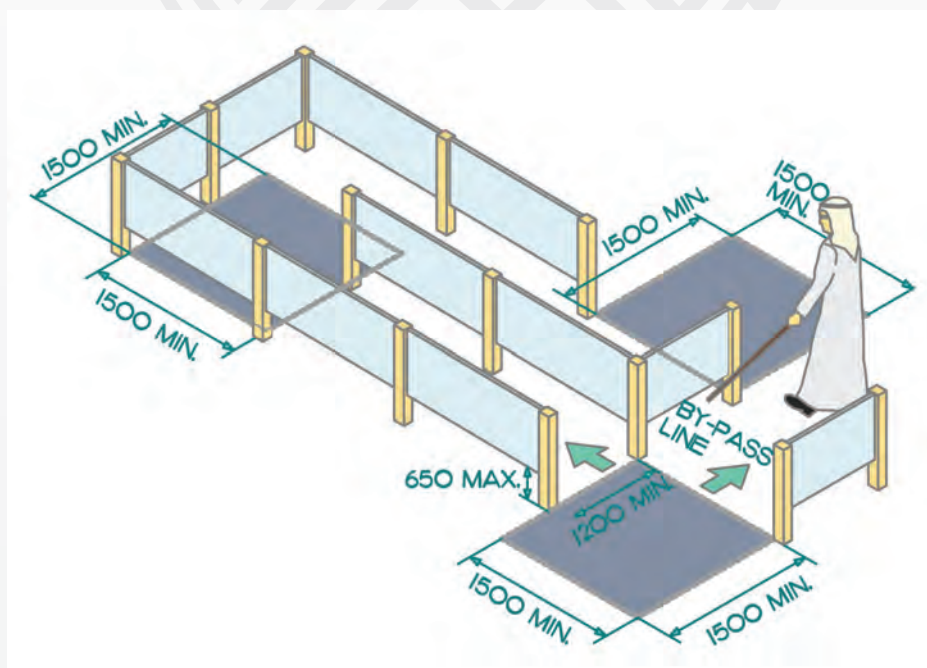


Figure 185: Line-up Area
Source: UDA & Associates





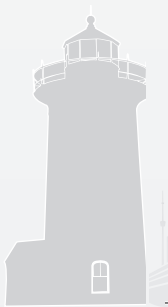
6.3.2.4 Other Considerations

- 2.3 Anthropometric Data
- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.2 On-Board Accessible Routes
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.9 Signage
- 6.5.1 Public Announcements in Terminals
- 3.8.1 Information and Announcements – Maritime Vessels and Facilities
- Appendix 4 Illumination

6.4 Gate Information Systems

Refer to the sections:

- 3.2.9 Signage
- 3.8.1 Information and Announcements – Marine Vessels and Facilities
- 3.11.1 Arrival / Departure Monitors and Other Electronic Signage
- 6.5.1 Public Announcements in Terminals



6.5 Gate Information Systems

6.5.1 Gate Information Systems

6.5.1.1 Design Considerations

As these are high-traffic areas, specific provision needs to be made to ensure their accessibility.

6.5.1.2 Application Guidelines

This part should apply to all public announcements in port and passenger vessel terminals.

6.5.1.3 Technical Guidelines

a. Announcements in multiple formats: Persons with functional hearing limitations often experience difficulty in accessing information from public announcements. A simple way to correct this problem is to supply a visual as well as a verbal message. Providing both types of announcements is beneficial to all travelers, as travel information will be better understood when repeated and confirmed visually.

b. Public announcements in terminals must adhere to the following guidelines:

- Announcements should be read / spoken slowly;
- Messages should be repeated to allow for more effective memorization of content;
- Pre-recorded should be used as they are clearer to understand;
- Verbal announcements should be reinforced with textual messages on display boards;
- Background noise should be minimized in areas where announcements are made;
- Pen and paper should be made available at key points in terminals to allow personal to communicate announcements to travelers with functional hearing limitations.

c. Public announcements related to the successful execution of a trip are to be provided in both audio and visual formats in all passenger service areas inside terminals. These announcements include, but are not limited to: information concerning departure delays, wharf or pier assignments and schedule or connection changes.





d. Public announcements are to be of a good quality with clear enunciation, in plain language and spoken slowly enough to be understood. Messages should be repeated. Pre-recorded messages are to be used as often as possible to improve the clarity of announcements.

6.5.1.4 Other Considerations

3.2.9 Signage

3.8.1 Information and Announcements – Marine vessels and facilities



6.6 Prayer Facilities and Ablution Room

6.6.1 Prayer Facilities/Mosque

6.6.1.1 Design Considerations

Access to all areas of worship and other activity areas in the Mosque should be provided. Access assumes that persons with disabilities may be participants, leaders, staff, or volunteers.

6.6.1.2 Application Guidelines

Places of worship and/or reflection should comply with this section.

6.6.1.3 Technical Guidelines

a. General: In addition to complying with this section mosques/places of worship should comply with applicable design requirements in Sections 3.2, and 3.4. Accessible paths of travel in mosques should be clear of shoes and other obstructions.

b. Seating: Seating should be provided at entrances and at other locations where persons are required to remove their shoes. Seating should also be provided within the prayer hall to accommodate persons who cannot bend to pray. A designated area to accommodate persons using mobility devices should be provided in a location that integrates persons with mobility devices into the gathering. Provision should be made to address the potential lack of cleanliness of mobility device wheels where the route to the designated area crosses prayer hall carpeting.

6.5.1.4 Other Considerations

- 3.2.1 Accessible Routes, Access Paths and Corridors
- 3.2.3 Protruding and Overhead Objects
- 3.2.4 Walking Surfaces/Decks and Floors
- 3.2.5 Ramps
- 3.2.6 Stairways
- 3.2.7 Handrails
- 3.2.8 Doorways





- 3.2.9 Signage
- 3.2.10 Symbols, Graphics and Pictograms
- 3.2.11 Lighting
- 3.4.1 General Seating
- 4.2.1 Elevators
- 4.2.2 Inclined and Vertical Platform Lifts



6.6.2 Ablution Room

6.6.2.1 Design Considerations

Ablution is a state that is prerequisite to praying. Ablution facilities should be available to everyone, including persons with disabilities.

Persons who use wheelchairs or other mobility devices require an accessible washbasin to perform ablution routines. Washbasins will also be of benefit to persons who have limited flexibility in their upper body. Persons who have limited strength and/or flexibility in their lower limbs will benefit from ablution facilities that incorporate seating.

Floor finish materials that remain slip-resistant when wet are a critical safety feature in ablution spaces.

Faucets and accessories, such as soap and towel dispensers, should be usable by everyone: mounting height and the configuration of operating mechanisms require careful consideration.

6.6.2.2 Application Guidelines

Ablution spaces should comply with this section.

A minimum of 5%, but never less than one, of ablution units should be accessible to persons with disabilities.

A minimum of 5%, but never less than one, of ablution units should be designated Limited Mobility Ablution Units.

6.6.2.3 Technical Guidelines

a. Doors: Doors into and within ablution spaces should comply with Section 3.2.8.

b. Circulation Routes: Ablution spaces and circulation routes within ablution spaces should comply with Section 3.2.1.

c. Floor Finish: Floor finishes within ablution spaces should be slip-resistant when wet, and should be anti-fungal and anti-bacterial. Grilles and gratings in ablution spaces and along circulation routes should comply with Section 3.2.4.





d. Built-In Elements: Built-in elements within ablution spaces, such as benches or seats, should be located on the same floor level as the circulation routes. Built-in elements should have no sharp edges and incorporate pronounced colour-contrast to differentiate them from the surrounding environment.

e. Ablution Faucets: Ablution faucets may be hand operated or electronically controlled; Faucets activated manually should be capable of being operated using one hand without pinching grasping or twisting of the wrist, with a force less than 22N. Faucets should incorporate pronounced colour-contrasted to differentiate them from the surrounding environment.

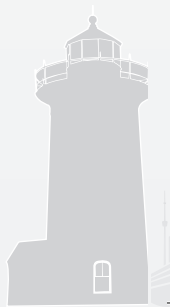
f. Location of Accessible and Limited Mobility Ablution Units: Accessible and limited mobility ablution units should be located on an accessible route complying with Section 3.2.1.

g. Configuration of Accessible Ablution Units: Accessible ablution units should have a washbasin complying with Section 3.5.3 and toilet accessories complying with Section 3.5.5.

h. Configuration of Limited Mobility Ablution Units (LMAU): Limited mobility ablution units should include a seat that is between 400 – 450 mm above the floor. LMAU's should be located so that one side is no closer than 900 mm to an adjacent seat, wall or other obstacle. Ablution faucets should be located no more than 740 mm above the floor, with the spout located no more than 410 mm from the front edge of the seat. Toilet accessories should comply with Section 3.5.5.

6.6.2.4 Other Considerations

- 2.2 Anthropometric Data
- 3.2.1 Routes, Corridors and Access Aisles
- 3.2.3 Protruding and Overhead Objects
- 3.2.8 Doors
- 3.2.9 Signage
- 3.5.3 Washbasins
- 3.5.5 Washroom Accessories
- 6.6.1 Prayer Facilities/Mosques
- Appendix 1 Controls and Operating Mechanisms
- Appendix 4 Illumination



6.7 Gate Information Systems

Refer to the sections: Family and Gender Seating

6.8 Emergency and Evacuation Information

Refer to Section 3.9 Emergency and Evacuation Information and Procedures

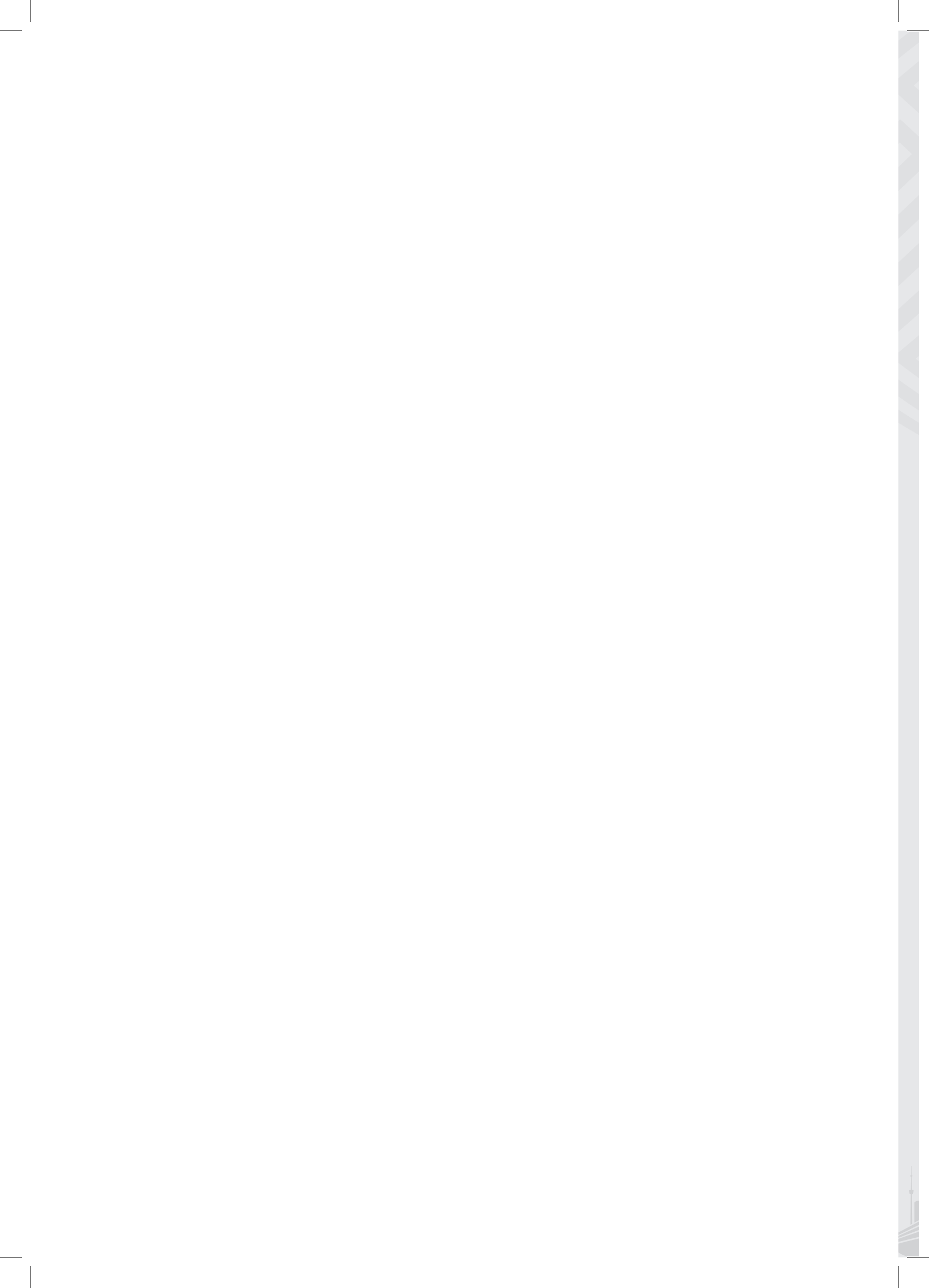
6.9 Baggage Retrieval

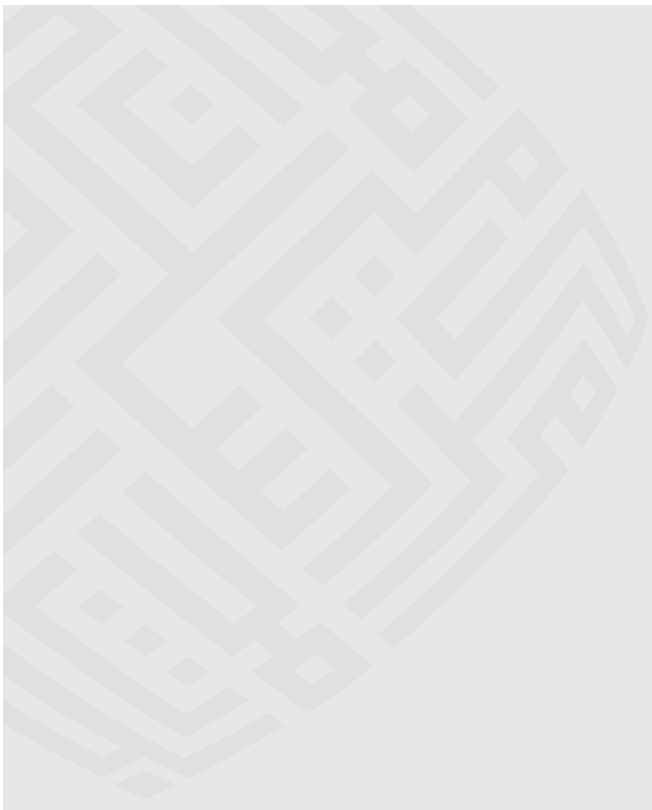
Refer to Section 3.12 Baggage Retrieval

6.10 Arrival Information

Refer to Section 3.11 Arrival Information







Appendices





Appendix A

Definitions

The terms used in the UAMT Technical Design Guidelines are listed in alphabetical order.

Ablution Hose

Ablution is the washing of one's body or part of it (as in a religious rite) [Merriam Webster Online]. An abluition hose is typically a simple rubber hose wall-mounted next to the toilet. It is approximately 1.5 M. long installed on the toilet wall either by the right hand side of the toilet bowl or by the left hand side of the urinal stall. The main purpose is for Muslims to perform part of the Wudu i.e. cleaning the dirty part of the body after going to the toilet.

Access:

Enter, board, embark.

Alt Text:

An attribute used in web pages which allows for in-line text descriptions of images for visually-impaired persons.

Best Practices

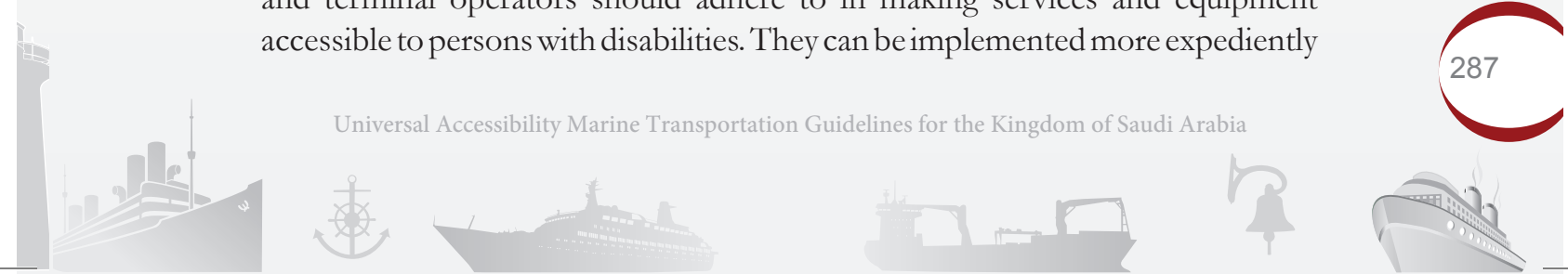
Best Practices represent the most effective way to achieve a specific objective that meets the needs of the target population [David Skyrme Associates, 2008. www.skyrme.com/updates/u54_f1.htm].

Braille

A reading system for persons with moderate to severe functional visual limitations using patterns of raised dots to form letters.

Codes or Codes of Practice

These are voluntary standards that set out the minimum measures that vessels and terminal operators should adhere to in making services and equipment accessible to persons with disabilities. They can be implemented more expediently





than regulations, and are developed through consultation with key stakeholders
Example of voluntary Code of Practice:

Canadian Transportation Agency (CTA). 2007. Code of Practice: Passenger Terminal Accessibility.

www.cta-otc.gc.ca/access/codes/rail/index_e.html.

Egress

Exit, disembark.

Foot Candle

A unit of luminance on a surface that is everywhere one foot from a uniform point source of light of one candle and equal to one lumen per square foot [Merriam Webster Online: <http://mw4.m-w.com/dictionary/foot%20candle>]. Accessed 31-01-08.

Framework

A framework is an extensible structure for describing a set of concepts, methods, technologies, and cultural changes necessary for a complete product design and manufacturing process – a system of rules, ideas or principles that is used to plan or make decisions. It provides a unified view of the needs and functionality of a particular service or application thus allowing a coherent approach to the specification of protocols and protocol elements as needed to realize the implementation of the service or application. A framework is a broad overview, outline or skeleton, within which details can be added, e.g. a strategic framework for national environmental policy setting the context for individual programs and projects [CERN Engineering Data Management Service, 2001] [Polish Government – Ministry of the Environment, 1997 – 2008].

Guidelines

Guidelines are official statements that define the parameters of practice. A guideline aims to streamline particular processes according to a set routine. Guidelines are not mandatory requirements [Clinical Governance Support Team, 2008]. Examples of guidelines are:

- Canadian Transportation Agency; Minister of Public Works and Government Services Canada, 2007) Guide for Passenger Terminal Accessibility



- Disabled Persons Transport Advisory Committee (DPTAC), 2000. The Design of Large Passenger Ships and Passenger Infrastructure: Guidance on meeting the needs of disabled people.

