Australian Government
Australian Maritime Safety Authority

National Standard for Commercial Vessels

Part C – Design and construction

Section 1 – Wheelhouse visibility, escape, accommodation, and personal safety

Edition 2.0

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CHAPTER 1 PRELIMINARY

1.1 Scope

NSCV Section C1 provides the design, construction, installation and maintenance standards for wheelhouse visibility, escape, accommodation and personal safety on vessels.

1.2 Structure of this Section

(1) Chapter 2 specifies the required outcomes. Chapters 3 to 6 specify the deemed to satisfy solutions for meeting the required outcomes.

(2) Annex A specifies the deemed to satisfy methodology for determining the minimum required aggregate width of doors, stairways, corridors, and walkways serving a space.

(3) Annex B specifies the deemed to satisfy solutions for escape and evacuation signage and marking, for vessels with 12 or fewer berthed passengers and 36 or fewer non-berthed passengers.

(4) Annex C specifies standards for increasing guardrail or bulwark height where seating is placed in 'no climb zones' on public transport vessels.

NOTE 1 AMSA may approve equivalent means of compliance if a vessel complies with a standard not mentioned in this Section that is equivalent to the relevant deemed to satisfy solution(s) – see NSCV Part B.

NOTE 2 This Section should be read in conjunction with NSCV Part B, NSCV C2, NSCV C4 and NSCV C5B.

NOTE 3 Additional arrangements and accommodation requirements may apply under workplace health and safety legislation and legislation covering access for persons with disabilities, such as the *Disability Discrimination Act 1992* and *Disability Standards for Accessible Public Transport 2002*.

1.3 Application

This standard applies to all domestic commercial vessels except:

(a) special vessels as defined in NSCV Part F Special vessels (Part F), which must comply with Part F and are not required to comply with this Section unless Part F specifies otherwise; and

(b) non-survey vessels as defined in NSCV Part G Non-survey vessels (Part G), which must comply with Part G and are not required to comply with this Section unless Part G specifies otherwise.

1.4 Referenced documents

Each document mentioned in the following table is:

(a) referenced in this Section; and

(b) the latest revision of the document, including amendments, unless stated otherwise.

NOTE NSCV Part B provides that national, regional or international standards adopted or incorporated by reference in the NSCV are adopted or incorporated by reference as in force from time to time.

Author / Publisher	Document	Available from
Australian Building Codes Board	National Construction Code	www.abcb.gov.au
Australian Maritime Safety Authority and Australian Government's Transport and Infrastructure Council or Transport Infrastructure Ministers (as appropriate)	National Standard for Commercial Vessels (NSCV) Part B - General Requirements (NSCV Part B) Part C - Design and Construction, Section 2 – Watertight and Weathertight Integrity (NSCV C2) Part C - Design and Construction, Section 4 – Fire Safety (NSCV C4) Part C - Design and Construction, Section 5 – Engineering, Subsection 5B – Electrical (NSCV C5B) Part C - Design and Construction, Section 6 – Stability, Subsection 6A – Intact stability requirements (NSCV C6A) Part C - Design and Construction, Section 6 – Stability, Subsection 6B – Buoyancy and stability after flooding (NSCV C6B) Part C - Design and Construction, Section 7 – Equipment, Subsection 7A – Safety equipment (NSCV C7A) Part C - Design and Construction, Section 7 – Equipment, Subsection 7C – Navigation equipment (NSCV C7C) Part F - Special vessels (NSCV Part F)	www.amsa.gov.au
Commonwealth of Australia	*Disability Discrimination Act 1992* Disability Standards for Accessible Public Transport Guidelines 2004 (No.3) Disability Standards for Accessible Public Transport 2002	
International Labour Organization	*Maritime Labour Convention, 2006 (MLC 2006)* Safety and health in ports. ILO Code of Practice	www.ilo.org
International Maritime Organization	Code on Noise Levels on Board Ships 2012 Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs) International Convention on Load Lines (Load Lines Convention) International Convention for the Safety of Life at Sea (SOLAS, 1974, as amended) IMO Resolution A.1116(30) Escape Route Signs and Equipment Location Markings	www.imo.org

Author / Publisher	Document	Available from
	International Life-Saving Appliance (LSA) Code – Resolution MSC.48(66) (LSA Code)	
International Organization for Standardization	ISO 15085:2003 — Small craft — Man-overboard prevention and recovery (ISO 15085) ISO 11591:2020 – Small craft – Field of vision from the steering position (ISO 11591) ISO 15370:2021 Ships and marine technology — Low Location Lighting (LLL) on passenger ships – Arrangement (ISO 115370) ISO 15748-1 Ships and marine technology – Potable water supply on ships and marine structures: Planning and design (ISO 15478-1) ISO 7061:2015 Ships and marine technology — Aluminium shore gangways for seagoing vessels (ISO 7061) ISO 5488:2015 Ships and marine technology — Accommodation ladders (ISO 5488) ISO 8468:2007 Ships and marine technology – Ships bridge layout and associated equipment – Requirements and guidelines (ISO 8468) ISO 12401:2009 Small craft – Deck safety harness and safety line – Safety requirements and test methods (ISO 12401) ISO 24409-1:2020 Ships and marine technology — Design, location and use of shipboard safety signs, fire control plan signs, safety notices and safety markings — Part 1: Design principles ISO 24409-2:2014 Ships and marine technology — Design, location and use of shipboard safety signs, safety-related signs, safety notices and safety markings — Part 2: Catalogue ISO 24409-3:2014 Ships and marine technology — Design, location and use of shipboard safety signs, safety-related signs, safety notices and safety markings — Part 3: Code of practice	www.iso.org
British Standards Institution	BS EN 14206: 2003 Inland navigation vessels. Gangways for passenger vessels. Requirements, tests BS EN 526:1995 Inland navigation vessels. Gangways with a length not exceeding 8 m. Requirements, types BS EN 795: 2012 Personal fall protection equipment. Anchor devices	bsigroup.com
Lloyd's Register	Rules and Regulations for the Classification of Ships (Lloyd's Rules)	www.lr.org
Safe Work Australia	Model Code of Practice – Managing noise and preventing hearing loss at work	www.safeworkaustralia.gov.au

Author / Publisher	Document	Available from
	Model Code of Practice — Managing the work environment and facilities Model Code of Practice – Managing the risk of falls at the workplace Model Code of Practice – Managing Risks in Stevedoring	
Standards Australia	AS 1319-1994 Safety signs for the occupational environment AS 1657:2018 Fixed platforms, walkways, stairways and ladders — Design, construction and installation (AS 1657) AS 1428.1-2021 Design for access and mobility, Part 1: General requirements for access — New building work AS/NZS 2080-2006 Safety Glazing for Land Vehicles AS 2227-2006 Yachting harnesses and lines — Conventional lines (AS 2227) *AS 4020:2018 Testing of products for use in contact with drinking water* *AS/NZS 4280.2:2023 Global maritime distress and safety system (GMDSS), Part 2:406 MHz Satellite Personal locator Beacons (PLBs)*	List of Australian Standards distributors available at www.standards.org.au
World Health Organisation	WHO – International health regulations — Guide to Ship Sanitation	www.who.int
National Health and Medical Research Council	Australian Drinking Water Guidelines - ADWG	www.nhmrc.gov.au

1.5 Definitions

(1) In this Section:

(a) the definitions provided in NSCV Part B and those in this clause 1.5 apply unless otherwise indicated; and

(b) where there is any conflict between the definitions used in this clause 1.5 and NSCV Part B, the definitions in this clause 1.5 apply.

(2) In this Section:

accommodation ladder means a step ladder with flat or curved steps and handrails, enabling a person to embark or disembark the vessel.

assembly station (also known as muster station) is an area where passengers can be gathered in the event of an emergency, given instructions and prepared to abandon the vessel, if necessary.

Passenger spaces may serve as assembly stations if all passengers can be instructed there and prepared to abandon the vessel.

NOTE The definition of assembly station is based on the definition used in the IMO High Speed Craft Code.

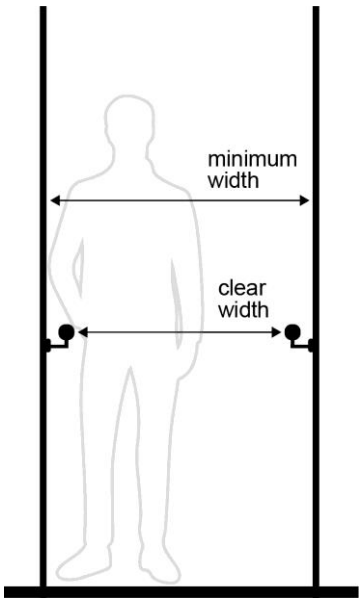
berthed passenger means a passenger who is on board a vessel for a period of greater than 36 hours or who has otherwise been assigned a berth.

clear deck area means deck space that is unencumbered and available for use by passengers and crew and excludes the area occupied by seats, tables and furniture.

NOTE Fixed seating in limited circumstances may be included in clear deck area in accordance with subclause 4.13(4).

clear width means the distance between the handrail and the bulkhead on the other side or between the handrails. See Figure 1.

Figure 1 Clear width and minimum width



embarkation station means a location on a vessel intended for the orderly and rapid embarkation of persons into survival craft.

enclosed area means a space on a vessel:

a) That is fitted with a deckhead and has a side or end screens fitted around the space.

b) where the deckhead and side or end screen may be temporary or permanent.

c) which has the means to be an enclosed area is an enclosed area.

EXAMPLES OF ENCLOSED AREAS:

- Spaces included in Table 15;
- The fully enclosed internal passenger seating area on a commuter ferry

NOTE An enclosed area is different to a confined space for the purpose of NSCV C1.

enclosed accommodation space means an enclosed area that is an accommodation space.

NOTE Accommodation space is defined in NSCV Part B.

escape means the movement of persons away from the immediate vicinity of a hazard to a designated place of safety on board the vessel.

EXAMPLE The movement of persons from compartments or areas through normal accesses to assembly stations or embarkation stations.

evacuation path means a path:

(a) nominated to facilitate the orderly and rapid movement of persons to an embarkation station; and

(b) that starts at each point at which escape routes from different spaces merge.

gangway means a passageway or walkway used as a removable footway between a vessel and the shore, that is intended for deployment for embarkation and disembarkation of persons and small cargo that can be carried.

general purpose deck means an open deck that is neither a special purpose deck nor a special working deck.

headroom for a space, means the height remaining in the space after deducting beams, deck-head linings, floor coverings and light fittings.

high-capacity escape means an avenue of escape that facilitates rapid movement of persons (eg full height openings in boundaries leading to adjacent spaces, stairways or walkways).

horizontal course means the lateral connection between vertical stanchions forming a guardrail.

low-capacity escape means an avenue of escape that has limited capacity to facilitate rapid movement of persons (eg narrow full height openings or restricted height openings leading to adjacent spaces, stairways or walkway, hatches, windows, portlights or side scuttles with ladder access if necessary).

Low Location Lighting (LLL) means a system of electrically powered lighting or photoluminescent indicators that:

a) can function automatically at all times for at least 60 min after activation; and

b) provides all evacuation and escape routes with a clear, continuous and unambiguous ‘means of escape’ path which leads to safe egress from occupied areas.

minimum width means the minimum distance:

(a) from the bulkhead on one side to the bulkhead on the other side;

(b) for aisles forming passageways between banks of fixed seating, from the edge of one seat to the edge of the seat directly across;

(c) for a door, from one side of the opening to the other side, when the door is open.

See Figure 1. Minimum width is also referred to as ‘nominal width’ in Annex A.

operating position means the location in an operating station that the person responsible for navigating the vessel would be expected to occupy when undertaking their functions under normal conditions of operation.

NOTE 1 The operating position may be remote from the helm on a vessel that has a separate helmsman.

NOTE 2 On a vessel not having a separate helmsman, the operating position is also the steering position.

operating station means any location on a vessel:

(a) that is equipped with the necessary means for navigation, manoeuvring and communication; and

(b) from where the functions of navigating, manoeuvring, communication, commanding, conning and lookout are carried out.

passageway means an aisle that is:

(a) set aside for the passage of persons past furniture and fittings within a space; and

(b) not enclosed by bulkheads on both sides.

primary access means the means of access used when the vessel is in normal operation.

primary operating station means an operating station that complies with the standards for field of vision mentioned in clause 3.4.

public transport vessel means a vessel that is a 'conveyance' in the *Disability Standards for Accessible Public Transport 2002*.

NOTE Ferries (excluding charter boats and water taxis) used to provide a public transport service are a 'conveyance' for the purposes of the *Disability Standards for Accessible Public Transport 2002*. 'Public transport service' is also defined in the *Disability Standards for Accessible Public Transport 2002*.

rung means the step of a rung ladder or step on the vertical surface.

special purpose deck means a deck or area of a deck:

(a) that can be accessed by passengers, crew or special personnel; and

(b) for which full height bulwarks or guardrails would significantly interfere with the special purpose of the vessel and/or deck or introduce new safety risks.

EXAMPLE OF SPECIAL PURPOSE DECK:

- Aft deck of a game fishing vessel
- Boarding deck on a vessel used for compliance and enforcement (such as on a vessel being operated by Police)
- Foredeck on a sailing vessel

EXAMPLES OF DECK AREAS THAT DO NOT MEET THE DEFINITION OF A SPECIAL PURPOSE DECK:

- Passenger areas of whale and dolphin watching ecotourism vessels
- Pontoon party boats
- Personnel transfers

special working deck means a deck or an area of a deck:

(a) that is only accessible by crew or special personnel; and

(b) for which full height bulwarks or guardrails would significantly interfere with the operation of the vessel or introduce new safety risks.

EXAMPLE OF VESSELS THAT MAY HAVE A SPECIAL WORKING DECK :

- Commercial net fishing vessels, trawler booms
- Pilot launches and lines vessels
- Tugs and vessels engaged in towing operations
- Dredgers, anchor handlers, mooring / pipeline servicing vessels, cable laying vessels, construction barges with cranes fitted

spiral stairway means a stair with a circular plan, comprised of tapered treads that radiate from a common centre or several radii.

steering position means the location in the operating station where the means for controlling the vessel during navigation are located.

stringer means the frame of a ladder.

tapered tread means a stair tread with a walking area that grows smaller towards an end.

toilet means a fixed or secured toilet or receptacle into which a person may urinate or defecate in a ventilated space.

tread means the step of a step ladder.

voyage means a journey by water for the duration of time a person remains on the vessel without access to shore-based facilities.

It includes the time taken to load and unload the vessel while it is berthed or docked.