Haptic

Relating to or based on the sense of touch. [Merriam Webster Online. <http://mw4.m-w.com/dictionary/haptic>]. Accessed 31-01-08.

Induction Loop

An induction loop is a cable that encloses a sound catchment area. It connects to a loop amplifier that gets its signal from a sound source and is transmitted to someone using a hearing aid. Its typical transport application is a counter loop at ticket counters and in marine vessels.

Legislation

This is an exercise of the power and function of making rules (as laws, or statutes) that have the force of authority by virtue of their promulgation by a legislature or other governing body [Merriam-Webster Online]. The term may refer to a single law, or the collective body of enacted law, while “statute” is also used to refer to a single law. Before legislation becomes law, it is called a bill. In some jurisdictions, legislation must be confirmed by the executive branch of government before it becomes law. Examples of international disability laws:

- Office of Public Sector Information (UK). 1995. Disability Discrimination Act. URL: www.opsi.gov.uk/acts/acts1995/ukpga_19950050_en_1. Accessed 31-01-08.
- Department of Justice and Constitutional Development (SA). 2000. The Promotion of Equality and the Prevention of Unfair Discrimination Act. URL: www.doj.gov.za/legislation/acts/act_docs/2001_training_eqc%20act.html Accessed 31-01-08.

LUX

The SI (International) unit of luminance, or luminous flux incident on a unit area. Frequently defined as one lumen per square meter (lm/m²).

N

A Newton is the unit of force in the SI system; it is equal to the amount of force required to give a mass of one kilogram an acceleration of one meter per second squared.





Policy

A plan or course of action adopted by governments, political parties, or a business as an instrument to influence and determining decisions and actions [Merriam Webster Online. URL: www.m-w.com/dictionary/policy. Accessed 30-01-08.]

Regulations

A regulation is a delegated or subordinate form of legislation [Treasury Board of Canada Secretariat, 2000] that deals with details or procedure. It is a rule or order issued by an executive authority or government regulatory agency of and having the force of law [Encyclopedia Britannica Online]. Authority to make regulations must be expressly delegated by enabling acts

Standards

Standards are defined by the International Organization of Standardization (ISO) as “documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines or definitions of characteristics, to ensure that materials, products, processes and services are fit for their purpose.” In the context of technologies and industries, standardization is the process of establishing a technical specification, called a standard, among competing entities in a market, and brings benefits without hurting competition. In general, each country or economy has a single recognized National Standards Body (NSB), e.g. ANSI [Government of Canada – BioPortal, 2007]. Examples of Disability Standards:

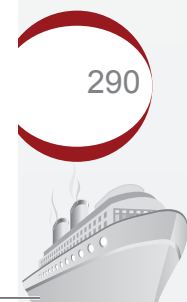
Attorney General’s Department, Australian Government. 2006. Disability Standards for Accessible Public Transport. URL: www.ag.gov.au/www/agd/agd.nsf/Page/Humanrightsandantidiscrimination_DisabilityStandardsforAccessiblePublicTransport. Accessed 25-01-08

Stateroom

A private cabin or compartment with sleeping accommodations on a passenger vessel. (www.answers.com online, accessed 21/09/09)

TTY or Text Phones

TTY stands for Tele TYpewriter. A TTY is a compact device that uses computer technology, a typewriter keyboard and a letter display and/or printer to allow deaf or speech impaired persons to converse over telephone lines without the





need of an interpreter by displaying the information as a text message on a small screen [York University, 2002. Access for People with Disabilities]. <http://www.yorku.ca/computng/students/access/index.html>. Accessed 06-02-08.

Vanity

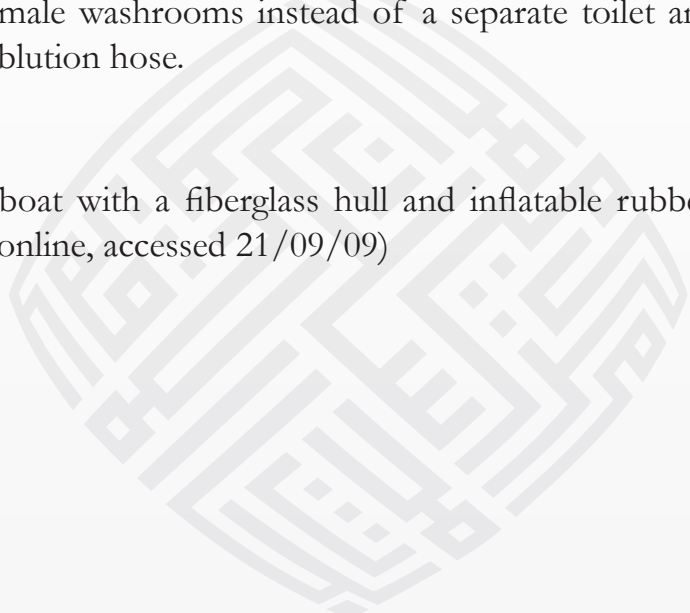
A bathroom cabinet that encloses a basin and its water lines and drain, usually furnished with shelves and drawers underneath for storage of toiletries. (www.answers.com online, accessed 21/09/09)

Washlet

A high tech bidet-cum-toilet with heated seat, built-in abluion water jet in the toilet bowl and wall or seat-mounted electronic controls offers a compact solution for female washrooms instead of a separate toilet and a bidet, or a toilet with an abluion hose.

Zodiac

A small open boat with a fiberglass hull and inflatable rubber sides. (www.answers.com online, accessed 21/09/09)





Appendix B

List of Abbreviations

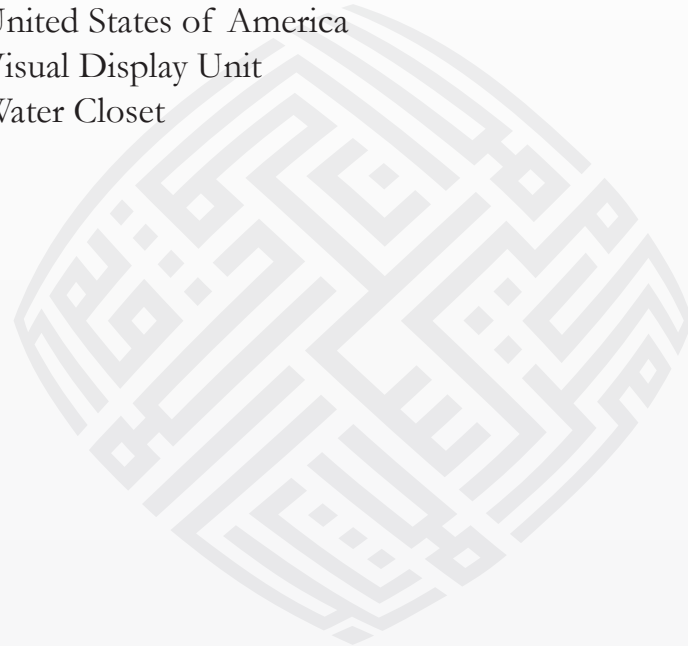
Universal Accessibility Marine Transportation (UAMT) Acronyms
(in alphabetical order)

ADA:	Americans with Disabilities Act (USA)
A.D.A.A.G:	Americans with Disabilities Act Accessibility Guidelines (USA)
ANSI:	American National Standards Institute (USA)
CCTV:	Closed Circuit Television
cd:	candela
CTA:	Canadian Transportation Agency (Canada)
DFT:	Department for Transport (UK)
DPTAC:	Disabled Persons Transport Advisory Committee (UK)
ECMT:	European Conference of Ministers of Transport (EU)
ETA:	English Tourism Council (UK)
EU:	European Union
GPS:	Global Positioning System
HSC:	High-Speed Craft
Hz:	hertz
IMO:	International Maritime Organization
ISO:	International Standards Organization
KSA:	Kingdom of Saudi Arabia
LMAU:	Limited Mobility Ablution Units
LU/LA:	Limited Use/Limited Application
LUX:	The SI (International) unit of luminance, or luminous flux incident
m:	Meter
mm:	Millimeter
MAHW:	Mean Accessible High Water
MALW:	Mean Accessible Low Water
N:	A Newton
PA:	Public Announcement
PDA:	Personal Digital Assistant
PFL:	Persons with Functional Limitations
PwDs:	People with Disabilities
R&D:	Research and Development
RIAS:	Remote Infrared Audible Signage





- SOLAS: Safety Of Life at Sea
Sq M: Square meter
TRANSED: International Conference on Mobility and Transportation for Elderly and Disabled People (Triennial International Event started in 1978 under US Transportation Research Board)
TTY: Teletypewriter
UABE: Universal Accessibility Built Environment (KSA)
UAP: Universal Accessibility Program (KSA)
UALT: Universal Accessibility Land Transportation (KSA)
UAMT: Universal Accessibility Marine Transportation (KSA)
UADA: Universal Accessibility Destinations and Accommodation (KSA)
UK: United Kingdom
UN: United Nations
USA: United States of America
VDU: Visual Display Unit
WC: Water Closet





Appendix C

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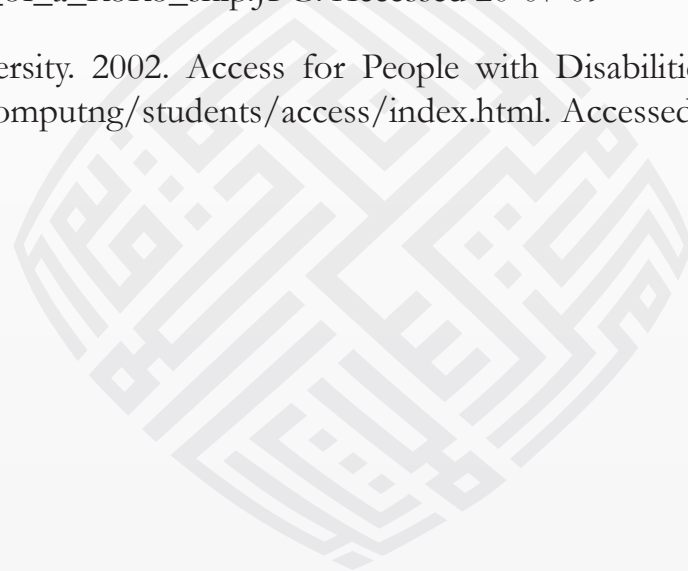


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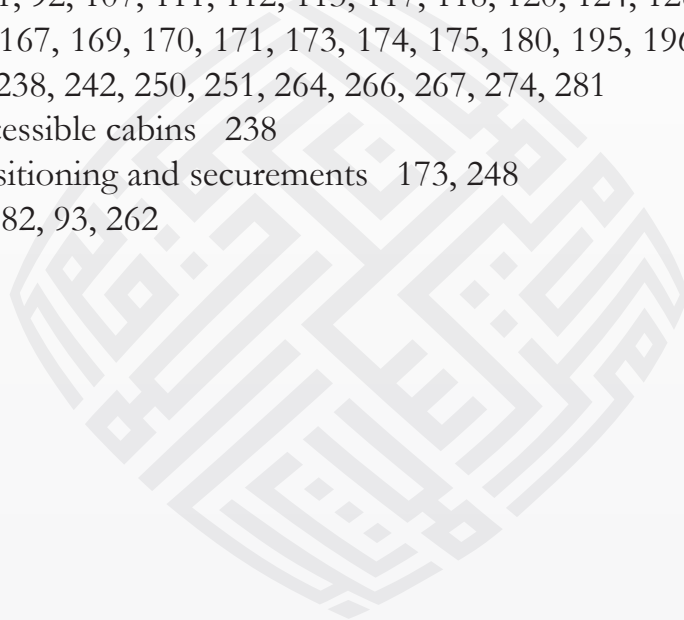


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Appendix E

UAMT Guideline Checklists

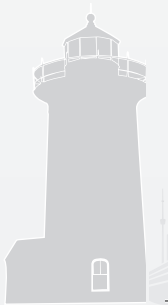
This checklist has been compiled based on the technical requirements of the current draft guidelines, as listed in the Table of Contents. It should be noted that these are draft guidelines, subject to validation through on-site verification across KSA. In support of this validation process, users of the checklist are encouraged to provide comments and suggestions to the Prince Salman Centre for Disability Research using the Feedback Form in Appendix F.





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.1 Boarding via Platforms, Gangways, Floating Piers							
3.1.1	51	Accessibility of Passenger Vessels: General					
3.1.2	53	Access to the Vessel					
	53	Fixed piers, floating piers, landside structures					
	53	Car deck					
	53	Passenger gangway					
	53	Tidal waters					
	54	Entrance protection					
3.1.3	55	Access via Passenger Gangway					
a.	55	Gangway and ship interface					
d.	56	Gangway running slope					
e.	56	Gangway cross-slopes					
f.	56	Clear width of gangway					
g.	56	Transition plates					
h.	56	Landings					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.1 Boarding via Platforms, Gangways, Floating Piers							
j.	57	Gangway handrails					
k.	57	Edge protection					
l.	57	Pedestrian crossing areas					
n.	58	Alternative accessible route					
p.	58	Boarding Devices					
•	58	Firm and level surface					
•	58	Circulation space					
•	58	Manual or power assisted devices					
•	58	Trained staff					
•	58	Maximum weight					
•	58	Notification of staff					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
3.2.1	59	Accessible Routes, Access Paths and Corridors					
a.	61	Floor surfaces					
b.	61	Clear Width					
d.	61	Colour contrast					
e.	61	Obstructing or protruding objects					
g.	61	Accessible Routes					
h.	62	Access path					
i.	63	Ramps					
	63	Gradient					
	63	Continuous handrail					
	63	Kerbs					
	63	Contrasting color					
j.	63	Steps					
	63	Contrasting color					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
	62	Square closed riser					
	62	Protected soffits to underside of the stairs					
	62	Uniform height levels					
	63	Continuous handrail					
k.	63	Double doors					
l.	63	Door handle					
m.	63	Height of emergency equipment					
n.	63	Holding area					
o.	63	Change of Direction Signage					
p.	64	Illumination					
q.	64	Rest Areas					
r.	64	Waiting and Queuing Areas					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
3.2.2	67	Accessible Routes, Paths and Corridors					
a.	67	Passenger deck and mezzanine to be connected					
c.	67	General circulation paths					
d.	67	Entry and departure point					
e.	67	Doors, doorways and gates					
f.	68	Elevators					
g.	68	Platforms lifts					
h.	68	Security barriers					
i.	68	Restaurants and cafeterias					
3.2.3	69	Protruding and Overhead Objects					
a.	69	Protruding Objects					
b.	70	Freestanding Objects					
c.	70	Width Maintenance					
d.	70	Headroom					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
e.	70	Overhead Hazard					
f.	70	Detectable Ground Surface					
g.	70	Color Contrast					
h.	70	Walkway Widths for Persons Using Crutches					
i.	70	Detection Space for Persons Using a Long White Cane					
j.	70	Detection Space for Persons Using a Walker					
3.2.4 Walking Surfaces / Decks and Floors							
a.	72	Surfaces					
e.	72	Detectable warning surfaces					
3.2.5 Ramps							
b.	75	Running Slope					
c.	76	Boarding ramps					
d.	76	Horizontal Length of a Ramp					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
e.	76	Cross Slope					
f.	76	Ramp and Landing Surfaces					
g.	76	Landing Slopes					
h.	76	Landings Size at Top and Bottom					
i.	76	Intermediate Landings Size					
j.	76	Curved Ramps					
k.	76	Edge Protection					
l.	76	Ramp and Landing Guards					
m.	77	Ramp Handrails					
n.	77	Distance between Handrails					
o.	77	Handrails in Aisle Way for Fixed Seating					
p.	77	Illumination					
q.	77	Detectable warning surfaces					
r.	77	Colour contrasting strips					



UAMT Guideline Checklists

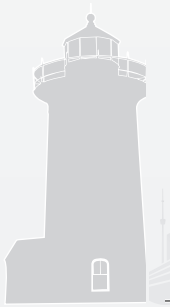
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			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
s.	77	Building Egress					
t.	78	Signage					
u.	78	Outdoor Conditions					
3.2.6	80	Stairways					
a.	80	Treads and Risers					
b.	80	Nosings					
c.	81	Detectable warning indicators					
d.	81	Stair Handrails					
e.	81	Interior and exterior stairs					
f.	81	Outdoor Surfaces					
g.	81	Illumination					
h.	81	Signage					
i.	82	Headroom					
j.	82	Windows and Doors					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
k.	82	Circular Stairs					
l.	82	Patterned Surfaces					
3.2.7	84	Handrails					
a.	85	Mounting Height					
b.	85	Grip					
c.	85	Termination					
d.	85	Load Values					
e.	85	Colour Contrast					
f.	86	Hazardous Areas					
g.	86	Emergency Exiting					
3.2.8	88	Doorways					
b.	89	Clear Opening					
c.	89	Manoeuvring Space					
d.	89	Thresholds					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
e.	90	Door Hardware					
f.	90	Opening Force					
g.	91	Door Closers					
h.	91	Kick plates					
i.	91	Power-Operated Swinging Doors					
j.	91	Entrance Vestibule Mats and Metal Gratings					
k.	91	Power Door Operators					
l.	92	Revolving Doors or Turnstiles					
m.	92	Frameless Glass Doors And Or Sidelights					
n.	92	Multiple-leaf Doorways					
o.	92	Two Doors in Series					
p.	92	Door to cabins, washrooms & other enclosed spaces					
q.	92	Watertight doors					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
r.	93	Peep Holes					
s.	93	Colour Contrast					
t.	93	Door Glazing / Vision Panels					
3.2.9	101	Signage					
a.	102	Location – Rooms and Spaces					
b.	102	Location – Stairways					
c.	102	Location – Decision Making Points					
d.	102	Overhead Signage					
e.	102	Case and Style					
f.	103	Character Proportions					
g.	103	Character Height					
h.	103	Finish and Contrast					
i.	103	Tactile Raised Characters					
j.	103	Clear Floor and Ground Surface					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
k.	104	Pictograms					
l.	104	Illumination					
m.	104	Audible Signage					
n.	104	Directories					
o.	104	Comprehensibility					
p.	104	Directional Signage					
3.2.10	107	Symbols, Graphics and Pictograms					
a.	107	Symbols					
b.	107	Graphics and Pictographs					
c.	108	Borders					
d.	108	Ambiguity of Symbols					
g.	108	Use of Arrows					
h.	108	Symbol Shapes					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.2 Pathways to Seats (Corridors, Stairs, Ramps)							
3.2.11	107	Lighting					
a.	107	Floor level and low level lighting					
3.3 Wheelchair Positions and Securements							
3.3.1	111	Wheelchair Positions and Securements					
a.	112	Challenges of wheelchair securement					
b.	112	Strap tie downs					
c.	112	Tendering vessels					
d.	112	Forward facing system					
e.	112	Ease of use					
f.	113	Rear-facing system					
g.	113	Appropriate application					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.4 Family and Gender Seating							
3.4.1	114	General Seating					
b.	114	Accessible seating					
c.	114	Furniture layout					
d.	114	Service animal					
e.	115	Passageways and counters					
f.	115	Seating in waiting or rest areas					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.5 Onboard washrooms (wheelchair with attendant)							
3.5.1	117	Onboard Washrooms					
a.	118	Clear floor space					
b.	118	Transfer Space in accessible toilet stalls					
c.	118	In- Stall Washbasin					
d.	118	Toilet height					
e.	119	Grab bar					
f.	119	Movable armrests/supports					
g.	119	Doors					
h.	119	Controls					
i.	119	Location					
j.	119	Bidet					
k.	119	An ablation hose					
l.	119	Emergency call buttons					
m.	120	Unisex toilet					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.5 Onboard washrooms (wheelchair with attendant)							
n.	120	On existing passenger vessels					
o.	120	Layout					
q.	120	Toilet signage					
r.	120	Entrance Door					
s.	120	Toilet Stall Doors					
t.	121	Stall Door Locks					
u.	121	Toilet flooring					
v.	121	Colour contrast					
3.5.2	122	Toilets					
a.	124	Toilet Seat					
b.	124	Water Closet					
c.	124	Transfer Space					
d.	125	Toilet Flush Controls					
e.	125	Grab bar					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.5 Onboard washrooms (wheelchair with attendant)							
f.	125	Grab Bars in Accessible Toilet Stalls					
g.	125	Grab Bars in Limited Mobility Toilet Stalls					
h.	126	Toilet Paper Dispenser					
i.	126	Coat hooks					
j.	126	Colostomy bag					
k.	126	Emergency Call Strip					
l.	126	Ablution-hose					
m.	126	Child Size Toilet					
n.	126	Colour Contrast					
3.5.3	128	Washbasins					
b.	130	Mounting Location					
c.	130	Knee Space					
d.	130	Clear floor space					
e.	130	Faucets					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.5 Onboard washrooms (wheelchair with attendant)							
f.	130	Dispensers					
g.	130	Water Temperature					
h.	131	Shelves					
i.	131	Mirrors					
j.	131	Colour Contrast					
3.5.4	132	Urinals					
a.	133	Urinal Types					
b.	133	Clear Floor Space					
c.	133	Urinal Stall Dimensions					
d.	133	Urinal Stall Doors					
e.	133	Urinal Stall Door Locks					
f.	133	Urinal Flush Controls					
g.	134	Grab Bars					
h.	134	Ablution hose					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.5 Onboard washrooms (wheelchair with attendant)							
i.	134	Vertical Markers					
j.	134	Colour Contrast					
3.5.5	136	Washroom Accessories					
a.	136	Operable Mechanisms					
b.	136	Clear Floor Space					
c.	137	Mirrors					
d.	137	Soap Dispensers					
e.	137	Paper Towel Dispensers / Hot Air Hand Dryers					
f.	137	Baby Change Tables					
g.	137	Garbage Containers					
h.	137	Colour Contrast					



UAMT Guideline Checklists

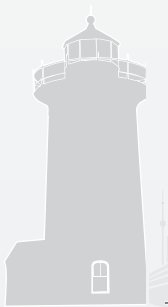
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3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.6 On-Board Restaurants, Cafeterias, Snack Bars							
3.6.1	139	Restaurants, Cafeterias and Bars					
a.	139	Clear unobstructed routes provided					
b.	139	Fixed slip-resistant floor surface					
c.	139	Size of opening leaf					
d.	139	Door handles					
e.	140	Unobstructed width					
f.	140	Table height					
g.	140	A lowered section of the buffet/servery area					
h.	140	Assistance dogs					
i.	140	Lighting					
j.	140	Colour contrasting tableware					
k.	140	Information and menus in multiple formats					
l.	140	Orientation					
m.	141	Assistance from staff					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.7 Individual safety briefing for blind and deaf passengers							
3.7.1	144	Individual Safety Briefing					
a.	144	Multiple formats					
b.	144	Readily available					
3.7.2.	145	Safety Announcements					
d.	145	When to announce					
e.	145	Safety information location					
f.	145	Mock evacuations					
g.	145	Induction Loops					



UAMT Guideline Checklists

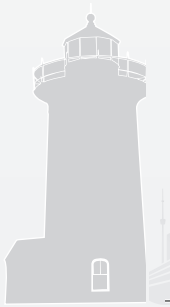
Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.8 Onboard public information and communication facilities (PA systems, monitors, e-boards)							
3.8.1 Information and Announcements – Maritime Vessels and Facilities							
a.	146	Multiple format					
c.	146	Audible Information					
d.	146	Visual Displays and Captioning					
e.	147	Dual-Sensory Loss					
3.8.2 Accessibility of Information in On-Board Facilities							
a.	148	On-board orientation					
b.	148	Safety and Emergency Procedures					
c.	148	Emergency Procedures					
d.	149	Entertainment					
e.	149	Provision of Information for Persons with functional learning and visual limitations					
f.	149	Provision for sub-titles					
g.	149	Announcements					
h.	149	Audio Entertainment Systems					
i.	149	Multiple formats					





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.8 Onboard public information and communication facilities (PA systems, monitors, e-boards)							
3.8.3	150	Accessibility of Print					
a.	150	Usage of sans serif fonts					
c.	150	Font size					
d.	151	Presentation of Information					
e.	151	Line Spacing					
f.	151	Display Time / Scroll Rate on Electronic Media					
g.	152	Glare					
h.	152	Placement of Text					
i.	152	Column Width					
j.	152	Formatting of text					
k.	152	Navigation of electronic information					
l.	152	Icons					



UAMT Guideline Checklists

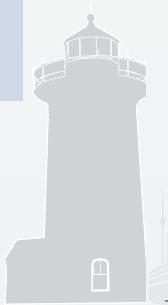
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			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.8 Onboard public information and communication facilities (PA systems, monitors, e-boards)							
3.8.4	155	Provision of Tourism-Related Information in Multiple Formats					
a.	155	Definition of Multiple Formats					
c.	155	Large Print					
d.	156	Braille					
e.	156	Materials on Disk					
f.	156	Cassette Recordings					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.9 Emergency and Evacuation Information and Procedures							
3.9.1	158	Emergency Exits, Fire Evacuation and Areas of Rescue Assistance					
a.	159	Emergency Warning Systems					
b.	159	Identification Signage					
c.	159	Areas of Rescue Assistance – Accessible Route					
d.	159	Areas of Rescue Assistance Area of temporary refuge					
e.	160	Areas of Rescue Assistance Communication System					
f.	160	Areas of Rescue Assistance – Signage					
g.	160	Accessible Fire Evacuation Plans: Accessible Means of Escape					
h.	161	Night time evacuation					
i.	161	Use of written cards					
j.	161	Evacuation plan					
k.	162	Area of Rescue Assistance					
l.	162	Egress					
m.	162	Exit Stairways					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.9 Emergency and Evacuation Information and Procedures							
3.9.2	164	Emergency Alarm Systems					
b.	164	Testing					
c.	164	Public Areas					
d.	164	Guest Rooms					
f.	164	Signage					
g.	164	Guest Rooms / Bedrooms					
h.	164	Toilets, Washrooms and Bathrooms					
i.	165	Visual Alarms					
j.	165	Visual Alarm Location					
k.	165	Audible Alarms					
l.	165	Audible Warnings					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.10 Emergency and Evacuation Equipment for Mobility Impaired							
3.10.1	167	Evacuation Equipment					
a.	167	Emergency and evacuation procedures					
b.	167	Directional signage					
c.	167	Trained staff					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.11 Arrival Information							
3.11.1	169	Arrival / Departure Monitors and Other Electronic Signage					
a.	169	Multiple formats					
b.	169	Large monitors					
c.	170	Monitor location					
d.	170	Simple language					
e.	170	Colour contrast					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.12 Baggage retrieval							
3.12.1	171	Baggage Retrieval					
a.	171	Accessible room					
b.	171	Staff assistance					
d.	171	Priority baggage					
e.	171	Baggage Racks or Carousels					
f.	171	Baggage compartment height					
g.	171	Time allowance					
h.	171	Lockers or Baggage Storage					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.13 Vehicle Interface with Platforms, Gangways, Floating Piers							
3.13.1	173	External Approaches					
Arrival at the Terminal: By Car							
a.	173	Location and design of entry equipment					
c.	173	Size of ticket					
d.	174	Visual indication for assistance					
e.	174	Vehicle barrier heights					
f.	174	Accessible parking spaces					
h.	174	A help point					
i.	174	Signage					
m.	175	Payment machines					
Arrival at the Terminal: By Taxi							
a.	175	Signage					
b.	175	Wheelchair accessible					
c.	176	Help point					





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.13 Vehicle Interface with Platforms, Gangways, Floating Piers							
3.13.1	173	External Approaches					
Arrival at the Terminal: By Hire Car							
a.	176	Signage					
c.	176	Help point					
d.	176	Accessible shuttle service					
e.	176	Accessible pedestrian links					
Arrival at the Terminal: By Bus or Train							
a.	176	Accessible interchange					
b.	176	Assistance provided					
c.	176	Help point					
Arrival at the Terminal: Routes to the Terminal							
a.	176	well-signed					
b.	176	fully accessible					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.13 Vehicle Interface with Platforms, Gangways, Floating Piers							
3.13.2	180	Vehicle Parking					
a.	182	Location					
b.	182	Path of Travel					
c.	182	Identification Signage					
d.	183	Directional Signage					
e.	183	Pavement Markings					
f.	183	Layout-Perpendicular Parking					
g.	183	Layout-Parallel Parking					
h.	183	Layout-Angled Parking					
i.	184	Floor and Ground Surface					
j.	184	Overhead Clearance					
k.	184	Limited Mobility Parking					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
3.0 ACCESS OF SMALL FERRIES (ONE OR TWO DECKS)							
3.13 Vehicle Interface with Platforms, Gangways, Floating Piers							
3.13.3	189	Passenger Drop Off Areas					
a.	189	Location					
b.	189	Floor and Ground Surface					
c.	189	Signage					
d.	189	Overhead Clearance					
e.	190	Off-Street Zone Size					
f.	190	On-Street Zone Size					
g.	190	Kerb cuts					
h.	190	Weather Protection					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
4.0 ACCESS OF MULTI-DECK FERRIES WITH CAR DECK(S)							
4.1 Boarding via Car Ramp, Passenger Bridge, Gangways							
4.1.1	195	Access via Car Deck					
a.	196	Hazard lights during check-in					
b.	196	Signage					
c.	196	Accessible routes					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
4.0 ACCESS OF MULTI-DECK FERRIES WITH CAR DECK(S)							
4.2 Pathway from Car Deck to Seat via Elevator, Stairs							
4.2.1	195	Elevators					
b.	199	Signage					
d.	199	Clear Width of Doors					
e.	199	Colour Contrast					
f.	199	Elevator Floor Designation Characters					
g.	199	Elevator Doors and Opening Time					
h.	199	Elevator Leveling Device					
i.	199	Elevator Door Re-opening Device					
j.	200	Elevator Interior Cab Dimensions					
k.	200	Elevator Cab Floors					
l.	200	Handrails inside elevators					
m.	200	Elevator Interior Controls					
n.	200	Elevator Control Markings					



UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
4.0 ACCESS OF MULTI-DECK FERRIES WITH CAR DECK(S)							
4.2 Pathway from Car Deck to Seat via Elevator, Stairs							
4.2.1	195	Elevators					
n.	200	Emergency Elevator Car Controls and Door-Operating Buttons					
o.	200	Elevator In Cab Indicator					
p.	201	Elevator Illumination					
q.	201	Elevator lobby Call Buttons					
r.	201	Elevator lobby Visual Indication					
s.	201	Elevator lobby or In-Car Lanterns					
t.	201	Audible Signals and Voice-Annunciation					
v.	201	Emergency Call System					
w.	202	Mirrors					
x.	202	Alternative elevating device					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
4.0 ACCESS OF MULTI-DECK FERRIES WITH CAR DECK(S)							
4.2 Pathway from Car Deck to Seat via Elevator, Stairs							
4.2.2	205	Inclined and Vertical Platform Lifts					
b.	206	Signage					
c.	206	Platform Size					
d.	206	Floor Finishes					
e.	206	Guards					
f.	206	Doors					
g.	206	Controls and Operating Mechanisms					
h.	206	Emergency Call System					



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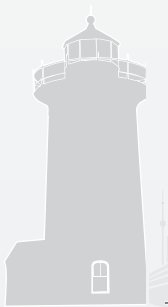
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4.0 ACCESS OF MULTI-DECK FERRIES WITH CAR DECK(S)							
4.3	209	Pathway via Bridges to Seat (Corridors, Stairs, Ramps)					
4.4	209	Wheelchair Positions and Securement					
4.5	209	Family and Gender Seating					
4.6	209	Access to Washroom (Wheelchair with Attendant)					
4.7	209	Access to Restaurants and Cafeterias					
4.8	209	Onboard Public Information and Communication					
4.9	209	Individual Safety Briefings					
4.10	209	Emergency and Evacuation, Escape Routes					
4.11	210	Emergency and Evacuation Equipment for Mobility Impaired					
4.12	210	Arrival Information					
4.13	210	Baggage retrieval					





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.1	213	Boarding via Passenger Bridge, Elevator, Walkway					
5.2	213	Pathway to Cabin (Corridors, Stairs, Ramps, Elevator)					
5.3	213	Wheelchair Positions and Securement in Public Areas					
5.4	213	Family and Gender Seating					
5.5	213	Access to Public Washroom (Wheelchair with Attendant)					
5.6	214	Access to Restaurants and Cafeterias					



UAMT Guideline Checklists

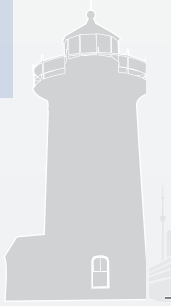
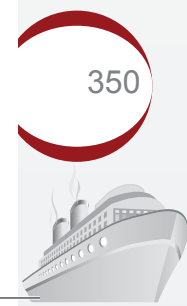
Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.7 Access to Swimming Pool(s), Theaters, and Conference/Meeting Rooms							
5.7.1	214	Conference Facilities					
a.	214	Seating options					
b.	214	Aisle width					
c.	214	Reserved seating					
d.	214	Accessible speaking area					
e.	215	Good quality sound system					
f.	215	Induction loop					
g.	215	Lighting					
i.	215	Microphones					
j.	215	Sign language interpreter					
k.	215	Extra seating					





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.7 Access to Swimming Pool(s), Theaters, and Conference/Meeting Rooms							
5.7.2	216	Cinemas, Theatres, Swimming Pools and Other Public Areas					
a.	216	Dedicated seating areas for wheelchair users					
b.	216	Colour contrast					
c.	216	Accessible passageways					
d.	216	Hearing enhancement system					
e.	216	Audio descriptive facilities					
f.	216	Accessible facilities					
5.7.3	217	Retail Sales Areas					
	217	Accessible aisles, counters					
	217	Food service lines					
	218	Queues and waiting lines					
5.7.4	219	First Aid and Medical Facilities					
	219	Accessible rooms/cabins					
	219	First-aid policy					
	219	Accessible toilet and bathing rooms					



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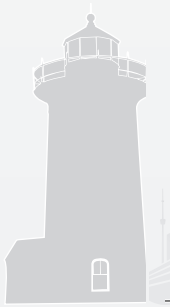
Guideline Reference	Page No.	Element	Compliance Status			Comments
			Yes	No	Partial	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER						
5.8	220	Onboard public information and communication (captioning on monitors)				
5.9	220	Real-time information in audio and text (by crew for emergencies and evacuations in public and private areas)				
5.9.1	220	Real-Time Information in Audio and Text				
	220	Public address system				
	220	Signage				
5.10	222	Emergency and Evacuation, Escape Routes (Handrails, Walking Surfaces, Audio, Visual and Tactile Information)				
5.11	222	Evacuation Equipment for Passengers in Wheelchairs				
5.12	222	Cabin identification for low vision or blind passengers				
5.12.1	222	Cabins: General Requirements				
a.	222	Orientation				
b.	222	Tactile signage				
c.	223	Emergency and evacuation procedures				
d.	223	Multiple format				
f.	223	Circulation space				
g.	223	Doors				





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.12	222	Cabin identification for low vision or blind passengers					
5.12.1	222	Cabins: General Requirements					
i.	222	Door handles					
j.	222	On/off detectable power points and light switches					
k.	223	Furniture selection					
l.	223	Colour contrast					
m.	224	Telephone handset					
5.13	224	Wheelchair access to cabin					
5.14	225	In-Cabin Accessible Washroom/Shower/Vanity (Wheelchair with Attendant)					
5.14.1	225	Accessible En-suite Bathrooms fitted with Mobility Features					
a.	227	Fixed slip-resistant floor surface					
b.	227	Non-reflective surfaces					
c.	227	Clear opening width					
d.	227	Clear unobstructed space					
e.	227	Provision of walk in shower					



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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.14	225	In-Cabin Accessible Washroom/Shower/Vanity (Wheelchair with Attendant)					
f.	227	Washroom accessories					
g.	227	Emergency alarm systems					
h.	228	Wash-Hand Basin					
•		Lever action taps or mixer					
•		Mirror location					
•		Towel rails					
i.	228	Roll-in-Shower (preferable)					
•		Shower seat provision					
•		Grab bars					
•		Lever action shower mixer and hand shower on adjustable rail					
•		Tiled run-off					
j.	229	W.C. Pan: General provisions for toileting facilities					
•		Toilet location specifications					
k.	230	Bath (Optional)					





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.14	225	In-Cabin Accessible Washroom/Shower/Vanity (Wheelchair with Attendant)					
5.14.2	233	Bath fitted as part of an accessible cabin					
a.	233	Choice of layouts					
c.	234	Clear Floor Space					
d.	234	Grab Bars					
e.	234	Transfer Bench					
f.	234	Faucets and Controls					
g.	235	Shower Head					
h.	235	Soap Holders					
i.	235	Emergency Call Strip					
j.	235	Surface					
k.	235	Bathtub Enclosures					
l.	236	Illumination Levels					
m.	236	Colour Contrast					



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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.15	238	Wheelchair Accessible Cabin/Bedroom Compartment					
5.15.1	238	Cabins					
a.	240	Accessible routes					
b.	240	Emergency procedures					
c.	240	Accessible rooms					
e.	241	Cabin location					
f.	241	Emergency evacuation notice					
g.	242	Remote emergency alarm calls system in room					
h.	242	Fire extinguisher					
j.	242	En-suite facilities					
k.	242	Accessible room options					
l.	242	Rooms Equipped with Mobility Features					
•	242	Cabins and toilets					
•	242	Door openings					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.15	238	Wheelchair Accessible Cabin/Bedroom Compartment					
•	243	Accessible exterior spaces					
•	243	Wheelchair circulation space					
•	244	Bed height					
•	244	Location of electrical switches					
•	244	Provision for a bedside telephone					
•	244	Handhold positioning					
•	244	Emergency call devise					
•	244	Curtains					
•	245	Desk and tables					
•	245	Cupboard handles					
•	245	Assistance dog					