NOTE 1 Disembarking at a location where there are no shore-based facilities would not re-start the voyage time. On the other hand, a vessel that operates close to shore, with ready access to shore-based facilities, would not be considered to be on an extended voyage.

NOTE 2 For the purposes of the assignment of accommodation levels, the voyage will generally only re-start where a person has access to shore-based sleeping facilities – see clause 4.2.

walkway means a passageway that is either level or sloping from the surrounding floor or level, including a continuous structure or steps with landings.

winders means tapered treads within a straight flight that are used to change direction of the stair.

(3) In this Section, the following terms have the meaning given by the Dictionary in NSCV Part B:

accommodation space
Class 1 vessel
Class 2 vessel
Class 3 vessel
crew
fishing vessel
hazard
maximum speed
measured length
non-passenger vessel
operational area
owner
passenger
passenger vessel
risk
service category
sheltered waters
special personnel
special purpose vessel
superstructure
vessel

CHAPTER 2 REQUIRED OUTCOMES

2.1 Meeting the required outcomes

(1) A vessel must be designed, constructed, arranged, maintained, and serviced so that the required outcomes mentioned in clause 2.2 that apply to the vessel are met.

(2) The required outcomes are met if the deemed to satisfy solutions contained in Chapters 3 to 6 that apply to the vessel are met.

2.2 The required outcomes

A. Operating stations (Chapter 3)

A1. Perception and situational awareness

A vessel must be arranged to ensure obligations under COLREGs can be met.

A vessel must be designed and arranged to enable the master and crew to;

(a) maintain at all times a proper look-out by sight and hearing; and

(b) make a full appraisal of the situation and the risk of collision, stranding, and other hazards to navigation, for the conditions and circumstances in which the vessel will operate.

A2. Human factors

A vessel's operating station design must consider human factors to ensure safe operations, reduce the likelihood of error, enhance comfort, reduce fatigue, and increase efficiency.

B. Accommodation spaces (Chapter 4)

B1. Minimum clear height between decks

The space between deck and deck head on a vessel must be sufficient:

(a) for persons to avoid head or neck injury from accidental physical contact with the deckhead, deck beams or other items that project below the deck head; and

(b) to allow the rapid movement of persons along escape and evacuation routes if there is an emergency.

B2. Passenger and crew spaces

A vessel's passenger and crew spaces must be designed and arranged to:

(a) minimise the risk of injury to occupants during normal vessel motions and during emergency conditions which can result in excessive vessel motions; and

(b) allow for the quick escape from hazards within the spaces and provide sufficient free space to allow occupants to move away quickly from the immediate vicinity of any hazards that might develop within the space; and

(c) ensure the safe movement of persons and provide sufficient free space to allow the movement of persons to occur without undue physical contact with other persons in the space; and

(d) ensure heavy items of equipment are securely fastened in place to prevent movement during severe vessel motions in order to minimise the risk of injury to occupants.

B3. Berthed accommodation

For a vessel with berthed accommodation, the accommodation must be designed and arranged to:

(a) provide an environment that facilitates the rest and sleep of crew members and passengers; and

(b) facilitate the prevention of the spread of disease and minimise other risks to health; and

(c) provide sufficient personal space in sleeping accommodation to minimise interference that may compromise the harmony between persons on board the vessel; and

(d) maintain social harmony, particularly where crew are expected to live on board for extended periods.

B4. Sanitary arrangements

A vessel's sanitary arrangements must be designed and arranged:

(a) so that persons on board can access toilet facilities without engaging in hazardous behaviour;

(b) to promote hygienic behaviour through sufficient and appropriate toilet and washing facilities;

(c) to protect the privacy of a person using the sanitary facilities; and

(d) to prevent the growth and transmission of micro-organisms by providing arrangements for:

(i) human waste to be collected, transported and disposed of in a manner that protects the health of persons and prevents the transmission of disease; and

(ii) the regular and effective cleaning of sanitary facilities to avoid the build up of unsanitary substances on sanitary facilities and promoting sanitary device use.

EXAMPLE OF HAZARDOUS BEHAVIOUR: Leaning over rails and bulwarks or being exposed to the force of the sea.

B5. Galley and food storage facilities

For a vessel on voyages without access to land-based facilities, the vessel must have cooking areas, food storage facilities and food waste facilities that are appropriate for the duration of the voyage and the number of persons on board the vessel.

B6. Medical care on board vessels

Vessels designed for extended operations must have adequate dedicated space for the medical / first aid facilities appropriate to their intended area of operation.

B7. Vessel potable water arrangements

A vessel must have appropriate provisions of potable water for each person on board that complies with the Australian Drinking Water Guidelines, published by the National Health and Medical Research Council (NHMRC), as in force from time to time.

The quantity of potable water needs to take into account the duration of the voyage and access to additional potable water or facilities to supply additional potable water. All made or supplied water must be stored in a manner which ensures that it remains potable.

C. Escapes and evacuation (Chapter 5)

C1. Exits, escapes and evacuation

A vessel's access, exits and means of escape must be designed and arranged to:

(a) provide escape routes of sufficient number and size to eliminate or reduce to acceptable levels the exposure of persons on board the vessel to hazards such as fire, smoke and flooding;

(b) provide alternative escape routes that control the risk of entrapment from the blocking of a single escape route, having regard to the magnitude of risk if the escape route is blocked (eg the likelihood and consequences of exposure to hazards);

(c) facilitate in an emergency the orderly and timely movement of persons:

(i) between decks;

(ii) to places of assembly; and

(iii) to disembarkation points for evacuation into survival craft;

(d) facilitate movement between different deck levels in a way which avoids tripping hazards;

(e) accommodate all persons on board including when they are wearing a lifejacket of the type required to be provided on board the vessel; and

NOTE Designs and layouts should consider the range of potential users and make any design limitations clear.

(f) ensure that exits, evacuation routes, escape routes and their means of opening are adequately marked with signage and symbols which promote rapid identification and interpretation in the event of emergency.

EXAMPLE A person's language capabilities should not be a barrier to understanding.

D. Personal safety (Chapter 6)

D1. Protection of persons from the elements

A vessel must be designed and arranged to:

(a) provide adequate protection from the sea and weather for persons on board the vessel and:

(b) reduce to acceptable levels the risk to persons from being physically injured because of exposure to seas that might come onto the deck of the vessel; and

(c) minimise the adverse health and fatigue effects on persons that arise from being exposed for extended periods to extremes of weather.

D2. Bulwarks and guard rails

A vessel's bulwarks and guard rails must be designed and arranged to:

(a) eliminate or reduce to acceptable levels the risk of persons falling overboard taking into account the competence and physical characteristics of the persons;

(b) eliminate or reduce to acceptable levels the risk of a person falling from elevated locations taking into account the competence and physical characteristics of a person; and

(c) prevent a person lying on the deck from falling (either overboard or from elevated locations) due to seas on deck, excessive deck angles or excessive accelerations.

D3. Protection of the crew and passengers from machinery and hazards

A vessel must be provided with measures to eliminate or reduce to acceptable levels the risks:

(a) to persons from hazards arising from machinery operating on the vessel;

(b) associated with fall and slip hazards; and

(c) of hearing damage generated by noise.

D4. Safe access to and from vessels

A vessel must have safe means for a person to board, or disembark from, the vessel to a wharf, to another shoreside location, to another vessel, or to an appropriate structure, taking into account:

(a) variations in wharf height;

(b) tidal range;

(c) movement of the vessel due to waves, wind or current;

(d) the surfaces to which a person is likely to require access;

(e) the type of vessel; and

(f) the needs of all likely users.

NOTE A 'user needs analysis' prepared with the input of the owner or operator may be required to ensure the capabilities of the user are represented in the design.

D5. Accessibility arrangements on public transport vessels

The arrangement of a vessel considered to be a public transport vessel must be suitable for persons with disabilities.

NOTE 1 Vessels considered public transport vessels may be subject to disability discrimination legislation and access requirements administered by other regulators.

NOTE 2 The *Disability Standards for Accessible Public Transport 2002* are formulated under subsection 31(1) of the *Disability Discrimination Act 1992* and contain specific obligations for public transport operators and providers, including conveyance and infrastructure design requirements.

D6. Vessel to vessel transfer and pilot transfer arrangements

If the transfer of a person or a pilot from a vessel to another vessel is likely or envisaged, a safe means for affecting the transfer must be provided.

D7. Pilot launch design and equipment

A pilot launch must be designed, fitted and equipped to ensure safe operation and safe pilot transfer.

D8. Retrieval of a person overboard

A vessel must be designed and arranged to enable the retrieval of a person overboard without the person or rescuer(s) being exposed to additional risks.

CHAPTER 3 OPERATING STATIONS

3.1 Application

This Chapter applies to each operating station on a vessel.

DEEMED TO SATISFY SOLUTIONS

3.2 Location of the operating position

The operating position must:

(a) allow the operator to conveniently and rapidly control the heading, speed and direction of the vessel while remaining alert for navigational hazards; and

(b) be located and arranged to meet the vertical eye positions above the deck mentioned in Table 1.

Table 1 Vertical eye positions above the deck

	Standing: (including 20 mm footwear) above deck (mm)	**Seated: above the surface of the compressed seat (mm)**
High eye position	1770	860
Low eye position	1550	745

3.3 Class 1 (passenger) vessel of measured length at least 24 m

On a Class 1 vessel of at least 24 m measured length, the primary operating station:

(a) must be separated from passenger spaces; and

(b) must not be used for purposes other than navigation, communications, provision of watchkeeper amenities or other functions essential to the safe operation of the craft, its engines, passengers and cargo.

3.4 Field of vision from the primary operating station

(1) The primary operating station on the vessel must comply with either

(a) Table 2 and Figure 2 to 7 as applicable to the vessel, when the vessel is at both the lightest and heaviest design draft and throughout the range of operational trims; or

(b) for vessels <24m, ISO 11591 Small craft – Field of vision from the steering position.

(2) If the vessel can be operated from both the seated and standing positions, but can only meet the standard from either the seated or standing position, a clearly visible notice must be attached to the operating position which informs the operator that visibility is limited from the non-compliant position.

Table 2 Field of vision from the primary operating station on vessels

Item	Criteria <45m Vessels	Criteria ≥45m Vessels
<u>View forward from operating position</u>		
3.4.3.1	The view of the sea surface forward of the bow, from the operating position, must be clear and unobscured for at least: (a) for a vessel L_m ≤12.5 m — four times the vessel's measured length; (b) for a vessel L_m >12.5 m to ≤25 m — 50 m; and (c) for a vessel L_m >25 m — twice the vessel's measured length. (See Figure 4)	
3.4.3.2	Subject to the allowances set out in this table, the view mentioned in 3.4.3.1 must be clear horizontally from straight ahead at least 15º to the left and at least 15º to the right of the eye positions (both low and high) under all conditions of draft, trim and deck cargo (see Figure 5 and Figure 6).	Subject to the allowances set out in this table, the view mentioned in 3.4.3.1 must be clear horizontally from straight ahead at least 10º to the left and at least 10º to the right of the eye positions (both low and high) under all conditions of draft, trim and deck cargo (see Figure 7).
3.4.3.3	In the view mentioned in 3.4.3.1, the clear sectors between any blind sectors must be at least 5° and each individual blind sector must not exceed 5° (see Figure 5 and Figure 6 for vessels <45 m and Figure 7 for vessels ≥45 m).	
3.4.3.4	Fixed obstructions to vision from the operating position within the forward 30º sector of visibility must be limited to essential hardware, eg cleats, deck stanchions, navigation lights and windshield wipers.	Fixed obstructions to vision from the operating position within the forward 20º sector of visibility must be limited to essential hardware, eg cleats, deck stanchions, navigation lights and windshield wipers.
3.4.3.5	Obstructions to visibility within the forward 30º sector must be arranged to avoid significant enlargement by overlapping when viewed at positions within the range of high to low eye positions.	Obstructions to visibility within the forward 20º sector must be arranged to avoid significant enlargement by overlapping when viewed at positions within the range of high to low eye positions.
3.4.3.6	Not applicable.	Framing between operating station windows must not be installed immediately forward of any operating position.
<u>Horizontal field of vision</u>		
3.4.3.7	The horizontal field of vision from the eye position at the operating position must be provided throughout a horizontal arc of at least between: (a) if the operating position is in the centre of the vessel, 112.5° to starboard from straight ahead and	The horizontal field of vision from the eye position at the operating position must be provided throughout a horizontal arc of at least between 112.5° to starboard from straight ahead and 112.5° to port from straight ahead (see Figure 7). For port side, starboard side or centreline steering position, these angles of vision to port

Item	Criteria <45m Vessels	Criteria ≥45m Vessels
	112.5° to port from straight ahead; or (b) if the operating position is not in the centre of the vessel, 112.5° to starboard from straight ahead and 90° to port from straight ahead. See Figure 5 and Figure 6. For port side, starboard side or centreline steering position, these angles of vision to port and starboard, are required without the operator leaving the steering position.	and starboard, are required without the operator leaving the steering position.
3.4.3.8	Permanent and removable obstructions to vision must be such that clear vision from the eye position can be maintained with normal movement of the operator while maintaining control of the craft.	Not applicable.
3.4.3.9	The total arc of blind sectors forward of the beam must not exceed 20° (see Figure 5 and Figure 6 for vessels <45 m and Figure 7 for vessels ≥45 m).	
3.4.3.10	Framing between operating station windows must be kept to a minimum.	
3.4.3.11	From the main steering position, the horizontal field of vision must extend over an arc from right ahead to at least 60° on each side of the vessel.	
Vertical field of vision from the operating position		
3.4.3.12	There must be no obstruction to obscure the forward view mentioned in item 3.4.3.1 when viewed from the low eye position mentioned in Table 1.	
3.4.3.13	The upper edge of any operating station front windows, awning or other similar obstruction must allow a forward view of the horizon, for a person with a height of eye of 1770 mm above the deck at the operating position, including when the vessel is experiencing pitching within its environmental design parameters. (See Figure 2 and Figure 3)	
View to the sides of the vessel		
3.4.3.14	Not applicable.	The operating station must be arranged with at least one location on each side that provides a horizontal field of vision extending over an arc at least 225°, from at least 45° on the opposite bow through right ahead and then from right ahead to right astern through 180° on the same side of the vessel.
3.4.3.15	At the least operational draft, the sea surface at a transverse distance of 1,500 mm from the maximum beam throughout a vessel length along each	At the least operational draft, the side of the vessel on each side must be visible from an operating station.

Item	Criteria <45m Vessels	Criteria ≥45m Vessels
	side must be visible from a location in the operating station.	
Field of vision astern		
3.4.3.16	If the operating position is in the centre of the vessel, the criteria for ≥45 m vessels applies. If the operating position is not in the centre of the vessel, and if permanent obstructions to vision exist in the aft 157.5º sector of visibility, unobstructed visibility must be provided while maintaining control of the vessel by alternative means.	If permanent obstructions to vision exist in the aft 135º sector of visibility from 67.5º each side of the centreline from astern, unobstructed visibility must be provided while maintaining control of the vessel by alternative means. Examples may include: 1. Normal movement of the operator; 2. Mirrors.
Operating station windows		
3.4.3.17	Not applicable.	The front windows of any wholly or partially enclosed operating station must be inclined from the vertical plane top out, at an angle of at least 10° and not more than 25°.
3.4.3.18	Polarised and tinted windows must not be fitted in the operating station within the forward-facing sector defined by: (a) the horizontal arc from directly forward to 112.5º on the starboard side; and (b) the horizontal arc from directly forward to 112.5º on the port side. Vessels which use the aft windows for navigation, must not have tinted or polarised aft windows. May include a tug which operates astern. In addition, windows which are not used for navigation, such as skyward facing windows on tugs, may be tinted.(See **Figure 5** and Figure 6) This provision does not prevent safety glazing in accordance with clause 3.5(2).	Polarised or tinted windows must not be fitted to windows in the operating station. (See **Figure 7**) This provision does not prevent safety glazing in accordance with clause 3.5(2).
3.4.3.19	A means must be provided for maintaining a clear view at all times, regardless of weather conditions, through at least one of the front windows of an operating station, where the operating station is wholly or partially enclosed.	A means must be provided for maintaining clear vision at all times, regardless of weather conditions, through at least 2 of the front windows of an operating station, where it is wholly or partially enclosed. The 2

Item	Criteria <45m Vessels	Criteria ≥45m Vessels
		windows must be located so that the clear view is readily obtained from: (a) the operating position; and (b) if the steering position is not the same as the operating position — the steering position.

NOTE L_m means measured length.

Figure 2 Field of vision from the operating station for vessels <45 m

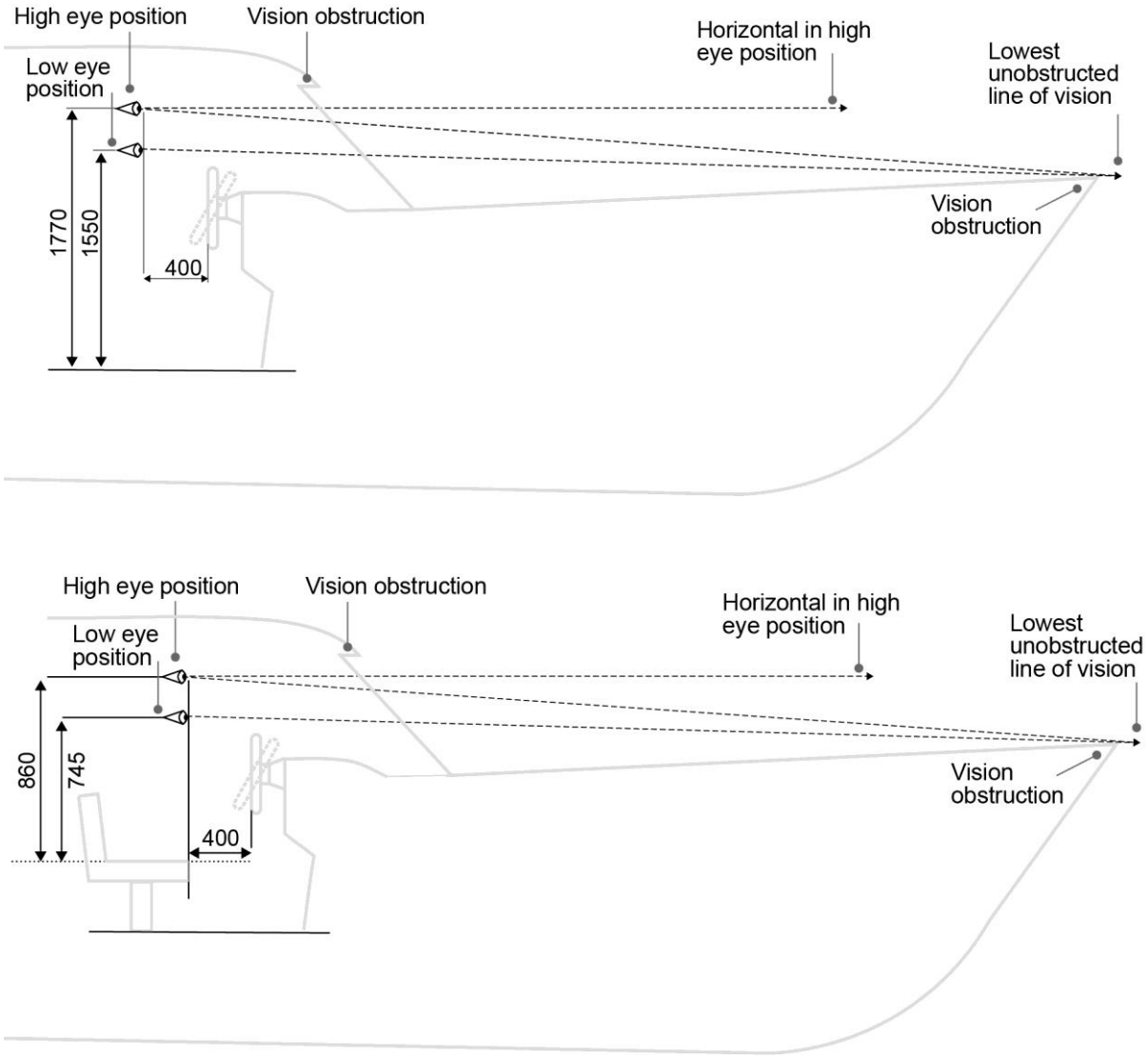
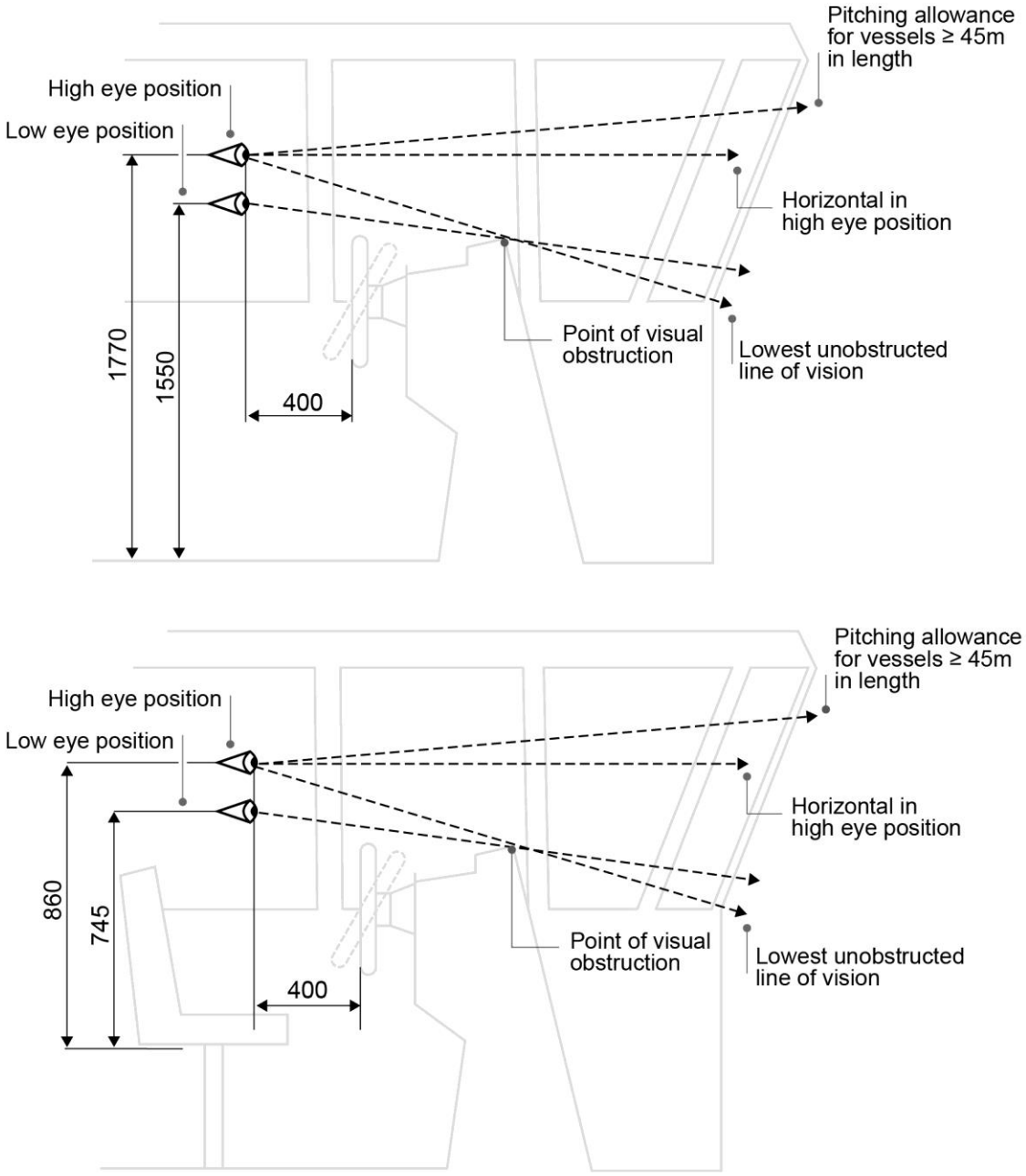


Figure 3 Field of vision from the operating station for vessels ≥45 m



KEY to Figure 3:

“Pitching allowance” is not specified but should be reasonable for the design of the vessel.

Figure 4 Field of vision from the operating station

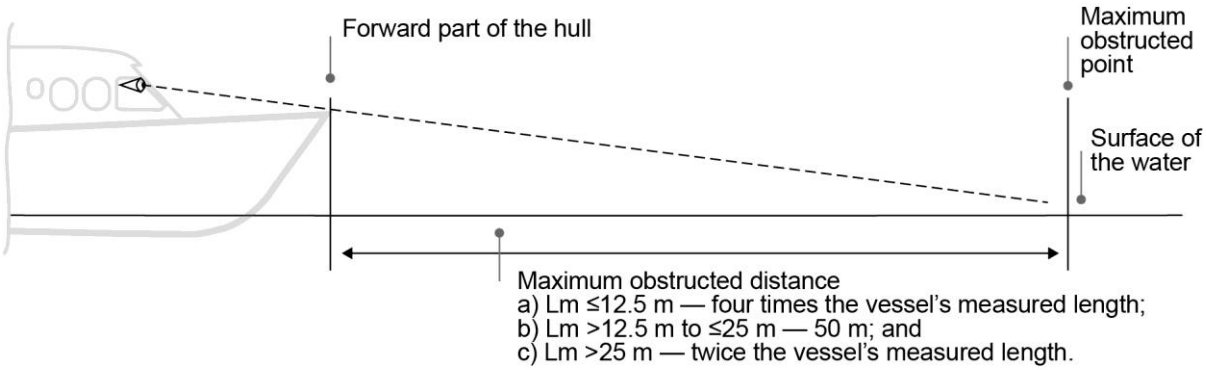


Figure 5 Field of vision from centre line operating position for vessels <45 m

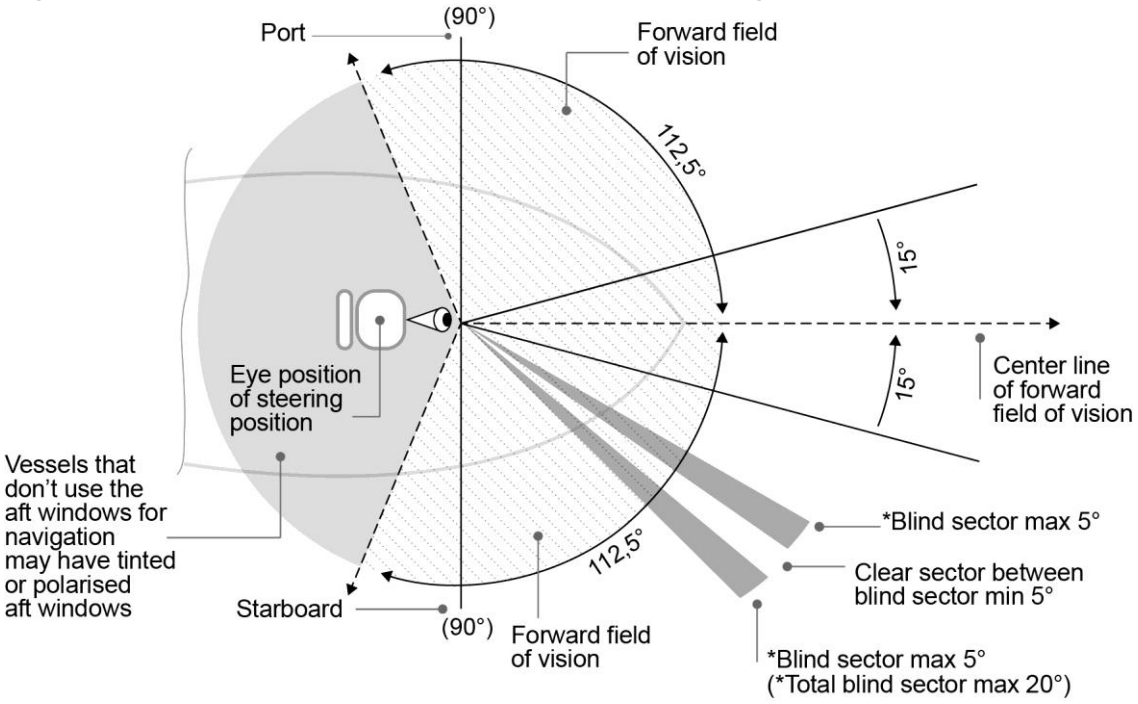


Figure 6 Field of vision from off set starboard operating position for vessels <45 m