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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.15	238	Wheelchair Accessible Cabin/Bedroom Compartment					
m	245	Rooms equipped with Communication Features					
•	245	Visible notification devices					
•	245	Emergency I.D. door hangers					
•	245	Flashing lights and vibrating pads linked to alarm					
•	245	TV listening devices					
•	245	Telephone with voice amplification					
•	246	Flashing alarm clock					
•	246	Flashing light doorbell					
•	246	Tactile labels on room controls					
•	246	Operating instructions in multiple formats					
o.	246	Employee cabins					
p.	247	Employee work areas					





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.16	248	Emergency call devise					
a.	248	24 hour assistance					
b.	248	Panic buttons and Pull-cords					
c.	248	Positioning					
e.	248	Reset control					
5.17	249	In-cabin information and communication (captioning on monitors)					
5.18	249	Individual Safety Briefings for Passengers who are Blind and Deaf					
5.19	249	Arrival information					
5.20	249	Baggage retrieval					
5.21	249	Cruise vessel interface with terminal/passenger bridge (walkways, elevators)					
5.22	250	Cruise vessel interface with tender (lift, platform, stairs)					
5.22.1	250	Tendering Ashore					
b.	250	transfer process					
d.	250	Wheelchair accessible spaces on tenders					



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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
5.0 ACCESS OF CRUISE VESSEL WITH TENDER							
5.22	250	Cruise vessel interface with tender (lift, platform, stairs)					
5.22.1	250	Tendering Ashore					
f.	251	Deck and floor surfaces					
g.	251	Securement					
h.	251	Accessible Route					
j.	251	Platform Lifts					
5.23	252	Tender interface with land structures, floating piers, platforms					
5.23.1	252	Tender interface with land structures					
a.	252	Pathway of Access					
b.	252	Nominal marine conditions					
c.	253	Outdoor shore facilities					
5.24	258	Wheelchair position/securement on tender					





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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
6.0 TERMINAL ACCESS							
6.1	261	Orientation and Wayfinding					
6.1.1	261	Ports and Ferry Terminals: Access to and Within Terminals					
a.	261	Signage					
c.	262	Telephones					
d.	262	Information Systems					
e.	262	Induction loops and a textphone					
f.	262	Multiple format information					
i.	262	Accessible paths of travel					
j.	262	Wayfinding					
•		Use of colour					
•		Clear markings on glass doorways/					
•		Panels					
•		Tactile systems					
•		Tactile surfaces					
•		Avoid large mirrors					



UAMT Guideline Checklists

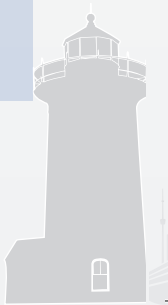
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6.0 TERMINAL ACCESS							
6.1	261	Orientation and Wayfinding					
6.1.1	261	Ports and Ferry Terminals: Access to and Within Terminals					
k.	264	Rest Areas					
l.	264	Landside					
m.	264	Check-in Facilities					
n.	265	Self-Service Equipment					
o.	265	Reserved Seating Areas					
p.	265	Public Facilities					
q.	265	Turnstiles					
r.	266	Fare Payment, Collection and Fare Gates					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
6.0 TERMINAL ACCESS							
6.2	269	Security screening					
6.2.1	269	Security screening					
a.	269	Private screening areas					
b.	269	Alternative queuing system					
c.	269	Multiple communication methods					
e.	270	Assistance from staff					
g.	270	Public concern process					
6.3	271	Security screening					
6.3.1	271	Information, Reception & Service Counters					
a.	272	Location					
b.	272	Waiting and Queuing Areas					
c.	272	Clear Floor or Ground Space					
d.	272	Height					
e.	272	Knee and Toe Space					
f.	272	Speaking Ports					
g.	272	Identification					



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Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
6.0 TERMINAL ACCESS							
6.3	271	Security screening					
6.3.2	274	Waiting and Queuing Areas					
a.	274	Layout					
c.	274	Space between Barriers					
d.	274	Barrier Mounting					
e.	274	Directional Floor Markings					
f.	275	Contrasting Colour					
g.	275	Cane Detection					
h.	275	Seating					
6.4	276	Gate information systems					
6.5	277	PA systems and paging					
6.5.1	277	Public Announcements in Terminals					
a.	277	Announcements in multiple formats					





UAMT Guideline Checklists

Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
6.0 TERMINAL ACCESS							
6.6	279	Prayer Facilities					
6.6.1	279	Prayer Facilities/ Mosque					
b.	279	Seating					
6.6.2	281	Ablution Room					
a.	281	Doors					
b.	281	Circulation Routes					
c.	281	Floor Finish					
d.	282	Built-in Elements					
e.	282	Ablution Faucets					
f.	282	Location of Accessible and Limited Mobility Ablution Units					
g.	282	Configuration of Accessible Ablution Units					
h.	282	Configuration of Limited Mobility Ablution Units					



UAMT Guideline Checklists							
Guideline Reference	Page No.	Element	Compliance Status				Comments
			Yes	No	Partial	N/A	
6.0		TERMINAL ACCESS					
6.7	283	Family and gender seating					
6.8	283	Emergency and evacuation information					
6.9	283	Baggage retrieval					
6.10	283	Arrival Information					





Appendix F Feedback Form

Suggested changes to The Universal Accessibility Marine Transportation Guidelines Manual

The objective of these Forms is to benefit from the User's Feedback for future development of the Manuals

Please return your comments/suggestions to:



مركز الأمير سلمان لأبحاث الإعاقة
Prince Salman Center For Disability Research

Science Benefiting People علم ينفع الناس

P.O.Box 94682 Riyadh 11614
Kingdom of Saudi Arabia

Name

Address

Organization

Telephone

e-mail

Problem(s) (Please specify page and section number)
Faced in using
the Manual

Proposed Suggestions Please include proposed new or revised wording, or identification of wording to be added or deleted: (please identify relevant details such as page number(s), heading, sub-heading, etc.)

(attach additional sheets if required)



Appendix 1

Controls and Operating Mechanisms

Controls and operating machines should cater to a diverse range of users. Operating mechanisms that call for a high degree of dexterity or strength will prove troublesome for many individuals, including but not limited to children, individuals with arthritis and persons wearing gloves. For those individuals who have difficulties with reach or balance, or those who must use their hands to hold canes or crutches, a mechanism that requires two hands to operate is an unwelcome challenge.

Controls should be placed at a height that acknowledges the lower vantage point of persons with wheelchairs or mobility scooters, children, and persons of short stature. Persons with wheelchairs and mobility scooters require additional space in front of operating machines for unobstructed manoeuvrability.

Flush-mounted buttons, touch screens, or controls without tactile markings should be avoided as they are problematic for persons with visual impairments. Counterintuitive or graphic controls may be difficult for persons with cognitive challenges. The use of contrasting colours will make controls more discernable to all users, especially persons with visual impairments.

Technical Guidelines

a. Clear Floor or Ground Surface: Clear floor space measuring a minimum of 800x1400 mm should be provided in front of controls and operating mechanisms, to permit a forward or side approach. All outlets and controls including call buttons, thermostats, electrical switches and electrical and communication wall outlets, should be located adjacent to a clear floor space at a height that permits use by all passengers including a person in a wheelchair; (DPTAC, 2007)

b. Operable Portions of Controls and Mechanisms: Operable portions of controls and operating mechanisms should be positioned at a height of 900-1200 mm above the floor (Figure A).





c. Electrical Outlets and Similar Devices: Electrical receptacles and similar outlets should be mounted at a minimum height of 450 mm above the floor, measured to its centreline. Electrical receptacles built-into systems furniture are not required to comply with this section provided that outlets complying with this section are located in proximity and are capable of being accessed.

d. Faucets and Other Controls: Faucets and other controls may be manually activated/operated or electronically activated/operated. Where controls and mechanisms are manually activated/operated they should be operable using one hand, without tight grasping, pinching, or twisting of the wrist; and should require a maximum force of 22N to activate/operate.

e. Illumination: Controls and operating mechanisms should be illuminated to a minimum of 100 lux. Where reading is required, illumination of at least 200 lux should be provided.

f. Colour Contrast: Controls and operating mechanisms should be colour contrasted to the surrounding surfaces and/or environment.

g. Buttons: Where controls contain buttons, the activation surface of the buttons should be raised above surrounding surfaces.

h. Information on or Beside Controls: Where visual information is provided on or beside controls, it should comply with Section 3.2.9. Visual information that is necessary for the proper use of the controls should be also provided in an alternate format such as tactile lettering or auditory information.

i. Intuitive Use: The design, layout and organization of controls and operating mechanisms should be simple and intuitive for the user.

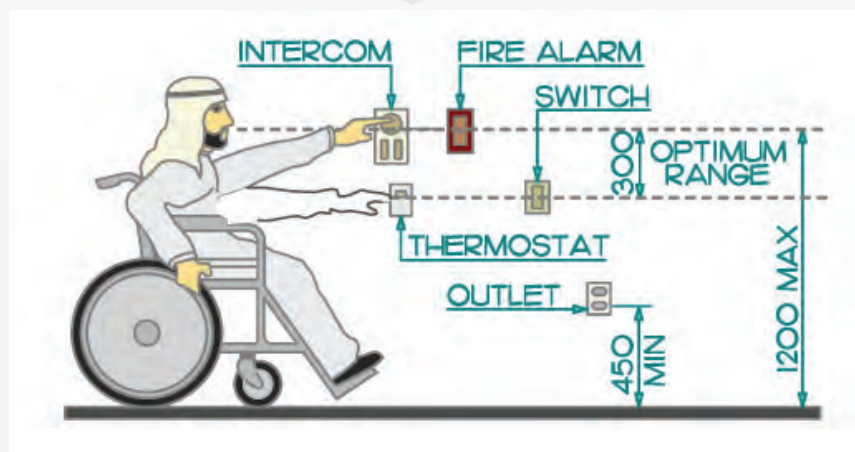


Figure A: Reach Range for Accessible Controls
Source: UDA & Associates



Appendix 2

Service Dog Relieving Area

Assistance dogs areas:

For journeys lasting over 10 hours, vessel operators should provide assistance dog owners with a designated area for the dog to be offered the opportunity to relieve itself.

The area should be free of rubbish and any other hazards and preferably away from crowded/populated areas. If possible it could be helpful for the area to be enclosed, thus allowing the dog to spend time off lead/harness. Where this is not practicable, a suitably qualified person could be made available to assist the assistance dog owner in this matter if required.

Access to the area should be free of steps and other hazards to allow the disabled person to enter the area independently. A health and safety risk assessment should be carried out to ascertain that this area is hazard free and suitable for the purpose.

A record of this risk assessment should be retained by the operator who should subject the area to regular checks to ensure that this standard is maintained. (DPTAC, 2007)



Appendix 3

Technical Guidelines on Staff Training and Operational Issues in Marine Transport

Training Needs

That there is a clear need for specific training with regard to the provision of needs for PwDs and other special needs user groups. It should also be articulated that the provision of accessible environments and suitable equipment can be rendered useless without adequate awareness training and without adequate understanding. This part serves to outline the requisite areas of need that training must fulfill.

Providing Services in an Accessible Manner

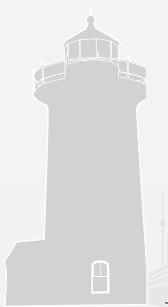
The provision of services needs to take into account the needs of the widest possible user group; in this respect, it should be borne in mind that the accessibility of services and the service-offering is an important consideration for persons with special needs.

This part shall apply to all services offered by tourist organizations (whether private or governmental sector), to the GACA, Ports Authority and Airline Carriers.

Technical Guidelines

a. General Provisions (European Communities, 2004: 7)

- It is fine to offer assistance to a person with a functional limitation. However, staff should wait until the offer has been accepted and they should not assume to know what is needed. This is not only unwelcome, it can be dangerous.
- Staff should always speak directly to the person with the disability and not through their companion, if they have one. Eye contact is important.
- Staff should never ask a person what their functional limitation is. If a person wants you to know they will tell you.
- People with what might seem similar functional limitations often cope



differently. Staff should not expect uniformity, as persons with disabilities are all individuals.

- Persons with disabilities should be treated as any other person, with consideration but not condescension.

b. Persons with Functional Visual Limitations (European Communities, 2004: 7)

- When offering assistance to a person with a functional visual limitation, allow them to take your arm. You should guide them rather than lead or propel. You must also advise on steps or other obstacles;
- To help a person with a functional limitation sit down, place their hand on the back of the chair and tell them what you have done;
- When talking to a person with a functional visual limitation, always introduce yourself and the people with you and always say when you are leaving.

c. Persons with Functional Auditory Limitations (European Communities, 2004: 7)

- Establish if a person with functional auditory limitations can lip read. Look directly at the person and speak clearly and slowly. Do not shout or exaggerate lip movement.
- Face the source of light and keep your mouth free.
- If there are difficulties in communicating, use written notes.
- If there is a need to evacuate the building, make sure that persons with functional auditory limitations understand what is happening.

d. Persons using Wheelchairs (European Communities, 2004: 7)

- Never attempt to push a wheelchair without asking if help is required.
- Do not lean on someone's wheelchair. This is a major intrusion for most users of wheelchairs.

e. Persons with Functional Cognitive Limitations (European Communities, 2004: 7)

- Be patient.
- Listen carefully.
- Do not patronize.
- Speak clearly and give clear messages.
- Make sure messages are understood.
- Let people make their own choices.





Customer Care

Customer care is an intrinsic element in the provision of services and accommodation for persons with special needs.

This part is a general training consideration and should be incorporated into all training programmes around customer care.

Technical Guidelines

a. Each service-providing business must put the client at the center of its choices. Fidelity and trust are obtained by considering each client as an individual with his/her own needs, desires, motivations and expectations. Therefore, one must create an offer for the public in general, but personalized for each client.

b. Client Understanding: understanding the client does not merely guaranteeing their overall level of satisfaction, but considering the perceived value in the use of the products and enjoyments of the services.

c. Dialogue with Clients: One must be close to the client with a constant, personalized dialogue to know their preferences, intentions, actions, type of life and therefore value.

Welcoming Techniques (EU.For.Me, 2004: 21-22):

The provision of adequate welcoming techniques that are informed by disability awareness are an important consideration in the hospitality of facilities, services and places of accommodation. As welcoming techniques are widely regarded as an industry standard, their applicability should be as wide-spread as possible.

This part shall apply and should form an underlying cognitive understanding in the construction and formulation of welcoming and hospitality training.

Technical Guidelines

a. Generally relationships with clients with functional limitations imply the same principles at the root of a relationship with any other person or client. So respect, a willingness to listen, and politeness are certainly necessary for a good relationship or communications with anyone.



b. Remember that no special attention is required but rather a professional, quality service to respond to the various needs of the client. So acting naturally will be the best thing. In the case of embarrassment, don't worry about it, it is natural and wide-spread enough, it is enough to be calm for a few seconds and then proceed.

c. As far as the delicate and important moment of the direct interview with a person with a functional limitation is concerned, there should be some small adroitness in the language used, avoiding expressions that are considered particularly irritating, if not offensive, for example the terms "handicapped" or "invalid". It is better to use other terms such as "person with disability" or with "specific needs" or with "particular requirements", or "person with reduced mobility"; the preference would be "person with functional limitation". In conversation you shouldn't feel uncomfortable using common expressions such as "see you later", if the client is a person with a functional visual limitation. A cordial relationship with a client is the best demonstration of the normal way to treat his/her. In conversation it is necessary to focus the attention on the person and not on his/her aspect. The use of simple language is always desirable, e.g. avoid using acronyms, abbreviations, codes, expressions in dialect etc.

d. In relations and communications with persons with disabilities it is important whenever possible to always speak directly to the person and not to the companions or family members. Relations with clients with disabilities often require longer times for communicating or supplying a service; in this case it is important not to show impatience but to plan for this factor and to handle it in an appropriate manner.

e. In relation to clients with specific needs, it is important to learn from past experience but you shouldn't generalize or standardize your behavior: it is necessary instead to be ready to modify it when faced with a new client, adopting any solutions that fit him better.

f. To offer help is always an act of courtesy and of attention toward the client and his/her needs. In any case it is necessary to ask the persons with a disability if he desires to be helped: "Can I help you?" If the answer is positive, have the person explain how he prefers to be helped: "How can I help you?" It is therefore important to listen, to understand and then to follow the indications furnished by the person himself or by the companion. If something is not clear it is better to ask for further explanations without being embarrassed. If instead the answer is negative and the client doesn't want to be helped, it is important not to insist; in fact being too insistent in these cases can cause embarrassment or sometimes irritate the person with the disability.





g. Generally, offering information on the services available inside the structure or on those specifically for people with disabilities allows him to face the real situation with more calm and awareness. It is important to communicate any arrangements and emergency procedures predisposed for the safety of the client with a disability; be natural, reassuring and conversational and point out to the client the person appointed to intervene in case of need.

h. In the case in which it is not possible to satisfy the client's demands you needn't be embarrassed: the important thing is to explain the reasons.

i. Generally, good sense and a certain flexibility in the application of procedures and in handling the relationship, the dialogue and especially in listening, allows one to handle different situations together with the people involved.

Problem Solving Techniques

Often a key critical element and problem area is the provision of on-the spot problem-solving; this is especially the case for issues related to the provision of services for PwDs, who often have non-standard needs. The provision of adequate problem-solving techniques has more universal applications related to the hospitality and tourism sector.

This part represents a guideline for the sorts of interventions to be undertaken in training programmes to enable them to take cognizance of problem-solving techniques with respect to PwDs and non-standard needs.

Technical Guidelines

a. Counter-Staff of Travel Agencies: need to be able to (Eu.For.Me, 2004: 38):

- Contact transportation companies (cruise liner companies, ferry companies), hotels, tourism offices.
- To evaluate the quality and dependability of information, in collaboration with the organizations of persons with functional limitations.
- To refer to credential organizations to check on how the data was obtained and whether or not the structure has been checked by expert controllers.
- If one is organizing, for example, marine travel for a person with functional physical limitations, don't be afraid to ask questions such as the weight of the wheelchair, especially if this is electric.



b. For Personnel of Transportation Companies: it is important to be able to (Eu.For.Me., 2004: 38):

- To know one's own company and the services it offers.
- To be aware of the rules regarding the transportation of passengers with disabilities within one's own company.

c. For Hotel Personnel: it is important to be able to/to know (Eu.For.Me., 2004: 38):

- To know the accessibility features of the hotel.
- To maintain continuous contact with the tourism offices to obtain information on accessible monuments, museums and other destinations.
- To know that it is of vital importance that persons with functional auditory limitations are informed and assisted in case of a fire alarm. If specific equipment and devices are not available the hotel staff must know which rooms are occupied by these clients.
- To know that persons with functional limitations may need special attention in case of an emergency. Therefore it is important to provide a list of the rooms occupied by persons with disabilities for the staff of the structure.
- To be trained for emergency situations.

d. For the Operators of Tourism Bureaus and Tour Guides: it is important that they know or be able to (Eu.For.Me, 2004: 39):

- To know your own city and the tourism structure and to know to what degree they are equipped for persons with special needs;
- To know if structures have been controlled on site.
- To know about possible alternative routes e.g. existing bicycle paths.
- To know the interesting places and possibilities they offer for broader use e.g. accessible museums, monuments suitable for persons with functional visual limitations, gardens with aromatic plants etc.
- To be aware of leisure time offerings: e.g. water sports, skiing, excursions, etc., restaurants, beaches, technical aids and the possibility of renting a manual bicycle or tandem.
- To be aware of the existence of specialized guides of the city or the area.
- To co-operate with the organizations of persons with disabilities and exchange information with them.





e. How to behave to facilitate communications for:

f. Persons with Functional Physical Limitations (Eu.For.Me., 2004: 39):

Many people have difficulty walking or making certain motions, although they do not need to make use of a wheelchair. Generally they would use assistive devices such as canes, crutches, sometimes electric scooters, for brief periods or permanently. Some may have reduced strength in their arms and hands or difficulty co-ordinating their movements or reduction in their sense of feel, or reduced autonomy in standing up or walking.