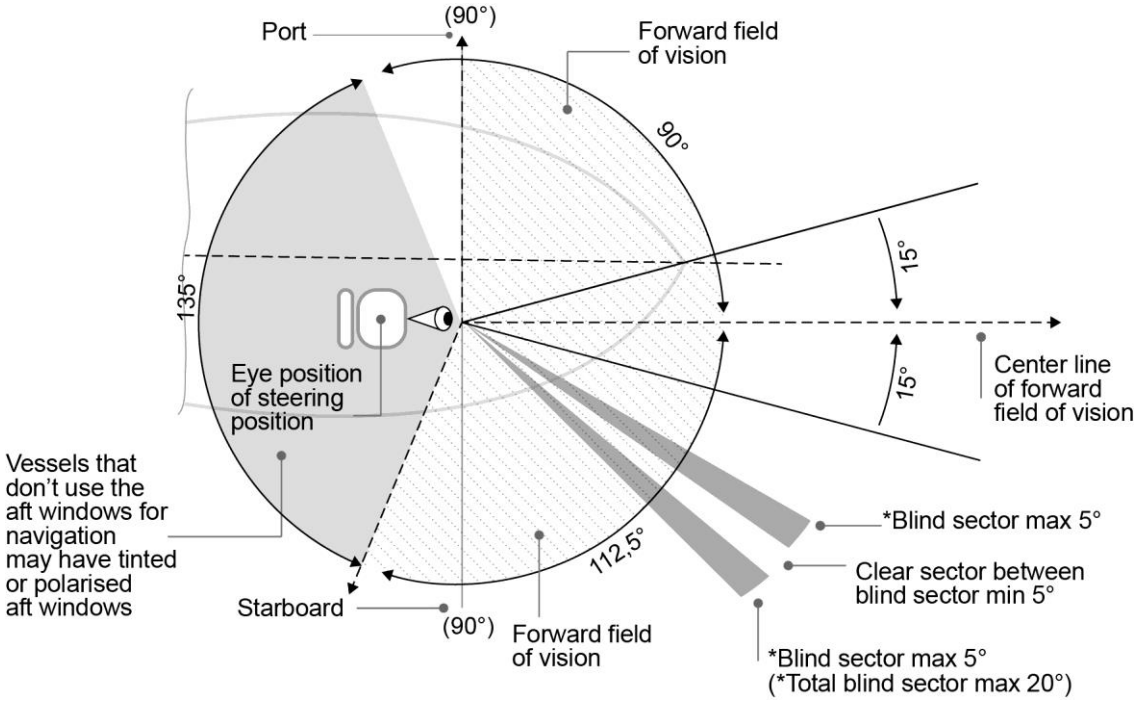
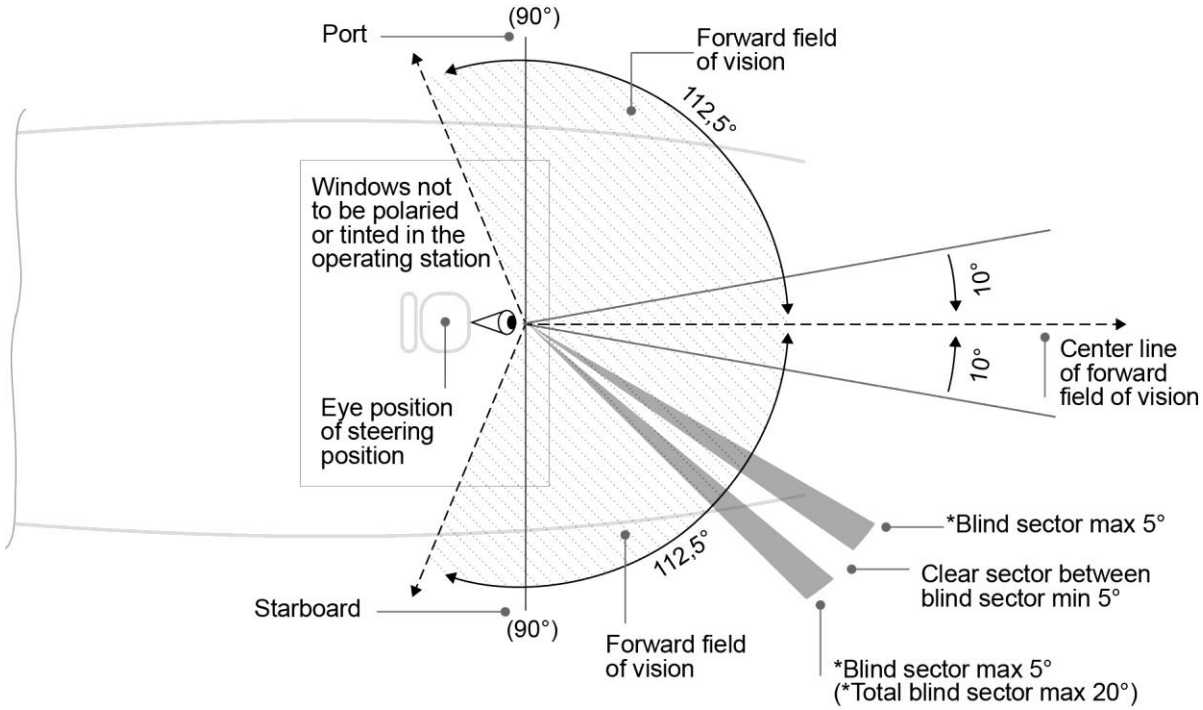


Figure 7 Field of vision from the operating position for vessels ≥45 m



3.5 Glazing materials and blinds for windows used for navigation

(1) Windows used for navigation must be glass or an equivalent material that has low levels of distortion and is resistant to scratching and crazing over time.

(2) Windows used for the safe navigation of the vessel by a person at an operating station must have a luminescence transmittance of at least 70%, measured in accordance with AS/NZS 2080- *Safety Glazing for Land Vehicles*.

NOTE Clause 3.4.3.18 limits the use of polarised and tinted windows in the operating station.

(3) Any glazing materials used in a window mentioned in clause 3.5(2) must not interfere with recognition of the colour of lights or other navigational markers seen through the material.

(4) A window within the operating station may have a blind of Mylar (tinted) or similar material to reduce eye strain in bright sunshine provided the blind complies with all of the following:

(a) low optical distortion;

(b) anti glare reduction of 80% or more;

(c) visible light transmission of at least 6.0%;

(d) does not interfere with recongition of outside colours; and

(e) has a contained mechnanism (chain or button) that allows the blind to be fully opened or fully closed.

NOTE It is recommended that blinds are Type Approved by a Recognised Organisation or comply with *ISO 8468 Ships and marine technology* – Ship's bridge layout and associated equipment – Requirements and guidelines.

3.6 Operating station layout, design and arrangement of navigational systems and equipment

(1) The layout of the operating station must be designed to facilitate the following:

(a) maintaining a proper lookout from the operating station in accordance with COLREGs;

(b) use of controls for steering, propulsion and trim so that during use, operator hand contact can be maintained without movement of the operator's eyes below the eye position for which the vessel is designed;

(c) the proper monitoring and use of equipment essential for command, navigation and maneuvering without compromising the operator's obligations to operate the vessel in accordance with COLREGs; and

(d) the proper monitoring and use of communications equipment without interfering with the primary navigational functions in the operating station.

(2) The operating station must be located and arranged to prevent or minimise distractions that might interfere with the vigilance of the operator.

(3) The operating station must be located and arranged to prevent or minimise fatigue by avoiding any excessive or unnecessary effort required of the operator in fulfilling his or her duties.

(4) Consoles and equipment within the operating station must:

(a) be designed and constructed to provide convenient and continuous access to information essential for controlling and monitoring the vessel and its safety, in full daylight and in darkness; and

(b) have information presented in a clear and unambiguous manner using standardised symbols and coding systems for controls and displays.

(5) Indicators and controls in consoles must be:

(a) arranged to reduce the risk of adverse consequences arising from inadvertent error in use;

(b) grouped to facilitate their correct operation; and

(c) isolated from other controls if mistaken operation of the controls would cause a serious reduction in safety.

(6) The operating station must be illuminated such that it is possible to discern displayed information and control devices in daylight and at night. In addition:

(a) the operating station must be arranged and equipped with sufficient control over lighting sources and lighting levels to allow the operator, during hours of darkness, to attain and maintain the levels of dark adaption that may be required to fulfil the operator's obligations under COLREGs; and

(b) care must be taken to avoid glare and stray image reflection in way of the operating station.

(7) An operating station on a vessel may incorporate a seat that is arranged to be longitudinally or vertically adjustable.

(8) On a vessel having more than 1 steering position, any steering position with propulsion and maneuvering controls that are not in use must be able to be disengaged. However, sailing craft may be provided with multiple steering means some of which can't be disengaged and must be designed to allow safe and controllable transfer from one steering means to another.

CHAPTER 4 ACCOMMODATION SPACES

4.1 Application

This Chapter applies to all vessels.

DEEMED TO SATISFY SOLUTIONS

ACCOMMODATION, RECREATIONAL FACILITIES, FOOD AND CATERING

4.2 Accommodation level

A vessel must be assigned an accomodation level in accordance with Table 3.

Table 3 Assigned accommodation levels

Level	Vessels
AL72+	All operational area category A and B extended vessels; and operational Area B, C, D or E vessels with voyage durations greater than 72 hours without access to shore-based sleeping facilities
AL36-72	Operational Area B, C, D or E vessels with voyage durations greater than 36 hours and up to 72 hours without access to shore-based sleeping facilities
AL12-36	Operational Area B, C, D or E vessels on voyages without access to shore-based sleeping facilities for greater than 12 hours and up to 36 hours
AL≤12	Operational Area B, C, D or E vessels on voyages without access to shore-based sleeping facilities of up to 12 hours

NOTE For the purposes of the assignment of accommodation levels, the duration of the voyage includes the period of time during which a person on board the vessel does not have access to shore-based sleeping facilities. However, where all persons onboard disembark for sufficient time for adequate rest consistent with fatigue management, and have access to shore-based facilities, a new voyage commences when they return to the vessel.

4.3 Standards for accommodation spaces

(1) The vessel must comply with the provisions mentioned in Table 4 that apply to the accommodation level assigned to the vessel.

(2) For the purposes of this Chapter 4:

(a) for special purpose vessels and Class 1 vessels — the accommodation space standards for passengers also apply for any special personnel on board the vessel; and

(b) for all other vessels — the accommodation space standards for crew also apply for any special personnel on board the vessel.

NOTE A special purpose vessel means a non-passenger vessel that, because of its purpose, carries on board at least 13 special personnel, or at least 13 special personnel or passengers, of whom:

(a) at least 1 is special personnel; and

(b) not more than 12 are passengers.

See NSCV Part B for the definitions of special purpose vessel, special personnel and passenger.

Table 4 Application of provisions for accommodation spaces

Clause	AL≤12	AL12-36	AL36-72	AL72+
4.4 Headroom	Applies	Applies	Applies	Applies
4.5 Control of vermin and disease	Applies	Applies	Applies	Applies
4.6 Ventilation	Applies	Applies	Applies	Applies
4.7 Temperature control			Applies	Applies
4.8 Lighting	Applies	Applies	Applies	Applies
4.9 Noise and vibration	Applies	Applies	Applies	Applies
4.10 Crew accommodation	Applies	Applies	Applies	Applies
4.11 Crew sleeping accommodation			Applies	Applies**
4.12 Berths for crew		Partially applies	Applies	Applies**
4.13 Deck area for passengers	Passenger carrying vessels	Passenger carrying vessels	Passenger carrying vessels	Passenger carrying vessels
4.14 Seating accommodation for passengers	Passenger carrying vessels	Passenger carrying vessels	Passenger carrying vessels	Passenger carrying vessels
4.15 Sleeping accommodation for passengers			Applies	Applies
4.16 Access for persons with disabilities	Some Class 1	Some Class 1	Some Class 1	Some Class 1
4.17 Facilities for sick or injured persons				Applies
4.18 Recreational and mess facilities for crew			Applies	Applies**
4.19 Galley and food storage facilities			Applies	Applies**
4.20 Sanitary facilities	Applies*	Applies*	Applies	Applies
4.21 Crew cloak and laundry facilities	Applies	Applies	Applies	Applies
4.22 Potable water	Applies*	Applies	Applies	Applies

*There are exceptions for vessels on very short voyages, as set out in the provisions.

**Some larger vessels are required to comply with the MLC 2006 – see Table 6.

4.4 Headroom

(1) An accommodation space on a vessel must have headroom of at least:

(a) for a vessel less than 24 m in measured length — minimum of 1.9 m;

(b) for a vessel of at least 24 m but less than 35 m in measured length — minimum of 1.98 m; and

(c) for a vessel of at least 35 m measured length — minimum of 2.03 m.

NOTE Accommodation space is a defined term within NSCV Part B. To ensure vessels achieve the minimum headroom designers may need to consider things like lights, sensors and smoke detectors that can encroach on the minimum headroom.

(2) Headroom in an accommodation space may be reduced on Class 2 and Class 3 vessels in compartments that are not designed for permanent sustained occupation provided it is reasonable and does not result in discomfort to persons on board.

EXAMPLE: Compartments not designed for permanent sustained occupation (i.e. heads or toilets)

(3) The clear height above the top of each stair that forms a stairway must be:

(a) for a vessel less than 35 m measured length — minimum of 2 m; and

(b) for a vessel at least 35 m measured length — minimum 2.08 m.

NOTE This additional clear height above stairs allows for people moving up or down and horizontally in a dynamic fashion.

4.5 Control of vermin and disease

(1) Materials used to construct internal bulkheads, deckheads, panelling and sheeting, and floors and joinings on a vessel must be chosen and installed so that the materials:

(a) facilitate and withstand periodic cleaning, washing down and drying; and

(b) prevent the harbouring of vermin and insects.

(2) Accommodation spaces must be arranged to ensure that:

(a) excessive condensation on exposed internal bulkheads or deckheads is prevented; and

(b) decks subject to moisture in accommodation spaces have surfaces impervious to damp.

4.6 Ventilation

(1) All enclosed accommodation spaces must be ventilated at all times by either:

(a) mechanical ventilation at the following rates:

i. Class 1 vessels — capable of providing 10 changes of air per hour; and

ii. Class 2 and 3 vessels — capable of providing 6 changes of air per hour; or

(b) natural ventilation comprising of at least 2 openable windows or similar apertures (one inlet and one outlet) where the total area of the openable windows is at least 5% of the deck or floor area in that space.

NOTE 1 Changes of air per hour is calculated when all access and other openings (other than ventilation intakes) to the spaces are closed.

NOTE 2 Open vessels or small vessels with a superstructure and opening windows may rely on natural ventilation only if the standards in clause 4.6 and clause 4.7 can be satisfied.

(2) In addition:

(a) the ventilation system must supply air free of engine exhaust and other contaminants;

(b) all sanitary spaces must have ventilation to the open air, independently of any other part of the accommodation; and

(c) power for the operation of mechanical ventilation must be available at all times when the crew is living or working on board.