- Have no prejudices about the appearance of persons with disabilities.
- Identify, with the help of the person themselves, what his/her personal needs are.
- Leave sufficient time for the person to express what he/she wishes.
- Address the person directly, not his/her companion.
- Let the person express his/her own needs, don't presume them.
- To help the person face the "real situation", give information about the destination, and, if possible, suggest solutions (e.g. assistive devices)
- Give accurate information on the level of accessibility (cabin, tourist site) and if possible, check that the information is dependable.
- Offer help if it is asked and in the terms requested e.g. that the persons does not tire going long distances, standing up for long periods, or keeping his/her balance.
- Dedicate particular attention in emergency situations.

g. Persons with Functional Physical Limitations – specifically users of Wheelchairs (Eu.For.Me, 2004: 41):

Persons using wheelchairs have different levels of autonomy and very different needs. There can be situations in which the person is not able to stand up and others in which he can do so for a limited period and can walk only a few steps. Some only use the wheelchair for part of the day, others permanently.

Some persons can have considerable strength in their arms and may be able to move themselves and do many actions without any assistance; others have a lesser degree of autonomy and need to be accompanied.

- Talk with the client and ask them what his/her needs are so that you can offer valid assistance.
- It is important to be ready to identify obstacles and to intervene e.g. by



- freeing a passage or walkway of removable obstacles.
- Offer your help, even if the client already has a companion.
 - Before helping it is always a good idea to ask, out of respect for the natural autonomy of every person.
 - In the presence of barrier such as steps, or for more difficult operations, let yourself be guided by the client, who will suggest how to best carry out the manoeuvre.
 - A wheelchair should be pushed gently without brusque movements and at a reasonable speed. To lift it, do not grab it anywhere, but ask the client; in this way you will avoid involuntarily damaging it.
 - Be discreet in helping and if you are in the middle of a group of persons, be careful not to bump into them with the wheelchair, since this would embarrass the client.

h. Persons with Functional Visual Limitations (Eu.For.Me.: 41-45):

This includes both persons who are “blind” and those with moderate to severe functional visual limitations. Only a small percentage of persons with functional visual limitations are “blind”. In all other cases the way of perceiving space, although limited, can vary greatly from individual to individual. Besides, the perception of the world around us also takes place through the other senses (touch, sounds, smells). A very low residual visual capacity and blindness can cause serious mobility and orientation problems:

- If the person who is blind is accompanied, address the person with the blindness and not his/her companion.
- The client will not be able to read the expression on his/her interlocutor’s face or to catch gestures, therefore you must make yourself understood mainly using words.
- In introducing yourself to the client, attract his/her attention by calling his/her name or by touching him lightly on the arm.
- If the client asks to be guided, offer your right arm and proceed slightly ahead of him/her.
- Always warn about the presence of one or more steps and indicate if they go up or down. Proceed in the same way with escalators. Ask the client if he/she prefers your arm or the handrail, and if the latter, place his/her hand on the handrail.
- To indicate where the client has to sit down, tell his/her where the seat is located and place his/her hand on the back of the chair.
- Always let the client know if you are leaving or if you have come back.





- To describe the position of objects, give spatial references in relation to the client's position.
- If you are asked to accompany the client to the toilets, if you are of the same sex, enter with the person describing the type of bathroom, the position of the sanitary fixtures and equipment, such as toilet paper holders and the towel. Let his/her know about the cleanliness of the environment. If you are not of the same sex, have someone who can help.
- Punctuality is a very important aspect in particular for these clients: long waits cause discomfort and stress.
- Only a limited number of persons with functional visual limitations are familiar with the Braille alphabet, therefore try to foresee alternative forms of communications.
- Generally persons with functional visual limitations demonstrate considerable ability to adapt and autonomy: keep this in mind.
- As necessary, if audio material printed in Braille is not available, read descriptions, menus and indications in a normal tone of voice.
- A description of the environments and situations is always to be hoped for.
- It is a good rule to refrain from moving the personal objects or furniture in the room of a person with a functional visual limitation.
- Abandoning any prejudices tied to the person with disabilities, and focusing your attention and interest on the person and not on the disability, remains the prerequisite for good communication.

i. Persons with Functional Auditory Limitations (Eu.For.Me.: 43 - 45):

This form of functional limitation is not immediately recognizable, unless the person himself/herself. One must distinguish between persons who are deaf and those with functional hearing limitations. Persons with functional hearing limitations are in greater difficulty in very noisy environments. People who have been deaf since birth may also have difficulty speaking. Many persons with functional hearing limitations use sign language to communicate and are able to read the lips of the people they are speaking with. Some use hearing aids to improve their ability to hear.

- In speaking, always place yourself in front of the client, establishing visual contact.
- Check your position and never stand with the light behind you, nor with your hands in front of your mouth, in order to allow persons with functional hearing limitations to read your lips.
- Always introduce yourself to the person and explain your role.



- Keep in mind the additional time to communicate.
- Lip-reading does not allow easy communications among more than two persons.
- Ask the person how you should speak. Some prefer that you raise your voice slightly, but generally a loud tone of voice is irritating.
- Speak neither too quickly nor too slowly and use short sentences.
- Don't mouth your words; use facial expressions; using simple gestures along with your words can be helpful.
- Always be ready to repeat what you have said or to write it, always have pen and paper available
- It is essential to make sure that the information of communication has been understood correctly.
- Always make sure that the person who is deaf is involved in the group conversation so she will not feel isolated.
- If necessary, to attract the person's attention it is advisable to do so with a motion of the hand in the person's direction or by touching his/her on the arm.
- If you must explain a mechanism or particular service, remember that the person who is deaf cannot read your lips and follow a demonstration at the same time so it is better to speak first and then demonstrate.
- If there is an interpreter, nevertheless address the client first.
- Many persons with functional hearing limitations use hearing aids. These amplify all sounds in the same way, including background or surrounding noises which should be reduced as much as possible by choosing a quiet place for communicating.
- It would be useful to avoid using terms in dialect, complicated words or words that are very similar to each other.

j. Persons with Functional Auditory and Visual Limitations (Eu.For. Me.: 43 - 45):

These persons have serious limitations of both sight and hearing. This creates problems for carrying out day-to-day activities, social relations and access to information. Some individuals are totally blind and deaf, while others have varying degrees of functional visual and auditory limitation.

- Many are able to converse and use the verbal-vocal system to communicate, while to receive communications they use a system of gestures or of hand communications (Molossi Alphabet) for which the deaf-blind person is equipped with a special communications instrument.





- Residual sight or hearing capacity, if present, can be useful in communications.
- To attract the attention of a client with both functional and auditory visual limitations, you can touch his/her lightly on the arm.
- If the client is accompanied, when you give information to the companion, leave enough time for his/her to repeat the information to the interested person.
- Always keep in mind that these persons need more time to carry out ordinary tasks.
- Punctuality is very important, long waits cause discomfort and stress.
- It would be opportune, wherever possible, to allow tactile exploration of environments and/or objects.
- Overcoming your embarrassment, and focusing on the person rather than the disability, is always the best practice.

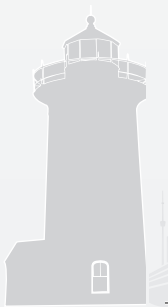
k. Persons with Functional Cognitive Limitations (Eu.For.Me.: 43 - 45) :

Manifestations of this type of limitation are highly diversified, ranging from extremely slight and imperceptible disorders, to situations in which help and assistance to the person on various levels is required. Generally persons with functional cognitive limitations react to situations in ways that are not always proportionate to their age; they often have difficulty orientating themselves, understanding and making decisions, and for this they usually travel with a companion or family member.

- Don't have prejudices about the appearance of a person with disabilities. Be relaxed.
- Greater availability and more time dedicated to the client, respecting their reaction and comprehension times.
- If there are communication problems, such as language or listening it is important to repeat messages.
- Express yourself in a clear and simple manner, using affirmative forms, in avoiding long and confusing explanations.
- It is important to communicate with a person with functional cognitive limitations in a simple but not childish manner, taking special care with the intelligibility of information and indications, simplifying as much as possible.

1. Persons with Functional Psychic Limitations (Eu.For.Me.: 43 - 45):

These conditions can have highly complex and differentiated manifestations, such as anxiety, irrational fears, depression, orientation, obsessions, excessive



happiness etc. Other problems are often of a temporary nature e.g. through medication.

- It is highly unlikely that you will be able to identify a client with functional psychic limitations unless there are manifest reactions, since the sufferers usually do not mention their limitation.
- Assume an open and reassuring attitude to calm them, because persons with functional psychic limitations are more sensitive to situations of discomfort.
- Openness, flexibility, courtesy and attention are always the key to a good welcoming.

m. Persons with Functional Orientation and Communication Limitations (Eu.For.Me.: 47 - 49):

Some people have difficulty communicating, both in comprehending and expressing language. According to the cause at the root, these problems can be associated with orientation problems, mobility limitations, fatigue and slow reactions. Generally such persons need more time to carry out the normal activities of daily life.

- Try to be available and adapt to slower reaction times.
- Use clear signage to help orientation.

n. Persons with Functional Nutritional Limitations (Eu.For.Me.: 47 - 49):

Many people for various reasons have special diets, or need special attention in the choice of food, its preparation and in the scheduling of meals. These needs can be very different e.g. intolerance to food containing gluten (e.g. celiac disease), a need for a diet rich in calcium (e.g. in the case of osteoporosis), etc.

- In this case as well, the willingness to listen to the client will facilitate satisfaction in the relation of his/her needs.
- Essentially one must allow the client to follow his/her own diet and/or personalized meal schedule.
- A good dose of flexibility is opportune.



o. Persons with Epilepsy (Eu.For.Me.: 47 - 49):

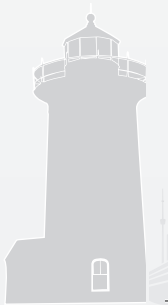
Epilepsy is a neurological condition which can usually be controlled well using medication. It presents various forms and can produce seizures of different intensity. Epileptic attacks can be separated into two different types according to their intensity and symptoms: generalized seizure, during which the person may fall to the ground and have convulsions or partial seizures, with very slight effects, in which the person may have a moment of absence and slight behavior changes.

- Epileptic seizures, which involve the sudden loss of consciousness, can provoke mishaps because the person can hurt herself when he/she loses consciousness by falling badly or hitting an object. The best solution would be to prevent the fall, but this is almost never possible. Once the person is on the ground, one should try to position a pillow or similar soft object behind his/her head, to avoid repeated head traumas caused by the convulsions. Also you should try to turn the person onto his/her side, to allow saliva to flow out of his/her mouth to keep the respiratory tract open: there is nothing else to do.
- In any case one should keep calm because, although a seizure may be frightening to watch, in most cases it ends without after-effects and is almost never in itself life-threatening. Generally convulsions last a few minutes and end spontaneously.
- When the person regains consciousness, he/she may be confused, have difficulty speaking, or he/she may be lucid and not realize what happened. It could be useful to stay near the person during the seizure and be present when she regains consciousness to reassure his/her, especially when the person is disorientated and confused.
- Should a seizure last more than 5-10 minutes or should there be repeated seizures without interruption, it would be best to call a doctor or an ambulance to bring the person to the nearest emergency room.

p. Persons with Diabetes (Eu.For.Me.: 47 - 49):

In ordinary situations this dysfunction does not require special attention, except regarding the diet, which in some cases must be very accurate. However, in such cases, the clients will communicate their precise needs.

- Ordinary professional availability, flexibility and openness to listening remain the prerequisites of all relations and communication.



- It could be useful to offer the client the possibility of conserving his/her medication in the refrigerator.
- In the case of indisposition it would be opportune to check with the client about the type of assistance that can be given. If the client is unable to communicate contact a medical practitioner.

q. Persons with Kidney Failure (Eu.For.Me.: 47 - 49):

Persons with this dysfunction need to know in advance the location and availability of dialysis centers in relation to the place where they intend staying.

- As far as communication and relationship behavior is required no particular attention is required and in any event needs would greatly vary from person to person.

r. Persons with Allergies (Eu.For.Me.: 47 - 49):

This type of manifestation is increasingly widespread and can assume very different characters. In many cases allergies are connected with particular environmental factors. Some allergies are caused by dust, animal hair, dander, feathers or upholstery. One of the most common causes of rhinitis and allergic asthma is the acarus, tiny organisms which prefer humid temperate environments. These can be found in pillows, mattresses, blankets, upholstered armchairs and couches, rugs and carpeting. It is impossible to totally eliminate these organisms however one can reduce their numbers as much as possible with results that are useful for guaranteeing the quality of reception for all types of clientele.

- It would be opportune to make environments, especially the bedroom, available to the client, specially prepared for their needs and which take into consideration certain prerequisites of environmental cleanliness.
- Let the client know in advance of the continuous presence of animals in the area.
- Regularly clean air conditioning and heating filters.





Use and Maintenance of Assistive Devices

As important and vital components of the functionality of persons with varying degrees of functional limitations, the use of and maintenance of aids is vital. It should be stressed that although assistive devices form a vital part of rendering environments accessible, if mishandled or misunderstood, can lead to serious injury or harm to users and operators of such assistive devices..

This part shall apply to all aids intended for use by passengers with non-standard needs such as terminal wheelchairs, medical lifts, TTY devices etc.

Technical Guidelines

a. Assistive Devices for the Mobility of the Client (Eu.For.Me, 2004: 61 – 73):

- While there is no need to attempt to become technicians or social assistants, it is true that one must be familiar with the fundamental characteristics of the assistive devices in order to supply adequate assistance to the clients.
- For this reason one should be aware is a motorized wheelchair is operated by a joystick or another control and should our assistance be necessary, for example, in getting out of the wheelchair, this should be done with the motor turned off, avoiding using the motor box and platforms as a fulcrum. However, in this case, indications will be given by the person with the disability himself.
- The electric wheelchair is a machine not a vehicle, for this reason is must be used in the pedestrian areas and for greater safety be equipped with illumination, acoustic speakers and safety belts.
- Wheelchairs may be given in custody to cruise ship staff, when the client does other activities such as going to the beach, using other aids etc. The deposit agreement between the cruise ship staff and client includes the obligation of the cruise ship staff's custody and restitution of the aid, therefore care of the goods. For this reason it cannot be left unattended. It should be said that generally speaking, correct safeguarding falls under the normal behavior of any operator of good sense.
- Should the cruise ship or terminal have its own electric wheelchairs, these should not be left unused for long periods because the batteries will discharge and wear out; they also must not be left out in the rain or in damp places.
- Care is also need in the case of specially equipped vehicles that are equipped for use by a person with a functional physical limitation. Should use by third



parties become necessary, for urgent reasons and for short transfers, always ask for indications from the owner.

b. Mobility Aids offered by the Cruise Ship or Terminal (Eu.For.Me, 2004: 61 – 73):

Elevators: The elevator is surely the best system, which can also be used by those without functional limitations. The advantages are:

- Speed
- Autonomy
- Generalized accessibility
- Safety
- Social Integration

On a technical level it is often possible to install (or to modify) one in existing buildings based on various situations. Elevators should be well illuminated and equipped with buttons with numbering in both relief and Braille. It would be useful to have audible devices as well.

Differences in level on arrival on the floors and ashtrays placed near the push buttons should be avoided; glass walls are preferable to avoid a claustrophobic effect.

- **Vertical Platform Lift:** The platform lift is a substitute for an elevator, but with limits in the dimensions and in the distance covered. On a technical level it is often possible to install one in existing buildings, but it requires technical evaluation and rather consistent construction / installation work.
- The platform can also be situated on the outside of the building in an easily reached point, if possible next to a door on the arrival level.
- **Stair Lift :** This type of lift is a load-bearing device opportunely equipped for the transport of persons with functional physical limitations: it is installed along the side of a staircase and it moves in two directions, by means of an electric motor, along a track or runner.
- It is an option when it is impossible to insert or to modify an elevator or platform lift. This system can be installed with a special track on the same staircase itself if certain conditions exist: sufficient stair width and the presence of landings of adequate size.
- Obviously the track must not obstruct doors or passengers.
- **Mobile Stair Climber:** This aid is used by clients in wheelchair or those with





a functional mobility limitation which keeps them from going up or down stairs. The stair climber can be:

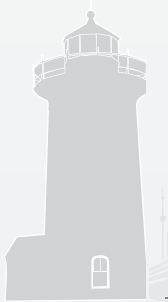
- i. On wheels and equipped with a seat
 - ii. On tracks but in this case a folding wheelchair is necessary
 - iii. The stair climber can be described as a “stratagem” to enjoy a structure although it is very slow. The majority of mobile stair climbers require the presence of a companion, who is at least 18 years of age, and has good self-control, physical strength and eyesight, to operate the lift.
 - iv. It can be used by a person with a disability to sustain himself in an upright position when sitting in a wheelchair with support; for autonomous use the person must have the use of at least one upper limb and good eyesight.
- Suggestions for use and maintenance:
 - i. Always respect the safety norms indicated in the instruction manual
 - ii. Avoid waxing the floors of staircases
 - iii. Eliminate possible obstacles such as carpets, runners etc.
 - iv. Keep the roller guide clean.
 - v. Have the mechanical and electrical components checked periodically.
 - Ramp: a ramp is a continuous inclined plane that allows one to move easily from one level to another, it is used by persons using wheelchairs and those who have difficulty moving e.g. the elderly, people carrying loads or children.

It does not always definitely resolve the problems of access, in fact, the greater the gradient the longer the ramp must be and it can itself become an obstacle. In the presence of steps, flights of stairs and ramps, it would be opportune to install a handrail on both sides. In case of wide staircases it would be opportune to provide central handrails.

c. Communication Aids (Eu.For.Me, 2004: 61 – 73):

For Persons with Functional Visual Limitations:

- If sight is missing, different channels such as touch or hearing must be exploited to transmit or to receive information. Keeping this in mind the personnel of a cruise ship have to be available to accompany the client with visual limitations to their cabins and in the main functional areas, describing



these in detail to enable him or her to memorize the spaces. It would be opportune to provide an audio cassette with a description of the cabin, other facilities and services or to give the client information brochures printed in large type or in Braille.