4.7 Temperature control

(1) Vessels assigned accommodation level AL72+ or AL36-72 must:

(a) be designed to ensure that a temperature range in crew accommodation spaces of between 14ºC and 30ºC is possible at least 95% of the time; and

(b) have an active means of temperature control to provide heating and cooling in all accommodation spaces to achieve clause 4.7(1)(a).

(2) The system of heating or cooling required under clause 4.7(1)(b) must be operable at all times when persons are living or working on board.

(3) For a vessel of at least 35 m measured length assigned accommodation level AL72+ or AL36-72 — the standards in clause 4.7(1) and 4.7(2) also apply to the operating station and any radio room and centralised machinery control room on the vessel.

NOTE Annual mean temperatures are available for land locations from the Bureau of Meteorology website.

4.8 Lighting

A vessel must have the following:

(a) lighting in all enclosed accommodation spaces, enabling:

(i) free movement around the accommodation space; and

(ii) a person to read; and

(b) a means of blocking natural light to sleeping spaces.

4.9 Noise and vibration

An accommodation space in a vessel must not expose a person in the space to noise levels that exceed the limits described Table 5.

Table 5 Standards for noise in accommodation spaces

Vessel size	Operational area category	Standard
<1600 gross tonnage	B, C, D and E	(a) the applicable work health and safety (WHS) regulations; and (b) the Model Code of Practice for managing noise and preventing hearing loss at work.
<500 gross tonnage	A or B extended	
≥1600 gross tonnage	B, C, D and E	*Code on noise levels on board ships 2012**
≥500 gross tonnage	A or B extended	

*If the *Code on noise levels on board ships* does not apply to the vessel under the application provisions of the code, the vessel must:

(a) be assessed in accordance with the standards mentioned in the code as if the code applied to the vessel; and

(b) adopt measures in accordance with the guidance provided in the ILO Code of *Practice Ambient factors in the workplace*, as amended from time to time, to ensure that the standards are complied with.

NOTE 1 Exposure limits take into account both the level of the noise and the amount of time a person is exposed to the noise. The Model WHS Regulations state noise exposure limits as LAeq,8h of 85 dB(A), or − LC,peak of 140 dB(C).

NOTE 2 As a guide, vessels over 50 m in length may exceed 1600 gross tonnage.

4.10 Crew accommodation

Berthed accommodation spaces for crew on a vessel must apply the standards mentioned for the vessel in Table 6.

Table 6 Accommodation, recreational facilities, food and catering for crew

Vessel type	Class of service: 1B extended, 1B, 2A, 2B extended, 2B	Class of service: All other classes
<24 m and ≤AL12-36 and <200 GT	Clauses 4.11(2), (4)(b), (5), (6), (7) and (8) and 4.12 of this Section, as applicable to the vessel.	
<24 m and AL36-72 and <200 GT	Clauses 4.11, 4.12, 4.18 and 4.19 of this Section, as applicable to the vessel.	
<24 m and AL72+ and <200 GT		
≥ 24 m	MLC 2006 regulation 3.1 (accommodation and recreational facilities). See Note 2.	Clauses 4.11, 4.12, 4.18 and 4.19 of this Section, as applicable to the vessel.
≥ 200 GT		

NOTE 1 A vessels' gross tonnage can be confirmed from the shipping register.

NOTE 2 The owner and or operator may have responsibilities around the supply of food and catering, see for example regulation 3.2 of MLC 2006.

NOTE 3 The standards mentioned in Table 6 also apply for special personnel on board the vessel, unless the vessel is a special purpose vessel or a Class 1 vessel – see clause 4.3(2).

4.11 Crew sleeping arrangements

(1) This clause applies to all vessels AL36-72 or AL72+that are not required to comply with the MLC 2006.

(2) Crew sleeping arrangements on a vessel operating at sea must be located to minimise the effects of motion and acceleration.

(3) Crew sleeping arrangements must be separate from cargo and storage spaces.

(4) Crew sleeping arrangements must be separated from other spaces on the vessel to prevent or minimise the following:

(a) movement of persons to other spaces via the crew sleeping arrangements;

(b) liquids, odours and fumes entering into the crew sleeping arrangements from other spaces.

(5) Bulkheads separating crew sleeping arrangements from cargo holds, fish rooms and machinery spaces must be watertight and gastight.

(6) Except for emergency means of escape, there must be no direct openings into crew sleeping arrangements from:

(a) cargo holds, fish rooms or machinery spaces; and

(b) on a vessel of at least 35 m measured length :

(i) galleys;

(ii) storerooms; and

(iii) drying rooms.

(7) Crew sleeping arrangements on a vessel must have the following measures:

(a) on a vessel assigned accommodation level AL36-72 or AL72+, the maximum number of crew per crew sleeping arrangements must not exceed the number mentioned in Table 7 for the accommodation level and measured length (L_m) of the vessel;

(b) on a vessel assigned accommodation level AL72+, officers must be accommodated in sleeping rooms that are separate from the crew;

(c) crew sleeping arrangements must be arranged to provide appropriate levels of privacy for all persons on board; and

(d) the maximum number of crew to be accommodated in any crew sleeping arrangement must be legibly and indelibly marked on the exterior and interior of the crew sleeping arrangement door.

(8) The floor area inside a crew sleeping arrangement must:

(a) have adequate space and comfort for the crew occupying the room; and

(b) on a vessel assigned accommodation level AL36-72 or AL72+, have a minimum floor area per person, excluding space occupied by berths and lockers, of at least that mentioned in Table 7 for the accommodation level and measured length (L_m) of the vessel.

Table 7 Minimum floor area and maximum number of crew in crew sleeping arrangements

Accommodation level	Maximum number of crew per sleeping room	Minimum required clear deck area per person (m^2)			
		$L_m \geq 35$ m	$L_m < 35$ m to 24 m	$L_m < 24$ m	All
		Sleeping room	Sleeping room	Sleeping room	Total, including communal areas for recreational use, excluding passageways
AL72+	4	2.0	0.9	0.9	2.0
AL36-72	6	1.5	0.7	0.5	1.5

NOTE The minimum floor area required in Table 7 for sleeping rooms does not include floor space occupied by berths and lockers or other furniture. This is different to the approach taken in the Maritime Labor Convention 2006 where the calculation of floor area for sleeping rooms includes space occupied by berths, lockers, chests of drawers and seats.

4.12 Berths for crew

(1) This clause applies to all vessels that are not required to comply with the MLC 2006, other than a vessel assigned accommodation level AL≤12.

(2) Vessels on voyages of 36 hours or longer must have the following for each member of the crew:

(a) a separate berth; and

(b) a mattress.

(3) Berths must be located so that a person can reach a berth without disturbing a person occupying another berth.

(4) The material and construction of a berth and mattress must be resistant to vermin infestation and facilitate restful sleep.

(5) The minimum inside dimensions of the berths must be at least those mentioned in Table 8.

Table 8 Minimum dimensions of sleeping berths

Minimum berth dimensions inside length (mm) x breadth (mm)		
Vessel kind	**Length of berth (mm)**	**Breadth of berth (mm)**
AL12 — 36* vessels	1900	700
AL 36-72 and AL 72+ vessels	1980	800

*A vessel AL≤12 is not required to comply with Table 8.

(6) Berths may be arranged in tiers if:

(a) the minimum clear height between decks is at least 1900 mm; and

(b) a tier has no more than 2 berths; and

(c) the underside of the mattress of the lower berth is at least 300 mm above the deck; and

(d) the clear space between the topside of the mattress of the lower berth and the underside of the top berth is at least 635 mm; and

(e) the upper berth is placed approximately midway between the bottom of the lower berth and the lower side of the deckhead beams; and

(f) the upper berth has a barrier preventing dust from dropping onto the lower berth.

(7) A sleeping room must have the following:

(a) separate locker space for each person for clothing and other personal effects;

(b) for a vessel assigned accommodation level AL72+ — the locker space for each person must have:

(i) a suitable locking device; and

(ii) a rod for holding clothes on hangers; and

(iii) a drawer or equivalent space that is at least 0.06 m^3;

(c) a suitable writing surface on a vessel assigned accommodation level AL72+; and

(d) for a vessel more than 35 m measured length assigned accommodation level AL72+ — a writing surface that is a desk, and a chair.

PASSENGER SPACES

NOTE The standards contained in clauses 4.13, 4.14 and 4.15 also apply for special personnel on board the vessel, where the vessel is a special purpose vessel or a Class 1 vessel – see clause 4.3(2).

4.13 Deck area for passengers

(1) This clause applies to passenger carrying vessels.

(2) The maximum number of passengers allowed access to a deck is the least number determined in accordance with the following criteria:

(a) intact stability in NSCV C6A;

(b) buoyancy and stability after flooding in NSCV C6B;

(c) minimum clear deck area in Table 9;

(d) minimum seating in Table 10; and

(e) escape or evacuation mentioned in Chapter 6.

NOTE The total number of passengers may also be limited by the quantity of life-saving equipment fitted to the vessel—see NSCV C7A.

(3) Each deck on a passenger-carrying vessel must have a minimum clear deck area per passenger of at least that mentioned in Table 9.

Table 9 Minimum required clear deck area per passenger

Class of vessel	Minimum clear deck area in m^2/passenger	
	Passage time >2 hours	Passage time ≤2 hours
A, B extended, B	0.85	N/A
C	0.81	0.55
D	0.55	0.55
E	0.55	0.40

(4) For determining the available clear deck area:

(a) a seated person must not be deducted from the number of persons used in the calculation; and

(b) an area for seating must not be deducted from the available area if:

(i) the seat allocated to a single person is not of excessive size; and

(ii) the number of seats provided does not exceed the number of persons intended to use the space; and

(c) if fixed seating is fitted at the perimeter of the space, the measurements must be taken from the front surface of the back of the seat; and

(d) if the area of an individual seat, including 300 mm leg room, exceeds the required area per person mentioned in Table 9 the area exceeding must be deducted from the available clear deck area.

4.14 Seating accommodation for passengers

(1) This clause applies to passenger carrying vessels.

(2) A vessel must have seating accommodation as follows:

(a) for a vessel in operational area A, B extended or B — seating provision must be made for each passenger; and

(b) for a vessel in operational area C, D or E — the seating mentioned in Table 10 is required.

Table 10 Minimum required seating accommodation for passengers on vessels in operational areas C, D and E

Anticipated time on board	Minimum seating as a proportion of total number of passengers (%)		
	Operational area C	Operational area D	Operational area E
≥60 minutes	100%	100%	100%
≥30 and <60 minutes	100%	100%	75%
≥15 and <30 minutes	100%	75%	40%
<15 minutes	75%	40%	40%

(3) Seating for passengers on a vessel must:

(a) be in a position:

(i) protected from the force of the sea; and

(ii) where the likelihood of falling overboard or injury is minimal; and

(b) have either:

(i) an adequate backrest or support; or

(ii) adequate hand holds for the seated person; and

(c) not be placed along the collar of a collared vessel, unless clause 4.14(5) applies; and

(d) consist of at least 475 mm of seating for each person if continuous seating is provided;

(e) for public transport vessels, not be located in the 'no climb zone' described in Annex C, unless the handrail, bulwark or guardrail height above deck is increased as described in Annex C, or the signage requirements of clause 6.5 are met; and

NOTE See clause 6.5 for the 'no climb zone' requirements for public transport vessels. As set out in clause 6.5, the higher order controls of elimination of seating or increased handrail, bulwark or guardrail heights, are preferred.

(f) if portable seating is used, it must:

(i) have at least a working load limit of 200 kg per seat; and

(ii) only be used on vessels >12 m in length; and

(iii) be restricted to use in E or D waters when the wave heights do not exceed 0.6 m.

NOTE Portable deck furniture can create hazards by encroaching on an escape or evacuation path. It is recommended that controls are put in place to mitigate these risks. NSCV Part B uses significant wave height.

(4) A vessel must have the following seating arrangements:

(a) for seats arranged in rows facing one way — the distance from seat front to seat front must be at least 750 mm;

(b) aisles forming passageways between banks of fixed seating must at least the widths mentioned in Table 11;

(c) the clearance between rows of fixed seats measured horizontally from the squab of the seat must be at least:

(i) 300 mm if the distance from a seat to an aisle is 3.5 m or less; or

(ii) 500 mm if the distance from a seat to an aisle is more than 3.5 m.

Table 11 Aisles forming passageways between banks of fixed seating

Number of persons served	Minimum width of aisle (mm) For aisle length	
	≤4.5 m	>4.5 m
Up to 18	See clause 5.11	See clause 5.11
18 to 72	600	750
More than 72	750	750

(5) For a collared vessel carrying divers and operating at speeds of up to 25 knots, inclusion of sections of the collar as seating is permitted if the seating on the collar complies with the following:

(a) the upper surface of the collar in the way of the seat is at least 400 mm above the cockpit deck;

(b) the surface of the collar has a slip-resistant surface at the point where each diver is seated with at least 700 mm of collar length for each diver;

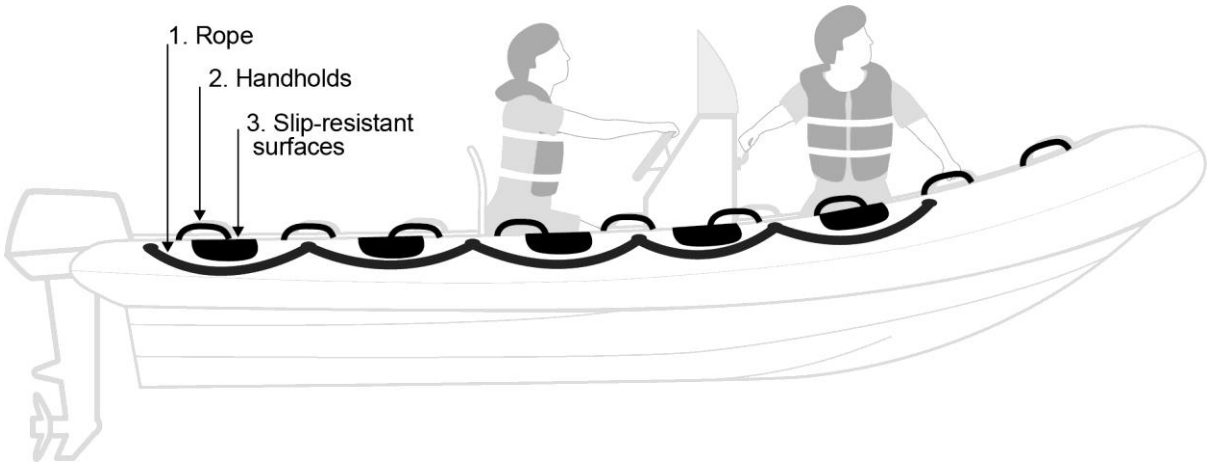
(c) each diver is provided with at least 2 points of attachment to the vessel;

(d) the points of attachment are arranged to ensure that holding on to the attachments prevents the diver from falling overboard; and

(e) only 1 point of attachment is fixed directly to the collar itself.

EXAMPLE Figure 8 illustrates the requirements of clause 4.14(5).

Figure 8 Example of collared vessel seating and points of attachment



NOTE NSCV Part C6A also contains requirements for seating on collared vessels.

4.15 Sleeping accommodation for passengers

(1) A vessel assigned accommodation level AL36-72 or AL72+ that carries passengers must have sleeping accommodation for passengers that complies with this clause.

(2) Sleeping accommodation for passengers must be separate from crew sleeping places, cargo and storage spaces, and each passenger must be supplied a berth with a mattress.

NOTE A double berth may be provided to accommodate two passengers provided the relevant passengers are made aware of this prior to booking. However, where this clause 4.15 applies to vessels which carry special personnel, each special personnel must be provided with a separate berth.

(3) Sleeping areas for passengers must be safe and hygenic for the intended passenger.

NOTE For vessels providing public transport, see the *Disability Standards for Accessible Public Transport 2002* and the *Disability Standards for Accessible Public Transport Guidelines 2004 (No.3)* for more information on the access requirements for people with disability.

EXAMPLE Vessels required to provide access or intended to cater for people with disabilities need to ensure that the design of sleeping areas and access arrangements are appropriate.

ACCESS FOR PERSONS WITH DISABILITIES

4.16 Disability access requirements

The accessibility arrangements on public transport vessels will be taken to meet the required outcome if they comply with the applicable disability discrimination legislation and access requirements.

NOTE 1 Vessels considered public transport vessels may be subject to disability discrimination legislation and access requirements administered by other regulators.

NOTE 2 The *Disability Standards for Accessible Public Transport 2002* are formulated under subsection 31(1) of the *Disability Discrimination Act 1992* and contain specific obligations for public transport operators and providers, including conveyance and infrastructure design requirements.

NOTE 3 The *Disability Standards for Accessible Public Transport Guidelines 2004* (No.3) provides additional guidance to assist in understanding and interpreting the *Disability Standards for Accessible Public Transport 2002*.

MEDICAL CARE ON BOARD VESSELS

4.17 Facilities for sick or injured persons

A vessel must have the following measures for sick or injured persons:

(a) for a vessel assigned accommodation level AL72+ — at least 1 shared cabin with a space designated for use as a sick bay to separate a sick or injured person from other persons on board; and

(b) for a vessel of operational areas A or B extended, and that is more than 35 m measured length — a designated sick bay arranged and equipped specifically for the purpose.

NOTE NSCV C7A and Marine Order 25 (as applicable to the vessel) list the minimum required medical / first aid equipment to be carried. Local work health and safety (WHS) laws may also apply.

MESS AND RECREATIONAL FACILITIES

4.18 Recreational and mess facilities for crew

(1) A vessel assigned accommodation level AL36-72 or AL72+, that is not required to comply with the MLC 2006, must have a mess facility for crew that is:

(a) equipped with tables and seats to accommodate at least two thirds of the crew in any one sitting;

(b) located close to the galley; and

(c) if the vessel is assigned accommodation level AL72+ or there are more than 10 crew on the vessel — separate from sleeping quarters.

(2) In addition to the mess facility, a vessel assigned accommodation level AL72+ must have recreational facilities or amenities provided to all crew.

(3) A vessel required to fit heating, cooling or both under clause 4.7 must have the following facilities in the mess room that are always available and accessible to crew:

(a) if heating is required — facilities for making hot drinks; and

(b) if cooling is required — a refrigerator of sufficient capacity or another means of supplying chilled drinks.

GALLEY AND FOOD STORAGE

4.19 Galley and food storage facilities

(1) This clause applies to a vessel assigned accommodation level AL36-72 or AL72+, that is not required to comply with the MLC 2006.

(2) A vessel must have cooking areas as follows:

(a) for a vessel assigned accommodation level AL36-72 or AL72+ — facilities for preparing and cooking food; and

(b) if a separate galley is not provided, the galley, or cooking area must be of adequate size for the purpose, well lit and ventilated and with surfaces that are suited to convenient and effective cleaning.

(3) A vessel must have the following, sufficient for crew and passengers for the duration of the voyage:

(a) a suitable place for provisions that can be kept dry, cool and well ventilated to avoid deterioration of the stores;

(b) a refrigerator or other low temperature storage; and

(c) for a vessel assigned accommodation level AL72+ — a dedicated provisions storeroom and cool-room.

(4) Waste must be:

(a) isolated; and

(b) kept in closed, well-sealed containers that are intended to be removed from foodhandling areas at regular intervals.

SANITARY ARRANGEMENTS

4.20 Sanitary facilities

A vessel must have toilets, washbasins and showers or baths for the use of all persons on board:

(a) in accordance with Table 12; and

(b) if required by Table 12, the number mentioned in Table 13.

Table 12 Standards for fitting of toilets and wash basins on vessels

Vessel use category	Number of persons on board	Duration of voyage before toilet facilities and washbasins required (A)
Class 1	≥201 passengers Plus crew	15 minutes.
	37 to 200 passengers Plus crew	15 minutes. However, for vessels not considered public transport — toilets and washbasins are not required if the vessel is engaged on voyages of less than 30 minutes duration where the vessel operates between dedicated ferry terminals, wharves or a parent vessel with adequate public sanitary facilities provided.
	13 to 36 passengers Plus crew	30 minutes. However, for vessels not considered public transport — toilets and washbasins are not required if the vessel is engaged on voyages of less than 45 minutes duration where the vessel operates between dedicated ferry terminals or wharves or a parent vessel with adequate public sanitary facilities provided.

Vessel use category	Number of persons on board	Duration of voyage before toilet facilities and washbasins required (A)
Class 2	1 to 12 passengers Plus crew	2 hours
	Crew only	4 hours
Class 3	Crew only	4 hours

KEY to Table 12

(A) For the purposes of Table 12, the duration of the voyage refers to the length of voyage without access to shore-based toilet facilities.

NOTE The *Safe Work Australia Model Code of Practice — Managing the work environment and facilities* requires employers to provide adequate facilities for workers, including toilets. AMSA considers that the outcomes of the Model Code of Practice above can be achieved by either providing sanitary facilities onboard the vessel, or through the utilisation of public sanitary facilities ashore. Notwithstanding the requirements of Table 12 for Class 2 vessels without passengers and for Class 3 vessels, AMSA strongly suggests considering the installation of a toilet on voyages over 2 hours in length.

Table 13 Minimum number of toilets, washbasins and showers or baths on vessels

Type of accommodation	Toilets and washbasins	Showers or baths
Unberthed: Voyage time 1 hour or more and 100 persons or less	1 toilet and 1 washbasin for 1 to 50 persons 2 toilets and 2 washbasins for 51 to 100 persons	Not required
Unberthed: Voyage time 1 hour or more and more than 100 persons	For 101 to 200 persons —3 toilets and 3 washbasins For each additional 100 persons or part thereof — 1 more toilet and 1 more washbasin	Not required
Unberthed: Voyage time less than 1 hour and 150 persons or less	1 toilet and 1 washbasin	Not required
Unberthed: Voyage time less than 1 hour and more than 150 persons	For 151 to 300 persons — 2 toilets and 2 washbasins For each additional 150 persons or part thereof — 1 more toilet and 1 more washbasin	Not required
Berthed AL72+	1 toilet and 1 washbasin for every 6 persons or part thereof	1 for every 6 berthed persons or part thereof

Type of accommodation	Toilets and washbasins	Showers or baths
Berthed AL36-72	1 toilet for every 8 persons or part thereof 1 washbasin for every 6 persons or part thereof	1 for every 8 berthed persons or part thereof
Berthed AL12-36	1 toilet for every 15 persons or part thereof 1 washbasin for every 15 persons or part thereof	Not required

(2) Sanitary facilities must have the following hygiene measures:

(a) for berthed persons — fresh water, both hot and cold, at each washbasin, shower and bath;

(b) for unberthed persons — cold freshwater at each washbasin;

(c) toilets with ample flush of water, available at all times and independently controllable;

(d) hygeine bins situated in toilet facilities for disposal of female sanitary products;

(e) sanitary facilities and the spaces containing them arranged to prevent contamination of other spaces;

(f) all surfaces in sanitary spaces to facilitate easy and effective cleaning;

(g) floors with a slip-resistant deck covering;

(h) sanitary facilities fitted with ventilation; and

(i) ventilation to the outside, independent of any other part of the accommodation.

(3) Sanitary facilities must have privacy.

4.21 Crew cloak and laundry facilities

A vessel must have the following measures for crew cloak and laundry facilities:

(a) a place for the crew to hang foul-weather gear and other personal protective equipment outside, but convenient to, sleeping rooms or crew mess;

(b) for a vessel assigned accommodation level AL72+ — adequate facilities for the crew to wash, dry and iron clothes;

(c) if the vessel is at least 35 m measured length and assigned accommodation level AL72+:

(i) facilities for washing, drying and ironing clothes in a compartment separate from sleeping rooms, mess rooms and toilets;

(ii) adequate ventilation and heating, and lines or other means of drying clothes.

POTABLE WATER ARRANGEMENTS

4.22 Potable water

(1) A vessel must have, for drinking and hygiene purposes:

(a) in each wash place:

(i) cold potable water; and

(ii) for a vessel AL12-36 or greater — either hot potable water or a means of heating water; and

(b) for the normal duration of a voyage — at least the amount of potable water mentioned in Table 14.

Table 14 Minimum amount of potable water

Assigned accommodation level	Minimum amount of potable water per person per day or part day
AL72+	60 Litres
AL36-72	60 Litres
AL12-36	20 Litres
AL≤12	5 Litres (on short voyages ≤2 hours, this may be reduced to 2 litres per person) No potable water is required to be carried for vessels AL≤12 on short voyages of less than 1 hour where a toilet, washbasin or shower is not required to be fitted under Table 12

NOTE Small vessels with an AL≤12 may have carry-on water in appropriate containers or bottles that satisfy the potable water standard when wash basin facilities are not required.

(2) A vessel fitted with potable water tanks must comply with the following

(a) tanks for potable water must have no common boundary with other tanks on board containing liquids, if contamination by those liquids could have serious health consequences for persons on board;

(b) tanks for potable water must be labelled “Potable Water”;

(c) to facilitate periodic inspection and cleaning, tanks for potable water must be accessible through a watertight manhole or, if sufficient, a watertight hand hole, and must be drainable from a drain plug or tap that is located close to the bottom; and

(d) any material, auxiliary material or protective coating used within the potable water system (tank, pipes etc) must be safe from a hygienic and physiological point of view, and must be sufficiently resistant to any physical, chemical or corrosive stress that may be reasonably anticipated.

NOTE The following standards may be applicable:

- *AS 4020:2018 Testing of products for use in contact with drinking water* — AS/NZS 4020 is a standard that is designed to test any products for use in contact with drinking water, such as lining and coatings of potable water tanks

- *ISO 15748-1 Ships and marine technology – Potable water supply on ships and marine structures: Planning and design*
- WHO – International health regulations — *Guide to Ship Sanitation*
- Australian Drinking Water Guidelines – ADWG. Importantly, the Guidelines describe various disinfection approaches and properties depending on the quality of source water, which can be variable for vessels. It also provides information on disinfection, sampling, and statistics, and contains a range of fact sheets including on water treatment chemicals

CHAPTER 5 ESCAPE AND EVACUATION

5.1 Application

This Chapter applies to all vessels.

DEEMED TO SATISFY SOLUTIONS

ESCAPE ARRANGEMENTS

5.2 Escape arrangements

(1) Means must be provided for all persons on board to be able to escape and access an evacuation path from any space which may be occupied under normal operational circumstances readily in an emergency or hazardous situation, assuming that all persons are wearing a lifejacket of the type required to be provided on the vessel.

(2) Means of escape must be provided from all crew, special personnel and passenger spaces:

(a) in the form of doorways, stairways, ladder ways or, in enclosed areas, emergency windows or appropriate sliding doors, in accordance with the requirements of this chapter;

(b) in enclosed areas, there must be both a primary means of escape and an alternative means of escape, unless the space complies with Table 15. The alternative means of escape must be in a location widely separated from the primary means of escape;

(c) the capacity of the primary means of escape and, where required, the alternative means of escape must be in accordance with clause 5.4; and

(d) all means of escape must be clearly marked, and escape lighting must be provided for some higher risk vessels as required by clause 5.16 and Table 26.

NOTE 1 Table 15 provides conditions and controls for a limited number of spaces to have a single means of escape.

5.3 Escape from spaces

(1) Spaces mentioned in clause 5.2(2)(b) which are below the bulkhead deck must have at least 1 means of escape that does not rely on passage through a watertight bulkhead.

(2) A means of escape from a high fire risk space must not be through another high fire risk space.

NOTE Spaces on a vessel are classified according to their fire risk under NSCV C4.

(3) Control spaces on a vessel must comply with the following standards for escape routes:

(a) a control space that is an enclosed area and which is occupied for extended periods during an emergency (eg the operating station where it is wholly or partially enclosed, machinery control rooms or compartments containing emergency steering gear) must have an alternative means of escape, unless configured in accordance with Table 15;

(b) at least 1 of the means of escape must be to a space different from that accessed by other means of escape from the control space.

(4) A vessel with a ro-ro space must have the following:

(a) at least 2 means of escape from each end of the ro-ro space:

(i) 2 means of escape at the fore end; and

(ii) 2 means of escape at the aft end; and

(b) escape routes with safe access to an evacuation path.

(5) If passengers have access to ro-ro spaces, means of escape additional to those mentioned in clause 5.3(4) must be provided so that the distance from any point within the ro-ro space to a means of escape does not exceed 30 metres.

(6) A dead-end corridor must be arranged and marked to deter a person from entering the corridor in an emergency.

Table 15 Spaces not required to have an alternative means of escape

Type of space	Conditions
Accommodation space	All of the following apply: (a) the space does not accommodate more than 6 passengers or more than 8 persons in total; (b) the single means of escape is not through a watertight door; (c) the maximum actual horizontal travel distance to the point of escape does not exceed 5 m for passenger accommodation or 7 m for accommodation for crew only; (d) the single means of escape does not lead to a space that does not itself have direct access to open decks; (e) the space is not also of moderate fire risk (containing a small galley or a moderate fire risk machinery space); and (f) the single means of escape does not lead to a space classified as high fire risk or moderate fire risk.
High fire risk machinery space arranged for unmanned operation, dedicated moderate fire risk machinery space or galley	All of the following apply: (a) the maximum actual horizontal travel distance to the point of escape does not exceed 5m; (b) the single means of escape is not through a watertight door;

Type of space	Conditions
	(c) the single means of escape does not lead to a space that does not itself have direct access to open decks; and (d) the single means of escape does not lead to a space classified as high fire risk or moderate fire risk.
Space of low fire risk	All of the following apply: (a) it is only entered by crew; and (b) it is only occupied occasionally.