- It would also be useful to have Braille menus in the restaurant, bar and cabins (for cabin room services) remembering that it is always preferable to ask the client whether he wishes to use these or prefers that the cruise ship's employee read the menu aloud for him.
- The client must also be able to memorize the position and the functions of the telephone in the room because this represents an important means of communication in case of need or to request services.
- It would also be opportune whenever possible to prepare a tactile map which reproduces, in scale, the overall layout of the cruise ship and the services.
- This is generally done using a smooth plate (e.g. brass, aluminum, plastic, cardboard etc.), bearing information that helps persons with functional visual limitations to move about autonomously in unfamiliar places; such information can consist in brief indications of the direction to take to reach a determined point e.g. a platform or exit. The dimensions of the tactile map vary according to the quantity of information that is to be included.
- Tactile maps may contain:
 - i. Writing in Braille
 - ii. Large-type and embossed characters for persons with functional visual limitations.
 - iii. Symbols that point out the location of architectural elements and/or on-board furnishings.
 - iv. Schematization of routes or places.
- The schematic representation of routes reproduces reality but also deforms it and simplifies it to make comprehension through the sense of touch possible.
- One can separate such maps into two typologies, according to what they represent. They are called:
 - i. Route Maps: if in the real places are indicated on the floor for persons with functional visual limitations, which are also included on the representation;
 - ii. Place Maps: when the map represents the natural reference points necessary for getting around e.g. walls, corridors, sidewalks, green areas etc.





- In general, a tactile map is composed of a heading, a legend and of a representation that is the design of the place.
- Routes should be characterized by floor coloring or composition that differs from that of the rest of the environment to give clear reference points for orientation; and the illumination and coloration of the elements of furnishings is equally important.
- Written messages for clients with functional visual limitations, should be presented using large type.
- For persons with functional visual limitations, the memorization of places and the position of objects in his/her own cabin are fundamental; for this reason in re-ordering cabin objects must be replaced in the original positions and in the case of any changes the client must be informed.

For Persons with Functional Auditory Limitations:

- Persons with functional auditory limitations must be able to communicate both with the outside and with the other zones of the structure by means of suitable devices and relatively inexpensive mobile technological systems.
- Among the technological aids which can be installed there are:
 - i. Channeled wave systems that can turn any alarm into an optical warning signal, suitable for fire alarms.
 - ii. Infrared systems for TV and radio
- To facilitate communications with persons with functional hearing limitations it is always opportune to have a notebook and a pen to transmit in written form any messages that concern them.
- Other useful tools that can be made available to persons with functional auditory limitations:
 - i. Sonorous or vibrating paging systems for telephones
 - ii. Amplifiers for telephones
 - iii. Phone Keys (DTS) that can be used for external phone calls, or to call the reception for information. DTS phones can be requested from the telephone companies.
 - iv. Phones with fax
 - v. Writing material
 - vi. Wake up calls with visual and vibrating alarm
 - vii. Television with televideo service



- At least one cabin should be equipped with a bell or acoustic pager for the persons knocking at the door.
- Many aids are no more than common tools already in use, e.g. fax, that allow the transmission of written messages on normal telephone lines, allowing one to bypass the auditory channel and to communicate in a simple and sure way albeit not simultaneously.
- The same rule holds for Internet or for cellular GSMs that make it possible to send and to receive brief text messages representing a way to communicate with the client to inform him about variations in schedules or other.

d. Health Aids (Eu.For.Me, 2004: 61 – 73):

- Health aids include those suitable for other functional limitations e.g. allergies or food intolerances.
- In these cases the personnel of a cruise ship must be informed to provide the most suitable room or the best menu.
- In the case of allergies, the most common aids are anti-mite pillows, mattresses or mattress covers.
- Some rooms also feature anti-allergy requisites, in which that is non-toxic paints and/or glues have been used, the level of humidity is checked and maintained between 25 and 50%, dust-catching coverings and materials are eliminated, mattresses and pillows are covered with mite-proof cases and attention is paid to cleanliness and the washing of bed linens.
- Smoking and the presence of animals should be avoided in these rooms.

e. Safety Aids (Eu.For.Me, 2004: 61 – 73) :

Basic behavioral norms:

- At the client's arrival explain (and, wherever possible provide, a pamphlet) the evacuation procedures in case of fire, with reference to the cabin where he/she will be lodged and to the services, pointing out the exact location of refuge areas or of accessible escape routes.
- The information posted or distributed must be "legible" in various ways: in ordinary printed characters, in large type, in embossed characters, in Braille, recorded on tape, etc.
- Cruise ship employees, particularly those of the night shift, of reception and of cabin/room service, must be aware of the presence of clients with functional limitations and must know the exact location of their cabins.





- In assigning cabins or suites the safety aspect must be kept in mind and, based on personal needs, the safest rooms possible must be assigned, that is, located in closest proximity to the evacuation deck, or close to accessible escape routes or accessible refuge areas.
- In case of danger the staff will have to contribute to the evacuation of all the occupants of the ship. Particularly they have to keep in mind clients with functional motor and sensory limitations and be ready the necessary assistance.

Signage:

- Signage is very important to guarantee safety and to decrease uneasiness. Signs must be clearly visible in terms of dimension, form, color, contrast and position. They must also be situated so that they do not confuse the client.
- Requisites of cabins:
 - i. Floor plans indicating the location of emergency exits (usually posted on the doors of hotel rooms) must indicate the positions of the refuge areas and they must also be posted at suitable height for users of wheelchairs.
- It would be opportune if rooms were equipped with:
 - i. automatic opening of the doors in case of emergencies
 - ii. room doors with instant manual unblocking of latches from the inside to facilitate exiting in case of danger
 - iii. alarm systems that vibrate as well as flashing lights and high-intensity sound for those with functional hearing limitations.

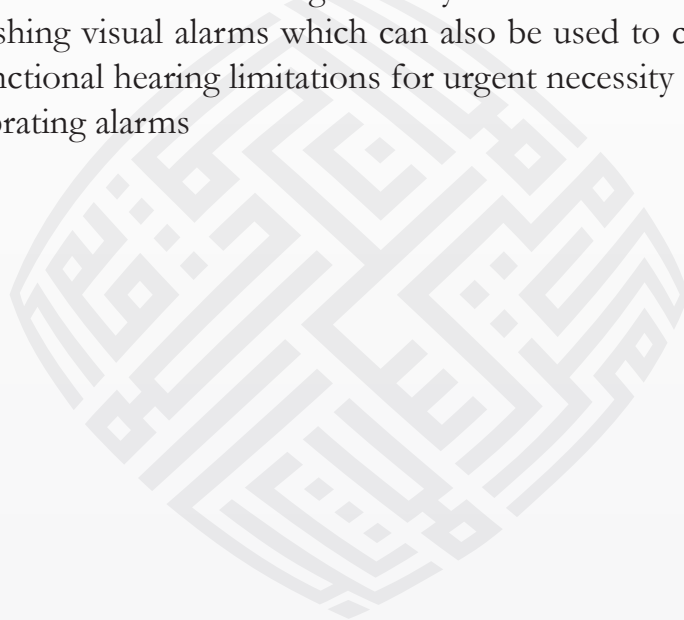
Other:

- Mirrors must not be installed that can deceive clients with functional visual limitations about the location of refuge areas or about exits.
- Revolving doors are uncomfortable for persons with functional mobility limitations and impracticable for wheelchair users.
- An alternative accessible exit must always be provided.



Specific Provisions:

- Safety procedures for persons with functional visual limitations should be printed on large type, embossed and in Braille. A tape with recorded instructions is also useful. Other provisions can be the automatic opening of the door in case of emergencies and the provision of sonorous and luminous alarm systems.
- In the case of persons with functional auditory limitations, the personnel of the reception has to know the exact location of the room and has to be ready to intervene in persons to inform the guest in the case of emergencies. Other provisions can be to provide specific alarm systems to integrate those already in use:
 - acoustic alarms of strong intensity
 - flashing visual alarms which can also be used to call persons with functional hearing limitations for urgent necessity
 - vibrating alarms





Training Issues Specifically related to Water Transport Operators

Passenger Vessels (DPTAC, 2000: 34-35)

Due to the specialized nature of training for passenger vessels, provision needs to be made in order to ensure that such training takes cognizance of disability awareness training and specialized training itself.

This part shall apply to all training undertaken for staff dealing with the public or passengers onboard passenger vessels, ro-ro vessels etc.

Technical Guidelines

- a. In providing a transport service, port and passenger vessel operators should review their policies, procedures, services and facilities provided for passengers to ensure that they are accessible to persons with various functional limitations. All passengers benefit from a more accessible ship or terminal, although persons with disabilities are likely to benefit the most.
- b. It is regarded as more cost-effective if universal access is included as part of the overall design or operation of the ship or terminal rather than as an afterthought. Meeting the needs of persons with functional limitations is both a personal and a corporate responsibility.
- c. At the personal level, it is not only important to have the ability to recognize passengers with functional limitations and the skill and confidence to assist or communicate with them, but it is also necessary for the ship designer and master of the passenger vessel to have an understanding of how their roles affect persons with functional limitations.
- d. At the corporate level, the port or passenger vessel operator must ensure that responsibility for meeting the needs of persons with functional limitations is accepted at the highest level, and delegated to people with the skills and authority to make changes to the design and operation of a passenger vessel or terminal.
- e. It is a corporate responsibility to ensure that training in disability issues consistent with professional responsibilities is given to all staff. Training is



needed on a wide range disability issues, as no amount of guidance can cover every eventuality or the needs of every person with a functional limitation.

f. Training in disability issues should be an integral part of the induction and familiarization process, in both direct service training and professional training courses. Familiarization of all seafarers with their specific duties and responsibilities is required under STCW 95 (International Convention on Standards of Training, Certification and Watchkeeping Seafarers. This includes the care of and assistance for the elderly and passengers with disabilities. The content of the various training courses for STCW 95 is still in the planning stages, but does include and require the provision of disability awareness training and not just for emergency situations.

g. Disability awareness training should include:

- Barriers faced by persons with disabilities, covering attitude, environment and organization.
- Principles of Access Audits.
- Suggestions for removing barriers faced by persons with disabilities.
- Information on all disabilities, including hidden disabilities.
- Enabling staff to deal with unexpected occurrences – to “think on their feet” when a problem arises.
- Communication and interpersonal skills for communicating with persons with disabilities, especially those people with functional auditory or cognitive limitations.

h. Port and passenger vessel operators should commission specific disability awareness training to meet their needs, and should also monitor that the training is suitable for their operation. The training should involve people with functional limitations who understand the needs and problems of other persons with functional limitations. This has the further advantage of giving staff contact with persons with disabilities.

i. Disability awareness training and disability equality training can be obtained from the Prince Salman Center for Disability Research. Other voluntary and commercial training organizations may offer similar training.





Security Staff Training

Security staff are a key link in the movement of passengers through passenger vessel terminals. Often, inadequate security staff training leads to embarrassing situations for PwDs, loss of dignity etc.

This part shall apply to all security staff training programmes undertaken at any level.

Technical Guidelines

a. Persons with functional limitations are not exempt from security checks, but it is important that such checks are carried out carefully and sensitively.

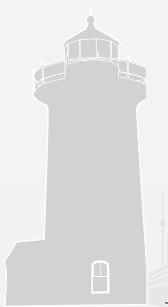
b. The following is key points for checks of persons with functional limitations

c. General

- Use plain clear speech, not jargon words;
- Address the person directly and naturally;
- Think carefully about the implications of any action you may take;
- In all situations security clearance should be performed in a dignified manner;
- Explain why a different screening method is necessary;
- Always explain the procedures you are following;
- Verify that all special needs are correctly identified;
- Do not impose help.

d. Body-Search

- Be aware of hidden functional limitations;
- Are you able to recognize common medical aids and understand suitable methods to search them?
- Always offer a private search out of the view of other people;
- Always ask the person how to best help them and listen carefully to their needs;
- Invite the person with the disability to voice any discomfort and be prepared to use another technique if necessary;



- When searching someone in a wheelchair, crouch down to be at their height;
- Use firm but gentle movements, be discreet;
- Make sure that the person can stand on their own before you take away a stick, walking frame or crutches to search them;
- Arrange guidance for a person with a functional visual limitation before taking away a white cane.

e. Wheelchair Search

- Cruise terminal wheelchairs should be checked regularly;
- Special search procedures should be applied to personal wheelchairs.

f. Baggage Search

- The persons may not be able to lift the bag on, or off, the x-ray machine;
- The person may not be able to hear your cry of “Whose bag?” nor see their bag in order to identify it following x-ray screening;
- Always call for a witness when searching the bag of a person with a functional visual limitation;
- Re-pack bags carefully. It is important that the contents of a person with a functional visual limitation’s bag are replaced exactly as found;
- Ensure all medication is carefully repacked;
- Be discreet especially when handling medical aids;
- Always remember the option of a private search;
- Always remember that the security clearance should be performed in a dignified manner.

g. Dignity: Remember to focus on the person, not the disability. All passengers should be treated with respect.

h. Awareness: Not all functional limitations are obvious e.g. some passengers may have functional hearing limitations, and others may have functional cognitive limitations.

Always speak clearly and look directly at the passenger. Keep the language simple: this will help people with functional cognitive limitations and others who may not have a good command of a language.

Ask how you can assist and listen to the advice which is offered. Persons with disabilities are often best placed to advise on how to deal with their particular needs.





i. Sensitivity: Some people will find it impossible to lift their arms or move in a particular way. Once you have established what they can do be prepared to listen to their comments during the procedure and act upon them. A badly handled search can lead to pain for hours or maybe days afterward.

j. Discretion: Remember that there are private rooms available for searches. When handling possessions, particularly those relating to hygiene or other special needs, be discreet.



Appendix 4

Illumination

Artificial lighting and natural light sources should provide comfortable, evenly distributed light at all working areas, in circulation routes and in all areas of potential hazard. Also, outdoor lighting should be provided at entrances, along frequently used access routes, and at frequently used outdoor amenities.

Technical Guidelines

Exterior Lighting

- a. General:** Exterior lighting should be provided in all public thoroughfares, and at all pedestrian routes, to provide safe access for persons with disabilities from sidewalks, bus stops and parking areas to nearby facilities and terminal or cruise ship amenities.
- b. Pedestrian Entrance:** At pedestrian entrances, lighting levels should be at a minimum 150 lux and be consistent over the entrance area, measured at the ground.
- c. Pedestrian Routes:** Over frequently used pedestrian routes, including walkways and paths, lighting levels should be at a minimum 30 lux and be consistent over the route, measured at the ground. At exterior stairs and ramps the minimum illumination level should be 100 lux.
- d. Designated Parking:** At designated parking spaces including accessible spaces and limited mobility/caregivers spaces, lighting levels should be at a minimum 30 lux and be consistent over each of these parking spaces, measured at the ground.
- e. Passenger Drop-off Areas:** Lighting levels at passenger drop-off areas should be minimum 30 lux and be consistent over the drop-off area, measured at the ground.



f. Stairs: At frequently used steps and stairs, lighting should be located at or beside the steps or stairs, to clearly define the treads, risers and stair nosing.

g. Supplementary Lighting: Supplementary lighting should be provided to highlight key signage and orientation landmarks.

h. Low Level Lighting: Lighting located at low levels above grade should be high enough above grade to clear adjacent bushes and shrubs.

i. Exterior Illumination Properties: All lighting should provide a good colour spectrum; and be evenly distributed to minimize cast shadows.

Interior Lighting

a. Interior Light Fixtures: Light sources and fixtures should be selected to minimize direct glare or indirect glare on nearby reflective surfaces.

b. Interior Illumination Properties: Light sources should provide as full a spectrum of light as possible, as an aid to edge and colour definition. Lighting should be configured to create an even distribution at floor level and to minimize pools of light and areas of shadow.

c. Access Routes, Paths & Corridors: Lighting at stairs and ramps, should be at least 200 lux, generally at the walking surface, and in no place should it be less than 50 lux.

d. Signage and Orientation Features: Lighting over directional or informational signage, or highlighting other orientation features, at public telephones, information or service counters, and card or keypad security systems, should be no less than 200 lux measured at the working surface.

e. Stairs, Ramps & Escalators: The leading edge of stairs, steps, ramps or escalators should be evenly lit to minimize tripping hazards.

f. Elevators & Elevator Lobbies: Lighting levels in elevator lobbies should be similar to the lighting levels in elevator cabs, to minimize tripping hazards, and in no case should be less than 200 lux.

g. Washroom and Dressing Rooms: Lighting levels in washrooms and dressing rooms should be evenly distributed and no less than 200 lux.



h. Office: Lighting levels in office areas should be evenly distributed and no less than 100 lux evenly illuminated throughout the room. Task lighting which provides illumination of at least 200 lux should be provided in areas where reading is required.

i. Meeting and Assembly Areas: Lighting in meeting rooms and assembly areas should be evenly distributed, and should be capable of being adjusted (e.g., dimmers).

j. Lecterns, Podiums and Platforms: Lighting at lecterns, podiums/platforms or other speaker locations should be capable of being enhanced, even when other lighting is dimmed, to permit ease of lip-reading and/or viewing of the hand actions of a nearby signer for persons who are deaf.





Appendix 5

Kerb Cuts



Figure B: Detectable Warning Surfaces

Showing an example of a detectable warning surface used at a pedestrian crossing and bicycle path intersection.



Figure C: Pedestrian Crossing

Showing an example of a pedestrian crossing using colour and texture contrast.

Application Guidelines

Wherever an accessible route crosses a kerb, and where the ground levels on either side of the kerb are at different levels, kerb cuts should be provided in compliance with this section.