NOTE Spaces on a vessel are classified according to their fire risk under NSCV C4.

5.4 Design of escapes serving a space

(1) The design of a means of escape must:

(a) take into account the number of persons who may need to use it; and

(b) take into account whether it is to be used by passengers or by crew; and

(c) for means of escape in the form or doors or windows — the doors or windows must be capable of being opened from either side.

NOTE The vessel design should consider the number of persons who may need to use the escape route and the number of persons who may need to use the evacuation path that the escape route forms part of.

(2) The access and means of escape for each space must be either low-capacity or high-capacity, as required by Table 16 and Table 17.

(3) A high-capacity escape must comply with Table 1

(4) A low-capacity escape must comply with Table 19

(5) The following are not means of escape:

(a) a lift; and

(b) unless it has a viable evacuation path to the survival craft embarkation deck or an assembly area — the following spaces:

(i) an accessway;

(ii) a balcony; and

(iii) an open deck.

Table 16 Types of escapes from accommodation spaces

Nominal number of persons within the space The nominal number of persons in the space is: - the sum of the maximum number of passengers and special personnel permitted in the space and 2/3 number of crew	**Primary**	**Alternative**
0 to 4	Low-capacity acceptable, however: - rung ladders limited to use by crew only and not more than 2.2 m high; and - ladders limited to between 60 and 75 degrees with handrails either side and not more than 2.2 m high.	Low-capacity acceptable
5 to 12	Low-capacity door, stairway, passageway or walkway acceptable (but not rung ladder), step ladders limited to not more than 2.2 m high	Low-capacity acceptable
13 to 72	High-capacity	Single high-capacity, or low-capacity counted at 18 persons each
>72	High-capacity (A)	High-capacity and up to 4 low-capacity counted at 18 persons each

KEY to Table 16:

(A) For spaces with a nominal number of >72 persons, high-capacity escapes may require multiple primary high-capacity escapes. For example, using 900 mm width means of escape, for 100 passengers, the following escapes will be required: two primary high-capacity, one high-capacity and two low-capacity escapes.

Table 17 Types of escapes from workspaces

Number of crew normally in the space	**Primary**	**Alternative**
0 to 4	Low-capacity acceptable, rung ladders limited to not more than 6 m high	Low-capacity acceptable Rung ladders limited to not more than 6 m high

Number of crew normally in the space	Primary	Alternative
5 to 12	Low-capacity door, stairway, passageway or walkway acceptable	Low-capacity acceptable Rung ladders limited to not more than 6 m high
≥13	High-capacity	High-capacity; or low-capacity counted at 18 persons each

Table 18 Minimum criteria for high-capacity escapes

Type of space	Passenger spaces	Crew spaces
Corridor or passageway	Sized in accordance with Annex A with a minimum width of: - if the vessel carries >36 pax — 900 mm; and - all other vessels — 700 mm	Sized in accordance with Annex A with a minimum width of 700 mm
Doorway	Sized in accordance with Annex A with a minimum width of: - if the vessel carries >36 pax — 900 mm; and - all other vessels — 700 mm	Sized in accordance with Annex A with a minimum width of 700 mm
Stairway	Sized in accordance with Annex A with a minimum width of: - if the vessel carries >36 pax — 900 mm; and - all other vessels — 700 mm Treads in accordance with clause 5.14(4) Slope in accordance with clause 5.13 Width of hatches associated with stairways in accordance with Annex A	Sized in accordance with Annex A with a minimum width of 700 mm Treads in accordance with clause 5.14(4) Slope in accordance with clause 5.13 Width of hatches associated with stairways in accordance with Annex A
Ladder	Not considered a high-capacity escape	Not considered a high-capacity escape
Escape hatch	Not considered a high-capacity escape	Not considered a high-capacity escape
Walkway	Sized in accordance with Annex A with a minimum width of:	Sized in accordance with Annex A with a minimum width of 700 mm

Type of space	Passenger spaces	Crew spaces
	- if the vessel carries >36 pax — 900 mm; and - all other vessels — 700 mm Slope in accordance with clause 5.13	Slope in accordance with clause 5.13

Table 19 Minimum criteria for low-capacity escapes

Type of space or element	Passenger spaces	Crew spaces
Corridor	Minimum clear width 650 mm	Minimum clear width 600 mm
Passageway	Minimum width — see Table 22	Minimum width — see Table 22
Doorway, vertical escape hatch, pop-out window, NOTE: A doorway includes hinged and sliding doors.	Minimum dimensions in accordance with Table 21 Pop-out windows installed in a weathertight envelope must be weathertight. All pop-out windows must be openable within 60 seconds with clear instructions visible and must not exceed 700 mm off the deck from the lower edge of the window.	Minimum dimensions in accordance with Table 21
Emergency window (break glass)	Minimum dimensions in accordance with Table 21. Not be designed as the primary escape. A maximum height off the deck of 700 mm from the lower edge of the window. Emergency windows must be of a break glass standard with appropriate tempering that has an escape hammer that is appropriate to break the thickness and strength of the glass in the case of an emergency. The escape hammer must be clearly marked and secured within 1 m of the emergency window.	
Stairway	Minimum clear width 650 mm Treads in accordance with clause 5.14 Slope in accordance with clause 5.13	Minimum clear width 600 mm Treads in accordance with clause 5.14

Type of space or element	Passenger spaces	Crew spaces
		Slope in accordance with clause 5.13
Ladder	Step ladders of height greater than 2.2 m applicable only if direction of flow is upward. Minimum width clause 5.15(1) Treads in accordance with clause 5.15(1) Slope in accordance with clause 5.13	Minimum width clause 5.15(1) Treads in accordance with clause 5.15(1) Slope in accordance with clause 5.13
Horizontal escape hatch	Minimum 460 mm x 460 mm Maximum height 1.2 m before ladder	Minimum 460 mm x 460 mm Maximum 1.2 m before ladder
Walkway	Minimum clear width 650 mm Slope in accordance with clause 5.13	Minimum clear width 600 mm Slope in accordance with clause 5.13

5.5 Arrangement of escapes in accommodation spaces

An escape path must:

(a) be as direct as possible; and

(b) have a minimum number of changes in direction.

EVACUATION

5.6 Evacuation paths

(1) Escape routes on a vessel must provide direct access to an evacuation path or embarkation station.

(2) A vessel must have evacuation paths allowing the ready and rapid movement of persons from every normally occupied space on the vessel, through assembly stations if required by clause 5.8, to the survival craft embarkation stations.

(3) An evacuation path must comply with the dimensions listed in Table 20 and Annex A.

(4) For a vessel that carries passengers, at least one of the evacuation paths from each passenger space must be arranged to enable a person to reach an

assembly station or open deck without having to climb more than two decks up or down.

Table 20 Size of evacuation paths

Description of path	Determination of size for the purposes of Annex A		Minimum width Sized in accordance with Annex A with a minimum width of:
	Along path	At end of path	
To a survival craft embarkation station without an assembly station	Cumulative number of persons, taking into account size of adjacent spaces, additional persons from adjoining spaces, percentage persons through the particular escape route	Combined capacity of survival craft at the embarkation station	700 mm
To an assembly station	Cumulative number of persons entering into the path leading to the assembly station, taking into account additional persons from adjoining spaces, percentage persons through the particular escape route	Proportion of total number of persons assigned to the assembly station that would enter along that evacuation path	900 mm
Between an assembly station and a survival craft embarkation station	Maximum capacity of the largest survival craft served by the assembly station	Maximum capacity of the largest survival craft served by the assembly station	900 mm

5.7 Alternative means of evacuation by analysis

For a vessel that carries more than 36 passengers, compliance with clauses 5.2, 5.3, 5.4, 5.5 and 5.6 may be achieved through compliance with the following:

(a) the arrangements for evacuation paths must be evaluated by an evacuation analysis early in the design process; and

(b) the analysis must:

(i) identify and eliminate so far as reasonably practicable congestion in the event of vessel abandonment so as to allow the movement of passengers and crew along escape routes, including crew moving along the routes in a direction opposite the movement of passengers; and

(ii) demonstrate that arrangements are sufficiently flexible if certain evacuation paths, assembly stations, embarkation stations or survival craft are unavailable because of a casualty; and

(iii) confirm that the arrangemnts for evacuation paths will achieve the evacuation of all persons on the vessel into survival craft within 30 minutes from the issue of the order to abandon the vessel.

5.8 Assembly stations

(1) For all vessels, the evacuation path must include at least 1 clearly marked designated assembly station.

NOTE 1 A designated assembly station for a small non-passenger vessel could be indicated by a designated drawing or diagram contained within the vessel's SMS for new employee inductions, whereas a passenger vessel should have the area clearly marked and signed similar to that contained within Annex B.

NOTE 2 Often assembly stations on a small vessel are multi-use spaces or decks.

(2) For vessels carrying 36 or more passengers, at least one alternative assembly station must also be provided in case the primary assembly station is inaccessible.

(3) Assembly stations must be located close to the embarkation stations and not be located in way of the machinery spaces or other spaces with a high fire risk unless the boundaries between the high-risk areas and the assembly station are insulated to the fire protection standards contained in NSCV C4.

(4) An assembly station must:

(a) for Class 1 vessels — be able to accommodate all persons assigned to it with not less than 0.35 m^2 of space per person; and

(b) for Class 2 and 3 vessels — be able to accommodate all persons assigned to it with not less than 0.25 m^2 of space per person.

(5) Despite clause 5.8(4), the alternative assembly station on a vessel carrying 36 or more passengers can comply with clause 5.8(4)(b).

NOTE It is preferable for the alternative assembly station to comply with clause 5.8(4)(a), but it can comply with clause 5.8(4)(b) as a minimum.

5.9 Survival craft embarkation stations

(1) The number and arrangement of embarkation stations must be sufficient to ensure the launching of all survival craft with their maximum allowable number of persons on board within 30 minutes after the abandon ship signal is given.

(2) An embarkation area must accommodate the number of persons expected to use the area.

(3) A vessel must have the following means of embarkation:

(a) an embarkation ladder or other means of enabling the embarkation of persons into survival craft at each embarkation station to achieve the time mentioned in clause 5.9(1);

(b) the arrangements for embarkation must remain effective when the vessel is in the lightest seagoing condition under unfavourable conditions of trim of up to 10 degrees and a list of up to 20 degrees either way; and

(c) if it complies with clause 5.9(1) — means for embarkation into survival craft need not be provided at the embarkation station on a vessel having a freeboard between the intended embarkation station and the waterline in the worst condition of loading, trim and heel of not more than 1.5 m.

5.10 Doors and hatches in escape or evacuation routes

(1) A door in an escape or evacuation route:

(a) for a door of an individual cabin — may open into the cabin;

(b) for a door in a stair tower — may open out of the tower. However, for uni-directional flow the doors should open in the direction of flow; and

(c) in any other case — must open in the direction of escape or evacuation unless another direction is required under another section of the NSCV.

(2) Doors or hatches on a vessel must:

(a) for a door or hatch in an escape route or a designated evacuation path — unlock automatically in the direction of escape or evacuation; and

(b) for a door to a cabin — unlock without a key from inside the room.

(3) A vessel must have the following:

(a) means of preventing the unauthorised access of persons onto the vessel when it is unmanned that do not compromise the effectiveness of escape and evacuation routes, other than a primary access door;

(b) locking mechanisms located to allow rapid and reliable release in the direction of escape or evacuation without the need for a key or special tool; and

(c) arrangements to ensure covers of escape and evacuation openings are operable from both sides when the vessel is manned.

(4) A door that provides high-capacity escape from public spaces for 110 persons or more (ie of width exceeding 1200 mm) that is normally latched must have a quick release mechanism in the direction of escape that may be activated by:

(a) a panic bar; or

(b) a mechanism for rapid and reliable release by a single person.

(5) A doorway from an alternative means of escape must be of a height and size mentioned in Table 21.

Table 21 Minimum size of doorways or openings forming alternative means of escape

Maximum number of persons intended to pass through	Minimum height (mm)	Minimum width (mm)
25	1220	815
20	1220	610
15	1120	510
10	915	510
5	660	485

PASSAGEWAYS, WALKWAYS, STAIRWAYS AND GANGWAYS

5.11 Passageways

(1) A passageway on an evacuation path must be sized in accordance with clause 5.6.

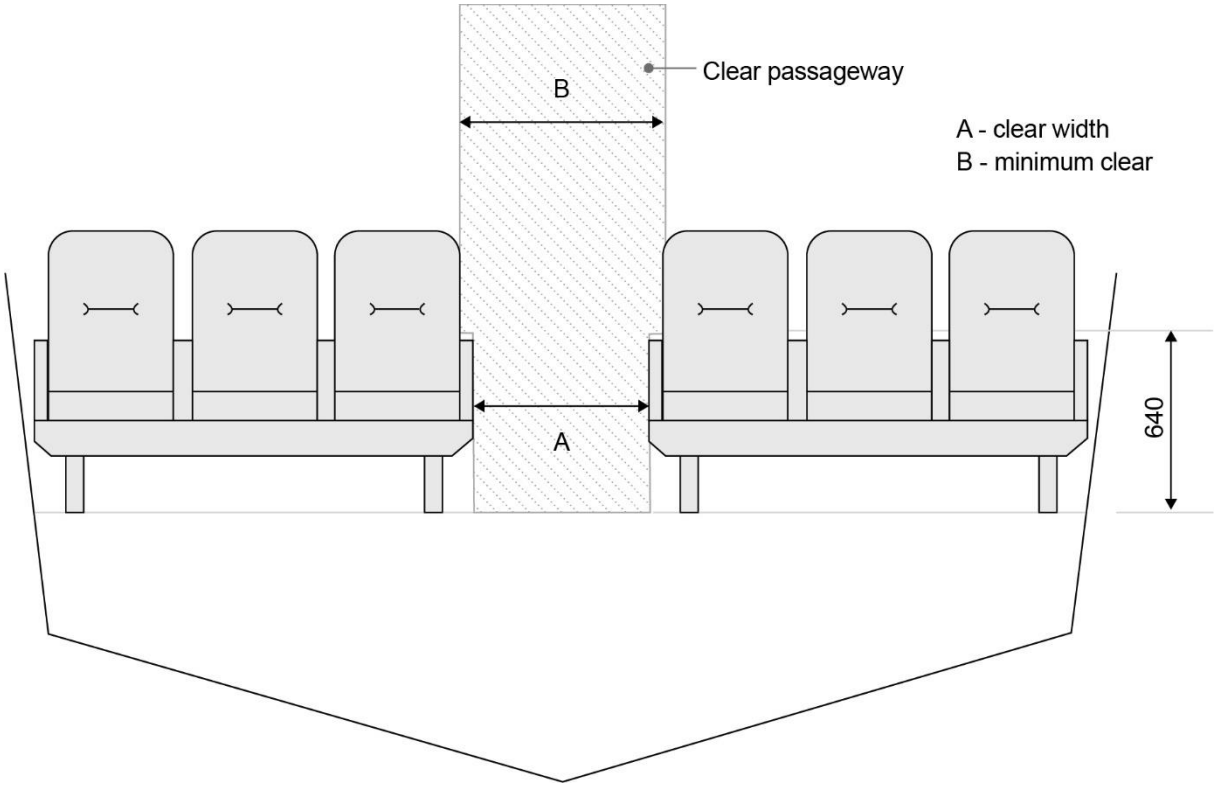
(2) A passageway in an accommodation space or operational space must be arranged to facilitate the rapid movement of persons to the evacuation path.