- a. Slope:** The running slope of a kerb cut should have a ratio between 1:50 and 1:20, i.e. a 2%-5% slope. In a renovation situation, where it is technically infeasible to achieve these slopes, a running slope no steeper than 1:12 (8.3%) may be used.
- b. Width:** The minimum width of kerb cuts, not including any flared sides, should be 1500 mm (Figures B and C).
- c. Surface:** Surfaces of kerb cuts should be firm, stable, slip-resistant, and incorporate a truncated dome detectable warning surface. Detectable warning surfaces at kerb cuts should be located 300 mm back from the kerb, extend the full width of the kerb cut and be 600 mm deep (Figures B and C). The transition between the kerb cut and adjacent roadway should be 10-15 mm high.



d. Colour Contrast: There should be a visually distinct colour contrast between the kerb cut and surrounding surfaces.

e. Flared Sides: Flares on the each side of kerb cuts should be 900 mm in width, measured at the kerb end of the flare. Where pedestrian traffic is expected to cross the kerb cut, kerb cut flares should have a slope ratio of not more than 1:12. The flared sides of a kerb cut should be colour contrasted from the surrounding surfaces.

f. Cross Fall: The slope of gutters and road surfaces, located immediately adjacent to the base of the kerb cut, and sloping toward the kerb cut (known as cross fall) should have a maximum ratio of 1:20.

g. Drainage: Kerb cuts should be designed to drain water away from the kerb cut and should not allow water to accumulate on the path of travel.

h. Location: Kerb cuts at pedestrian crosswalks should be contained within the area designated for pedestrian use, for example within the boundaries of marked street crossings.

i. Alignment: Where multiple kerb cuts are utilised, such as at a pedestrian crosswalk containing a median, kerb cuts and ramps should be aligned to support continuous straight line travel. Kerb cuts and ramps that wrap around a corner can cause confusion in path direction and should not be utilised. Where it technically infeasible to avoid the use of a kerb cut or ramp that wraps around a corner, then measures should be taken to assist pedestrians with low or no vision to properly align themselves when negotiating the kerb cut or ramp.

j. Detectable Warning Surfaces: Detectable warning surfaces are required at kerb cuts that serve unprotected pedestrian routes that cross vehicular routes. Detectable warning surfaces should extend along either side of the unprotected pedestrian route, should be a minimum of 600 mm wide.

k. Configuration: Typical kerb cut configurations are shown in Figures D to F.



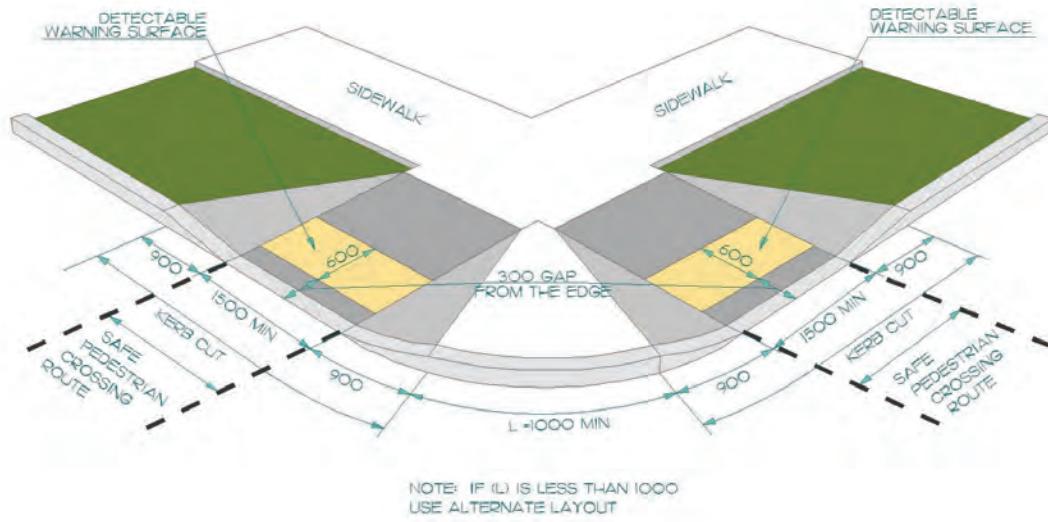


Figure D: Kerb Cut Configuration at Corner

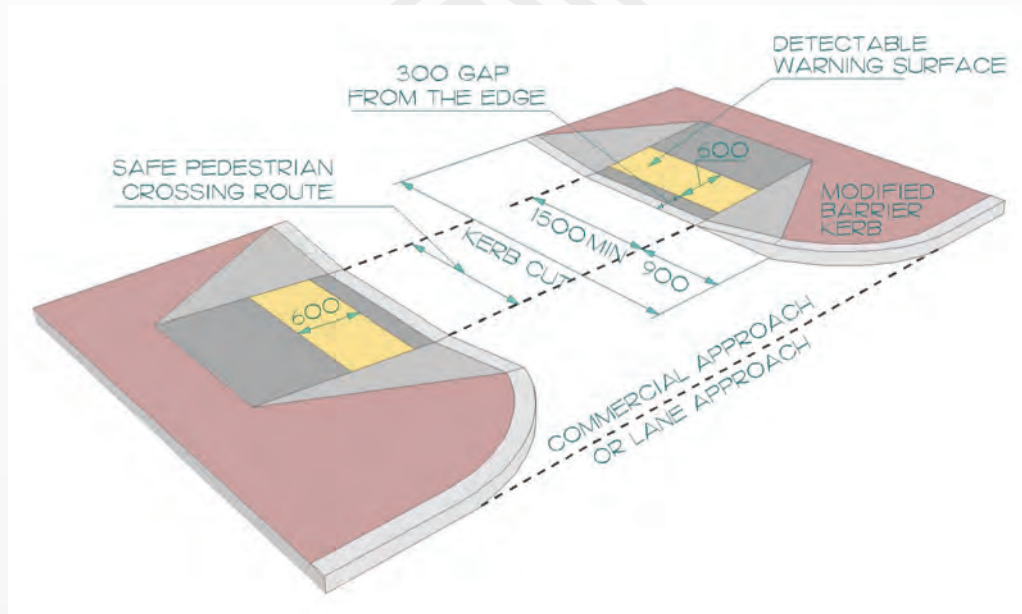


Figure E: Kerb Cut Configuration Aligned

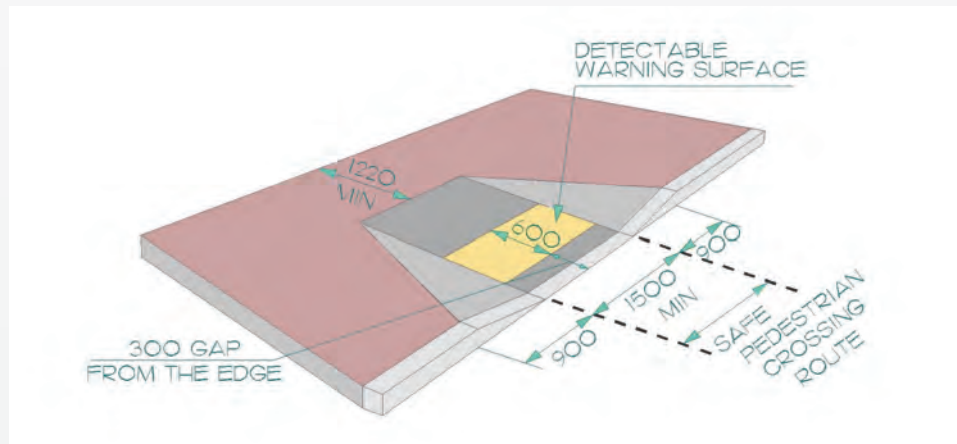


Figure F: Kerb Cut Configuration Typical



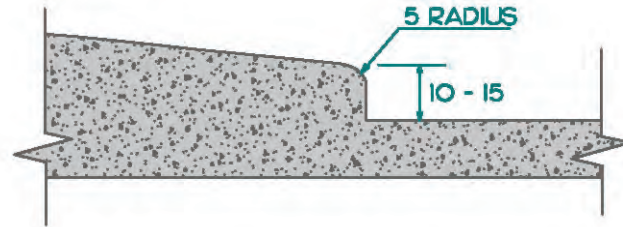


Figure G: Transition at Base of Kerb cut
Source: UDA Consultants Ltd





Appendix 6

The Draft Accessibility Guidelines for Passenger Vessels Summary

The Draft Accessibility Guidelines for Passenger Vessels:

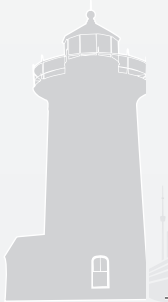
- The provisions of The Draft Accessibility Guidelines for Passenger Vessels (Access Board, 2006; hereafter AGPV) is the current American guidelines for the provision of accessibility on passenger vessel.
- The AGPV makes provision for the following forms of vessel to be compliant:
 - i. Large Vessels – i.e. vessels permitted to carry more than 150 passengers or more than 49 overnight passengers;
 - ii. Ferries or Water Taxi's;
 - iii. Application based on facility use – this refers to a facility, room or space on a passenger vessel;
 - iv. Temporary and permanent structures – this refers to items such as reviewing stands, stages, platforms and daises, fixed furniture systems, wall systems and exhibit areas
 - v. Passenger amenities – elements, spaces and facilities used by passengers including drinking fountains, seating, tables, counters, food service spaces, toilet rooms and guest rooms.

a. Definitions used by the AGPV:

Accessible A passenger vessel or portion thereof that complies with the regulations;

Area of Refuge An area that is separated from the effects of fire and flooding where passengers can gather in an emergency, and then if necessary be directed to an evacuation station for disembarking a vessel;

Area of Temporary Refuge An area where people who are unable to use stairs may remain temporarily to await further instructions or assistance during



emergency evacuation;

Assembly Area A passenger vessel, or portion thereof, used for the purposes of entertainment, educational or civic gatherings, or similar purposes. For the purposes of these requirements, assembly areas include, but are not limited to, classrooms, passenger meeting rooms, motion picture houses, auditoria, theatres, playhouses and dinner theatres;

Assistive Listening System An amplification system utilizing transmitters, receivers and coupling devices to bypass the acoustical space between a sound source and a listener by means of induction loop, radio frequency, infrared, or direct-wired equipment;

Bulkhead Deck The upper most deck to which watertight bulkheads and watertight shell extend;

Camber The curvature given to the weather deck surfaces to shed water readily, increase deck surface strength, and increase headroom clearance on the centerline for the deck below. Also known as the rise or crown of a deck.

Children's Use Describes spaces and elements specifically designed for use primarily by people 12 years old and younger;

Circulation Path An exterior or interior way of passage provided for pedestrian travel, including but not limited to, weather deck areas, passageways, elevators, platform lifts, ramps, stairways and landings;

Coaming The vertical plating located at the base of a door for the purpose of stiffening the edges of the opening and resisting entry of water;

Cross Slope The slope that is perpendicular to the direction of travel;

Curb Ramp A short ramp cutting through a curb or built up to it;

Deck A horizontal division of a passenger vessel which contains space designed for passenger occupancy and generally corresponds to a story in a building. A horizontal division without enclosed space, such as sundeck, is considered a deck even though it is not provided with a covering. A deck containing one or more mezzanines has more than one deck level.





Entry Deck A deck which contains passenger entry and departure points which allow pedestrian passengers to embark or disembark a passenger vessel from fixed piers, floating piers or land in non-emergency conditions;

Evacuation Station The end point in a path of escape travel on a passenger vessel. Evacuation stations include life boat embarkation stations, life raft embarkation stations, or other places where passengers depart the vessels in an emergency;

Facility All or any portion of passenger vessels, structures, vessel improvements, elements, and pedestrian routes or vehicular ways located on a passenger vessel.

Ferry A vessel that: (1) operates in other than ocean or coastwise service, (2) has provisions only for deck passengers or vehicles, or both; (3) operates on a short run on a frequent schedule between two points over the most direct water route and; (4) offers a public service of a type normally attributed to a bridge or tunnel;

Gangway A variable-sloped pedestrian walkway which consists of one or more runs;

Ground Level The level within a deck where a play area is located;

Mezzanine An intermediate level or levels between the deck;

surface and ceiling of any deck with an aggregate deck surface of not more than one-third of the area of the room or space in which the level or levels are located. Mezzanines have sufficient elevation that space for human occupancy can be provided on the deck below;

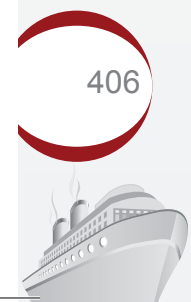
Pictogram A pictorial symbol that represents activities, facilities or concepts;

Public Seating Area An area, other than an assembly area, where fixed seats are provided for passengers and dining or work surfaces are not provided;

Ramp A walking surface that has a running slope steeper than 1:20;

Running Slope The slope that is parallel to the direction of travel;

SOLAS International Convention for the Safety of Life at Sea, 1974;



Tactile An object that can be perceived by using the sense of touch;

Tender A vessel that transports passengers for non-emergency purposes between passenger vessels and shore side facilities;

Transition Plate A sloping pedestrian walkway located at the ends of a gangway, or between gangway segments on a telescoping gangway;

TTY An abbreviation for a teletypewriter. Machinery that employs interactive text-based communication through the transmission of coded signals across the telephone network. TTYs may include, for example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons) or computers with special modems. TTYs are also

called text telephones;

Vehicular Way A route provided for vehicular traffic

Wheelchair Space Space for a single wheelchair and its occupant.

b) The Scope of the AGPV is to include the following items (V201.1):

- Passenger vessels permitted to carry more than 150 passengers or more than 49 overnight passengers
- Ferries
- Tenders carried by or used primarily by passenger vessels
- Facility Use – where a facility, room or space on a passenger vessel contains more than one use, each portion shall be accessible
- Temporary and permanent structures shall be required to comply and includes, though is not limited to, reviewing stands, bleacher areas, stages, platform and daises, fixed furniture systems, wall systems and exhibit areas
- Passenger Amenities – at least one of each type of element, space and facility required to comply with this document and used by passengers shall be on an entry deck or connected by an onboard accessible route to an entry deck e.g. drinking fountains, seating, tables, counters, food service spaces, toilet rooms, and guest rooms.
- Additionally, in multi-deck vessels, each deck shall have universally accessible amenities where such amenities have been provided for passengers.





c. Exceptions to the AGPV include (V203):

- Employee Areas unless employee areas constitute an accessible means of escape;
- Limited access spaces – i.e. spaces accessed only by ladders, catwalks, crawl spaces, manholes, hatches or very narrow passageways.
- Camber and Sheer: where necessary to meet the camber and sheer needs of the vessel, running slopes and cross slopes shall comply with this document to the maximum extent feasible
- Water Slides
- Raised Diving Boards and Diving Platforms

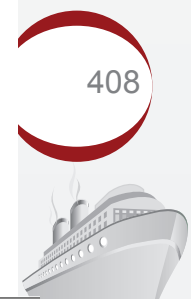
d. Protruding Objects (AGPV V204): Protruding objects on circulation paths should comply with the regulations

e. Operable Parts (AGPV V205): operable parts on elements are required to comply and includes – though is not limited to – light switches, circuit breakers, duplexes and other convenience receptacles, environmental and appliance controls, plumbing fixture controls, security and intercom systems. The following items are deemed exceptions to this requirement:

- Operable parts that are intended for use by employees only shall not be required to comply;
- Electrical or communication receptacles serving a dedicated use shall not be required to comply;
- Where two or more outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one outlet shall not be required to comply;
- Deck surface electrical receptacles shall not be required to comply;
- HVAC diffusers shall not be required to comply;
- Except for light switches, where redundant controls are provided for a single element, one control in each space shall not be required to comply;
- Exercise machines shall not be required to comply.

f. On-Board Accessible Route (V206). Onboard accessible routes shall comply. The following provisions fall into place:

- At least one onboard accessible route shall connect each passenger deck and mezzanine in multi-deck passenger vessels. Where passenger vessels have multiple entry decks, at least one onboard accessible route shall connect each entry deck;



- Within a deck, at least one onboard accessible route shall connect all spaces and elements within the passenger vessel required to comply with the UAMT Guidelines which are otherwise connected by a circulation path.
- In restaurants and cafeterias, at least one onboard accessible route shall be provided to all dining areas, including raised or sunken dining areas, and outdoor dining areas;
- Where a circulation path directly connects a performance area to an assembly seating area, at least one onboard accessible route shall directly connect the assembly seating area with the performance area;
- In court sports, at least one onboard accessible route shall directly connect both sides of the court;
- Exercise machines and equipment required to comply shall be on an onboard accessible route;
- Play areas shall provide onboard accessible routes;
- Onboard accessible routes shall coincide with or be located in the same area as general circulation paths. Where circulation paths are interior, required onboard accessible routes shall also be interior. An onboard accessible route connecting any two spaces required to comply with the UAMT Guidelines shall not be more than 90m longer than the shortest general circulation path connecting the same two spaces;
- Entry and departure points used by passengers shall be on an onboard accessible route;
- Where doors, doorways or gates are provided, at entry and departure points, at least one door, doorway or gate shall be accessible;
- Within a passenger vessel, at least one door, doorway or gate serving each accessible room or accessible space shall be accessible;
- Elevators shall be accessible; where multiple elevators are provided, each elevator shall comply;
- Platform lifts shall comply. Platform lifts shall be permitted as a component of an onboard accessible route. Furthermore, platform lifts shall be permitted to provide onboard accessible routes to performance areas, speakers' platforms, passenger guest rooms, play areas, tender boarding platforms and will be permitted where vertical clearance constraints on a route a passenger vessel operates makes the use of an elevator infeasible;
- Security Barriers, including though not limited to, security bollards and security check points shall not obstruct a required onboard accessible route or accessible means of escape.





g. Accessible Means of Escape (V207): Accessible means of escape shall be provided. Each accessible means of escape shall be a continuous path of escape travel complying with the requirements for accessibility to an evacuation station. The provisions of V207 are subject to the following:

- Where one means of escape is required by the administrative authority from a space required to be accessible, the space shall be served by at least one accessible means of escape. Where more than one means of escape is required by the administrative authority from a space required to be accessible, the space shall be served by at least two accessible means of escape;
- Where an accessible means of escape from any passenger deck travel vertically four or more decks, at least one accessible means of escape from each passenger deck shall contain an accessible elevator for the purposes of escape.

h. Passenger Vessel Boarding (V208): Where passenger vessels are embarking or disembarking passengers from fixed piers, floating piers, or landside structures, at least one passenger boarding system complying with the requirements of the UAMT Guidelines shall connect an entry deck to fixed piers, floating piers, or landside structures.

i) Stairways (V209): Interior and exterior stairs connecting levels not connected by an onboard accessible route shall comply with the UAMT Guidelines.

j) Rinsing Showers (V210): where provided, rinsing showers shall comply with the UAMT Guidelines;

k) Drinking Fountains (V211): where provided on a deck, drinking fountains shall be accessible subject to the following provisions:

- No fewer than two drinking fountains shall be provided;
- Where more than the minimum number of drinking fountains is provided, 50 percent of the total number of drinking fountains provided shall comply.

l) Kitchens, kitchenettes and Sinks (V212): Where provided, kitchens, kitchenettes and sinks shall comply with the UAMT Guidelines subject to:

- Where sinks are provided, at least 5%, but no fewer than one, of each type provided in each accessible room or accessible space shall be accessible;
- Mop or service sinks are not required to comply with the UAMT Guidelines.



m. Toilet Facilities and Bathing Facilities (V213): Where toilet facilities and bathing facilities are provided, they shall comply with the requirements for accessibility in the UAMT Guidelines subject to the following:

- Where toilet rooms are provided, each toilet room shall comply with the technical requirements in the UAMT Guidelines. Where bathing rooms are provided, each bathing room shall comply with the technical requirements in the UAMT Guidelines;
- Unisex toilet rooms shall contain one wash basin and either one water closet or one water closet and one urinal. Unisex bathing rooms shall contain one wash basin, one water closet and either one shower or one shower and one bathtub. Doors to unisex toilet rooms and unisex bathing rooms shall have privacy latches;
- Where toilet cubicles are provided, at least one toilet cubicle shall comply with the requirements for accessibility in the UAMT Guidelines. In addition to the compartment required to be accessible;
- Where water closets are provided, at least one shall comply with the UAMT Guidelines;
- Where urinals are provided, at least one shall comply with the UAMT Guidelines;
- Where wash basins are provided, at least one shall comply with the UAMT Guidelines and shall not be located in a toilet compartment;
- Where mirrors are provided, at least one shall comply with the UAMT Guidelines;
- Where bathtubs or showers are present, at least one bathtub or one shower shall be accessible;
- Where coat hooks or shelves are provided in toilet rooms without toilet cubicles, at least one of each type shall comply with the UAMT Guidelines. Where coat hooks or shelves are provided in toilet cubicles, at least one of each type shall be accessible in toilet cubicles required to be accessible. Where coat hooks or shelves are provided in bathing facilities, at least one of each type shall comply with the UAMT Guidelines to serve accessible fixtures;

n. Washing Machines and Clothes Dryers (V214). Where three or fewer washing machines are provided, at least one shall be accessible.

- Where more than three washing machines are provided, at least two shall be accessible. Where three or fewer clothes dryers are provided, at least one shall be accessible. Where more than three clothes dryers are provided, at least two shall be accessible.





o. Emergency Alarm Systems (V215): Where emergency alarm systems are provided to alert passengers, all alarms shall be constructed so as to be fully accessible, subject to the provisions below:

- Alarms in public areas shall comply with the principles of best practice;
- Guest cabins that are required to be accessible shall provide alarms complying with the principles of best practice;

p. Signs (V216): Shall be required to be accessible with the exception of vessel directories, menus, seat and row designations in assembly areas, occupant names, vessel names, company names and logo's, signs in parking facilities and temporary signs. The provisions of V216 are subject to:

- Interior and exterior signs identifying permanent rooms and spaces shall be accessible. Where pictograms are provided as designations of permanent interior rooms and spaces, the pictograms shall be accessible and shall have compliant text descriptors e.g. signs labeling restrooms, room and deck numbers or letters, and room names. Tactile text descriptors are required for pictograms that are provided to label or identify a permanent room or space. Pictograms that provide information about a room or space, such as “no smoking,” occupant logos and the International Symbol of Accessibility, are not required to have text descriptors;
- Signs that provide direction to or information about spaces and facilities of the passenger vessel shall comply with the UAMT Guidelines;
- Signs for means of escape shall comply with the UAMT Guidelines. Exit doors identified with illuminated exit signs shall be identified by compliant tactile signs.
- Areas of temporary refuge shall comply with the UAMT Guidelines. Each door providing access to an area of temporary refuge from an adjacent deck area shall comply with the UAMT Guidelines, stating “AREA OF TEMPORARY REFUGE”, and the sign shall include the International Symbol of Accessibility. Where exit sign illumination is required by the administrative authority, the area of temporary refuge sign shall be illuminated. Additionally, a tactile sign complying with the regulations shall be located at each door to an area of temporary refuge. In each area of temporary refuge provided with a two-way communication system, instructional signage on the use of the area under emergency conditions shall be posted under the communications system and shall be compliant.
- Where not all exterior doors are compliant, public doors complying with the regulation shall be identified by the International Symbol of Accessibility.



Accessible Directional Signs that indicated the location of the nearest accessible public door shall be provided at exterior public doors that do not comply with the UAMT Guidelines.

- Signs for toilets rooms or bathing rooms shall be accessible;
- Each assembly area and public seating area required to provide assistive listening systems shall provide signs informing patrons of the availability of the assistive listening system.
- Where more than one check-out aisle is provided, accessible checkout aisles shall be identified by the International Symbol of Accessibility.

q. Telephones (V217): where coin-operated pay telephones, coin-less pay telephones, closed-circuit telephones, courtesy telephones or other types of public telephones are provided, accessible public telephones shall be provided for each type of public telephone provided. No fewer than two public telephones shall be provided at each location containing telephones. At least one shall be a wheelchair accessible public telephone.

r. Two-Way Communication Systems (V218). Where a two-way communication system is provided to gain admittance to a passenger vessel or to restricted areas open to passengers within a passenger vessel, that system shall be universally accessible;

s. Assistive Listening Devices (V219). These shall be provided where necessary and in accordance with the following provisions:

- In each assembly area and public seating area where audible communication is integral to the use of the space, an assistive listening system shall be provided;
- Accessible receivers shall be provided for assistive listening systems in assembly areas and public seating areas and calculated according to the total number of seats in the vessel. Twenty-five percent minimum of receivers provided, but no fewer than two, shall be hearing-aid compatible.

t. Automatic Teller Machines (V220): where automatic teller machines or self-service fare vending, collection or adjustment machines are provided, at least one of each type provided at each location shall be accessible to people with visual impairment and auditory impairment. Where bins are provided for envelopes, waste paper, or other purposes, at least one of these shall be accessible.





u. Assembly Areas and Public Seating Areas (V221). Assembly areas shall provide wheelchair spaces, companion seats, and designated aisle seats. Public seating areas shall provide wheelchair spaces and companion seats. The term assembly area is defined as a passenger vessel, or portion thereof, used for the purpose of entertainment, education or civic gatherings, or similar purposes. Assembly areas include, but are not limited to, classrooms, passenger meeting rooms, motion picture houses, auditoria, theatres, playhouses, and dinner theatres. Assembly areas should not be confused with the term areas of refuge (also known as assembly stations or muster stations). Areas of refuge are typically large spaces that are separated from the effects of fire and flooding where passengers can gather in an emergency, and then if necessary be directed to an evacuation station for disembarking a vessel. It is possible that an assembly area could be designed and constructed to also function as an area of refuge.

- The number of wheelchair spaces to be provided in each assembly area shall be in accordance with the following table:

Table V221.2.1.1. Number of Wheelchair Spaces

Number of Seats	Minimum Number of Required Wheelchair Spaces
4 to 25	1
26 to 50	2
51 to 150	4
151 to 300	5
301 to 500	6
501 to 5000	6, plus 1 for each 150, or fraction thereof, between 501 through 5000
5001 and over	36, plus 1 for each 200, or fraction thereof, over 5000



- The number of wheelchair spaces for public seating area shall be calculated according to the total number of fixed seats provided in public seating areas in accordance with the table above.
- Wheelchair spaces shall be an integral part of the seating plan. The requirement that wheelchair spaces be an 'integral part of the seating plan' means that wheelchair spaces must be placed within the footprint of the seating area. Wheelchair spaces cannot be segregated from seating areas e.g. it would be unacceptable to place only the wheelchair spaces, or only the wheelchair spaces and their associated companion seats, outside the seating areas in an assembly area or public seating area;
- Wheelchair spaces in assembly areas shall provide accessible lines of sight. In providing lines of sight, wheelchair spaces shall be dispersed.
- Wheelchair spaces shall provide spectators with choices of seating locations and viewing angles that are substantially equivalent to, or better than, the choices of seating locations and viewing angles available to other spectators. Wheelchair spaces shall be dispersed horizontally. Wheelchair spaces shall be dispersed vertically at varying distances from the screen, or performance area. In addition, wheelchair spaces shall be located in each balcony or mezzanine that is located on an onboard accessible route.
- At least one companion seat shall be provided for each wheelchair space provided.
- In assembly areas, at least 5% of the total number of aisle seats provided shall be accessible, and shall be the aisle seats located closest to the onboard accessible routes.

v. Dressing, Fitting and Locker Rooms (V222): where dressing rooms, fitting rooms or lockers rooms are provided, 5%, but not fewer than one, of each type of use in each cluster shall be accessible. Where coat hooks or shelves are provided in dressing, fitting, or locker rooms, at least one of each type shall comply with the UAMT Guidelines.

w. Medical Care Facilities (V223): where patient sleeping rooms are provided in medical care facilities, at least 10%, but no fewer than one, of the patient sleeping rooms will be accessible.

x. Passenger Guest Cabins (V224): the number of guest cabins with mobility features is dictated by the following table:





Table V224.2 Guest Cabins with Mobility Features

Total Number of Guest Cabins	Total Number Required to have Accessible Baths or Showers	Total Number Required to have Roll-in Showers	Total #
1 to 25	1	0	1
26 to 50	2	0	2
51 to 75	3	1	4
76 to 100	4	1	5
101 to 150	5	2	7
151 to 200	6	2	8
201 to 300	7	3	10
301 to 400	8	4	12
401 to 500	9	4	13
501 to 1000	2 percent of total	1 percent of total	3 percent of total thereafter
1001 and over	20, plus 1 for each 100 thereafter	10, plus 1 for each 100 thereafter	

- In guest cabins having more than 25 beds, 5% minimum of the beds shall have accessible clear deck space;
- Cabins with Communication Features shall be of a number as per the following table:

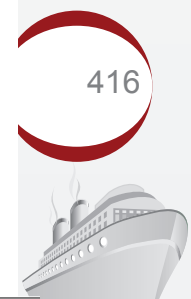


Table V224.4. Guest Cabins with Communication Features

Total Number of Guest Cabins Provided	Minimum Number of Required Guest Cabins with Communication Features
2 to 25	2
26 to 50	4
51 to 75	7
76 to 100	9
101 to 150	12
151 to 200	14
201 to 300	17
301 to 400	20
401 to 500	22
501 to 1000	5 percent of total
1001 and over	50, plus 3 for each 100 over 1000

Guest cabins required to provide mobility features and guest cabins required to provide communication features shall be dispersed among the various classes of guest cabins, and shall provide choices of types of guest cabins, number of beds, and other amenities comparable to the choices provided to other guests.

y. Storage (V225): where storage is provided in accessible spaces, at least one of each type shall comply with the requirements in the UAMT Guidelines. Types of storage include, but are not limited to, closets, cabinets, shelves, clothes rods, hooks and drawers. Where lockers are provided, at least 5%, but no fewer than one, must be accessible. Where self-service shelving is located on an onboard accessible route, it shall be accessible.

z. Dining Surfaces and Work Surfaces (V226): where dining surfaces are provided for the consumption of food or drink, at least 5% of the seating spaces at the dining surfaces shall be accessible. In addition, where work surfaces are provided for use by other than employees, at least 5% shall comply with the UAMT Guidelines. Dining surfaces and work surfaces required to comply, shall be dispersed throughout the space or facility containing dining surfaces and work surfaces.





aa. Sales and Services (V227): where provided, check-out aisles, sales counters, service counters, food service lines, queues, and waiting lines shall be accessible.

- Where check-out aisles are provided, the number of such shall comply with the table below:

Table V227.2. Accessible Check-Out Aisles

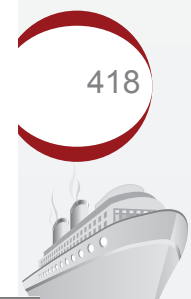
Number of Check-Out Aisles of Each Function	Minimum Number of Check-Out Aisles of Each Function Required to Comply with the Requirements
1 to 4	1
5 to 8	2
9 to 15	3
16 and over	3, plus 20 percent of additional aisles

- Where provided, at least one of each type of sales counter and service counter shall comply. Where counters are dispersed throughout the facility, accessible counters shall be dispersed. Types of counters that provide different services in the same facility include, but are not limited to, order, pick-up, express, and returns. One continuous counter can be used to provide different types of service.
- Food service lines shall comply. Where self-service shelves are provided, at least 50%, but no fewer than one, of each type provided shall comply;

bb. Depositories, Vending Machines, Change Machines and Mail Boxes (V228): Where provided, at least one of each type shall be accessible.

cc. Swimming Pools, Wading Pools and Spas (V234)

- At least one accessible means of entry shall be provided for swimming pools;
- At least one accessible means of entry shall be provided for wading pools;
- At least one accessible means of entry shall be provided for spas.



Draft Passenger Vessel Accessibility Guidelines –

Technical Specifications

The technical specifications for this document is divided into the following areas of concern:

V300 Building Blocks

V301 General

V302 Deck Surfaces

V303 Changes in Level

V304 Turning Space

V305 Clear Deck Space

V306 Knee and Toe Clearance

V307 Protruding Objects

V308 Reach Ranges

V309 Operable Parts

V400 Accessible Routes, Accessible Means of Escape, and Accessible Passenger Boarding Systems

V401 General

V402 Accessible Routes

V403 Walking Surfaces

V404 Doors, Doorways and Gates

V405 Ramps

V406 Curb Ramps

V407 Elevators

V408 Limited-Use/Limited-Application Elevators

V409 Platform Lifts

V410 Accessible Means of Egress

V411 Areas of Temporary Refuge

V412 Passenger Boarding System

V413 Gangway

V414 Manually Powered Boarding Lifts





V500 General Passenger Vessel Elements

V501 General

V502 Stairways

V503 Handrails

V600 Plumbing Elements and Facilities

V601 General

V602 Drinking Fountains

V603 Toilet and Bathing Rooms

V604 Water Closets and Toilet Cubicles

V605 Urinals

V606 Washbasins and Sinks

V607 Bathtubs

V608 Shower Cubicles and Rinsing Showers

V609 Grab Bars

V610 Seats

V611 Washing Machines and Clothes Dryers

V612 Saunas and Steam Rooms

V700 Communication Elements and Features

V701 General

V702 Reserved

V703 Signs

V704 Telephones

V705 Two-Way Communication Systems

V706 Assistive Listening Systems

V707 Automatic Teller Machines and Fare Machines

V800 Special Rooms, Spaces and Elements

V801 General

V802 Wheelchair Spaces, Companion Seats, and Designated Aisle Seats

V803 Dressing, Fitting and Locker Rooms

V804 Kitchens and Kitchenettes

V805 Medical Care Facilities

V806 Passenger Guest Cabins

V807 Storage



- V900 Built-In Elements
- V901 General
- V902 Dining Surfaces and Work Surfaces
- V903 Benches
- V904 Sales and Service Counters

- V1000 Recreation Facilities and Play Areas
- V1001 General
- V1002 Exercise Machines and Equipment
- V1003 Miniature Golf Facilities
- V1004 Play Areas
- V1005 Swimming Pools, Wading Pools, and Spas
- V1100 Tenders
- V1101 General
- V1102 Wheelchair Spaces
- V1103 Accessible Routes
- V1104 Boarding Systems

Like air transport, maritime transport is based on international conventions.

Influencing them requires participation in research and development of legislation at the international level e.g. the recommendations presented in the EU project HANDIAMI, concentrating on the safety of ships and especially the options for moving passengers with functional mobility limitations in emergency situations have formed the basis for new EU legislation. However, many of the issues regarding improvement can be influenced by the transport operators directly in their own actions or indirectly as purchasers or charterers of ships. The International Maritime Organization, has, in fact, issued recommendations on the accessibility of vessels and the training of personnel. Sweden and Great Britain have, for example, also carried out studies and drafted guidelines on the accessibility of vessels and the passenger infrastructure of maritime transport. Central development targets in international maritime transport and in cruise transport include the carrying of luggage on board, the accessibility of the common premises of ships and finding one's way on board, the user friendliness of ordinary cabins, the number of cabins for persons with disabilities and their





toilets. Attention has also been paid to making information channels more versatile, developing personal service as well as alarm-systems suitable for passengers with functional hearing limitations.

Inland-water ships are a separate problem as are also coastal service ships and ferries. Earlier, accessibility was hardly considered in their construction, and therefore they are often ill-suited for passengers with functional mobility limitations.

The accessibility of passenger terminals also needs to be improved. The aim is for all passengers to get to the terminals and further onboard as well as off the ship as independently as possible and for them to get the information relating to traveling and services of the terminal.

Measures

- Quality of services and ships: ship owners promote their services in order to take better into account the needs of persons with functional limitations. When acquiring vessels, the companies will also have to pay more attention to the functionality of the premises from the perspective of different passenger groups.
- The equal rights of passengers of passenger ships: safety regulations and practices sometimes conflict with the opportunities of people with functional limitations.
- Accessibility of maritime transport owned by the State: the present state of accessibility on coastal service ships, ferries shall be examined. This will form a basis for recommendations to improve the situation e.g. by recommendations for the accessibility of new and renovated ships in transport operated by the State.

Physical Barriers to Access from Land to Vessel

Access from shore to vessel involves transit along three path-of-travel elements: stable approach, passenger loading platform, and vessel deck.

The access barriers result from the intervening differences in height among those elements, whose descriptions follow:



- a. Stable Approach – The start point of a path of travel, and/or fixed pier
- b. Passenger Loading Platform – The intermediate component along the path of travel i.e. a floating dock. This is the most common configuration, but access is sometimes provided directly from the stable approach to the vessel deck;
- c. Vessel Deck – The intermediate component along the path of travel i.e. a floating dock. This is the most common configuration, but access is sometimes provided directly from the stable approach to the vessel deck;

The accommodations to overcome the barriers will satisfy a set of “nominal marine conditions”, which include tidal or non-tidal height limits of three to six meters, respectively, and the assumption that severe weather is not causing excessive motions. The approach to categorizing shore facilities on this assumed hydrographic condition. Combinations of the physical access barriers along the path of travel determine the designs of the proposed access solutions. Descriptions of the barriers follows:

- a. Height difference between the stable approach and the water: the stable approach to a passenger boarding facility is typically high enough above average water level to prevent submergence in all but the most extreme conditions. The height of the stable approach can range from a meter to over six meters;
- b. Water level changes: all waterfront facilities experience changes in the height of the water to the stable approach. Coastal facilities undergo tidal changes twice daily, with normal ranges from little more than half a meter to over six meters. Non-tidal (inland) facilities experience water level changes as a result of rain, dam releases etc. which tend to occur in predictable patterns over time;
- c. Height difference between passenger loading platform and the vessel: When a loading platform (dock) is in the pathway between the stable approach and the vessel, the freeboard difference between the dock and the vessel is an access barrier. Because freeboards of docks and vessels vary greatly, there will be widely varied and unique height differences for dock-vessel combinations.
- d. The height difference may also vary for a particular dock-vessel pair with loading and weather conditions;



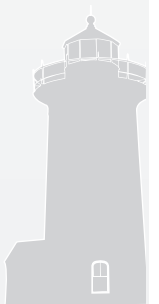


Marine Design Requirements for Access Solutions

The following are the unique design constraints imposed by the marine environment for providing access from shore facilities to vessels:

- a. Dynamic nature of the marine environment: shore facilities are exposed to a dynamic marine environment, with the impact of waves, wind, tides, current and weather. The functional design of access features must account for the resulting loads and motions;
- b. Changes in height differences: access solutions in the marine environment differ from those on land in that height differences change, over both short and long time frames. Changing height differences drive a unique set of solutions for accessibility;
- c. Lift and stability requirements of floating structures: excluding fixed piers, access structures are floating components subject to the same static and dynamic effects as vessels. The design of access solutions for docks must take into account lift (weight), heel and trim due to the shifting of weight, and the dynamic effects of wind and waves;

Exposure to harsh weather conditions: while any outdoor system for accessibility must be designed and built withstand the impacts of weather, marine facilities are especially impacted by their environment, i.e. the effects of water, salt and air on durability and reliability.





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