(3) The width of a passageway used for low-capacity escape must comply with Table 22.

Table 22 Minimum width of passageways between furniture or fittings

Length of passageway (m)	Numbers of persons served by the passageway	Minimum width of passageway for single direction flows (mm)	
		Less than 640 mm from the floor (A in Figure 9)	640 mm or more from the floor (B in Figure 9)
≥4.5 m	1 to 5	380	510
	6 to 10	510	600
	11 to 18	600	700
<4.5 m	1 to 5	305	510
	6 to 10	380	510
	11 to 18	510	600

Figure 9 Minimum width of passageways for escape routes



(4) A passageway in a ro-ro space or deck that a passenger can access must:

(a) be permanently marked to prevent obstruction by vehicles; and

(b) have a clear width of at least 600 mm.

(5) An accessway used only for occasional access by the crew on inspection or maintenance activities need not comply with clauses 5.11(2) and 5.11(3).

5.12 Handrails

(1) A handrail or other handhold must be provided:

(a) for each walkway, stairway and ladder; and

(b) along an evacuation route facilitating persons to move quickly to assembly stations and embarkation stations if the deck is at an angle.

(2) A handrail along a high-capacity route must be located within 5% of:

(a) 50 mm clear of the adjacent bulkhead; and

(b) 865 mm above the upper surface of:

(i) the deck, or

(ii) the nosing of a stair tread.

(3) Handrails must be provided on both sides in the following locations:

(a) longitudinal corridors and walkways more than 1800 mm in clear width;

(b) transverse corridors and walkways more than 1000 mm in clear width; and

(c) ladders and stairways.

(4) Handrails and other handholds and their means of attachment must be designed to withstand the following loads:

(a) a distributed horizontal load of 750 N/m applied in the direction of the centre of the corridor or space; and

(b) a distributed vertical load of 750 N/m applied in the downward direction.

5.13 Walkways, stairways and ladders

(1) A walkway, stairway or ladder must be provided if:

(a) the difference in height between 2 levels exceeds 750 mm; and

(b) persons are likely to need to move between the 2 levels.

(2) The angle of the walkway, stairway or ladder must be within the range mentioned in:

(a) if the walkway, stairway or ladder is not used as a high-capacity escape — column 2 of Table 23; and

(b) if the walkway, stairway or ladder is used as a high-capacity escape — column 3 of Table 23.

(3) However, a stairway for accessing the following spaces on Class 2 and Class 3 vessels is not required to comply with Table 23 provided it remains within the range shown for Class 2 and Class 3 vessels in Figure 10:

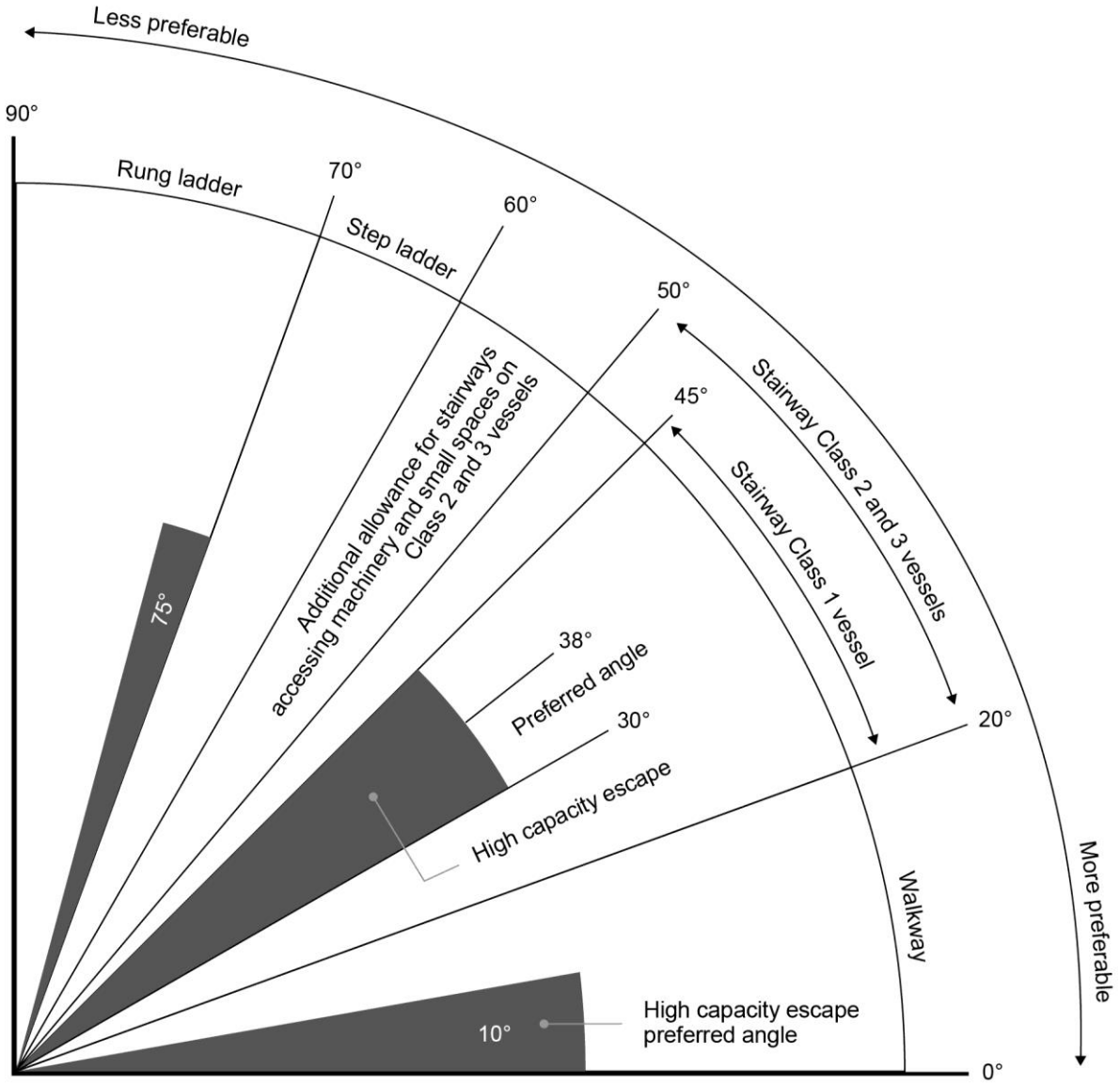
(a) machinery spaces; and

(b) spaces less than 10 m^2.

Table 23 Angles to the horizontal of walkways, stairways and ladders and limits on their application (see also Figure 10)

Description	Range of angles to horizontal (degrees)	Range of angles to horizontal for high-capacity escape (degrees)	Preferred angle to horizontal (degrees)
Walkway	0 to 20	0 to 10	0 to 10
Stairway Class 1 vessel	20 to 45	30 to 45	30 to 38
Stairway Class 2 & 3 vessel	20 to 50	30 to 45	30 to 38
Step ladder	60 to 70	Not applicable	60 to 70
Rung Ladder	70 to 90	Not applicable	70 to 75

Figure 10 Angles to the horizontal of stairways, walkways and ladders and limits on their application (see also Table 23)



5.14 Stairways

(1) A stairway sized for more than 90 persons must be aligned fore and aft.

(2) A stairway must not exceed 3.5 m in vertical rise without an intermediate landing.

(3) If a landing is required under clause 5.14(2), it must:

(a) be at least 2m^2 in area; and

(b) increase by 1m^2 for every 10 persons provided for in excess of 20 persons; and

(c) not exceed 16m^2.

(4) Steps forming a stairway must:

(a) comply with Table 24 and the characteristics of Figure 11;

(b) have a constant rise;

(c) be within the tolerance range permitted by AS 1657; and

(d) be designed to take the intended load.

NOTE All risers and going on the same flight of stairs should have uniform dimensions within a tolerance of ± 5mm.

(5) Despite 5.14(4)(a), steps forming a stairway for accessing the following spaces on Class 2 and Class 3 vessels are not required to comply with Table 24:

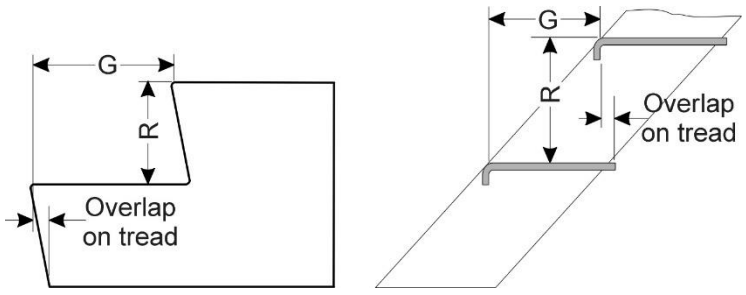
(a) machinery spaces; and

(b) spaces less than 10 m^2.

Table 24 Required dimensions of steps in stairways

Characteristic	Steps for high-capacity escapes (mm) (Based on NCC Vol 2 safe movement and access)	Steps for low-capacity escapes (mm) (Based on AS 1657)	Spiral Steps (mm) (Based on NCC Vol 2 safe movement and access)	Preferred values (mm)
Rise (R)	115 to 190	130 to 225	140 to 220	190
Going (G)	240 to 355	215 to 355	210 to 370	275
Slope relations (2R + G)	550 Min 700 Max	540 Min 700 Max	590 Min 680 Max	625
Tread depth (min)	185	185	NC C Vol 2, Safe movement and access	n/a
Overlap on tread	≥ 30 if G <254 0 if G ≥ 254			n/a

Figure 11 Dimensions of steps in stairways



(6) The application of spiral stairways is subject to the same constraints as apply to a step ladder in Table 16.

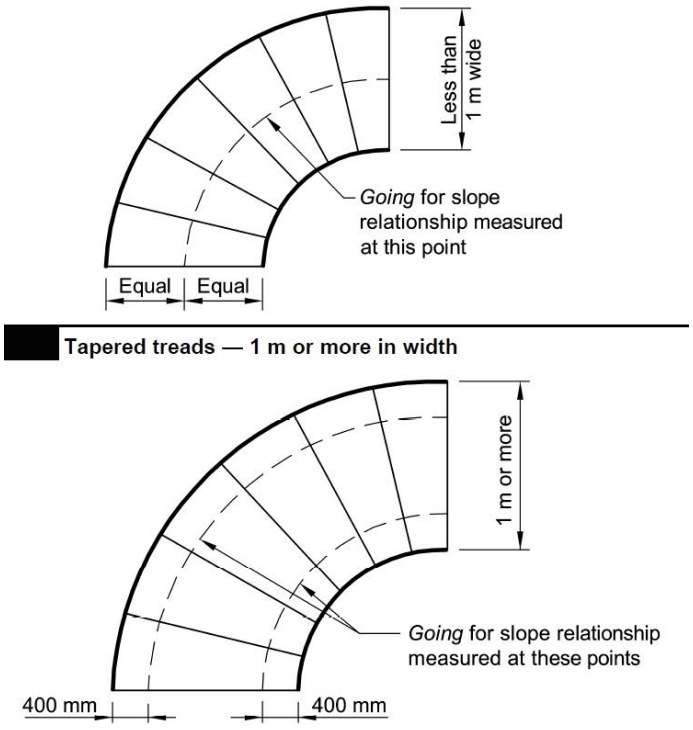
(7) Spiral stairways having an internal diameter less than 2440 mm must not be used for high-capacity escapes.

(8) Tapered treads forming winders and spiral stairways must comply with Table 24 assuming the going is measured at the following point:

(a) for a tread up to 1 m wide — the middle of the unobstructed width of the stair (see Figure 12); and

(b) for a tread more than 1 m wide — 400 mm from the unobstructed width of each side of the stair (see Figure 12).

Figure 12 Tapered treads



(9) A stairway must be designed and constructed to withstand a vertical pressure that is within the range of the design pressure applicable to the decks connected by the stairway.

(10) Handrails must be fitted in accordance with Table 25.

Table 25 Handrails

Stairway	Handrail to be fitted
Stairways forming part of a low-capacity escape route	(a) A handrail on at least 1 side in accordance with clause 5.12; or (b) If the height of the stairway is less than 1.5 m — suitable hand holds for use in either direction of travel
Stairways forming part of a high-capacity escape	Handrails on both sides in accordance with clause 5.12
Stairways with more than 1800 mm clear width between handrails	Intermediate hand rails spaced not more than 1800 mm apart

5.15 Fixed ladders

(1) A ladder must comply with the following:

(a) the width between stringers must be at least 400 mm (see Figure 13);

(b) treads or rungs must be equally spaced except that the height to the lowest tread may be reduced by up to 15%; and

(c) treads or rungs must be spaced between 200 mm and 300 mm apart, measured vertically (see Figure 13).

(2) The treads of a step ladder must have a going of at least 100 mm (see Figure 13).

(3) The horizontal distance between each tread or rung of a ladder and an adjacent bulkhead must be at least 150 mm.

(4) A ladder must not exceed 6 m in vertical rise without a landing.

(5) A ladder or handrail must be constructed as follows:

(a) it must be able to withstand a vertical concentrated loading of at least 1 kN;

(b) it must be constructed of material of adequate strength and stiffness and securely attached to the structure by stays;

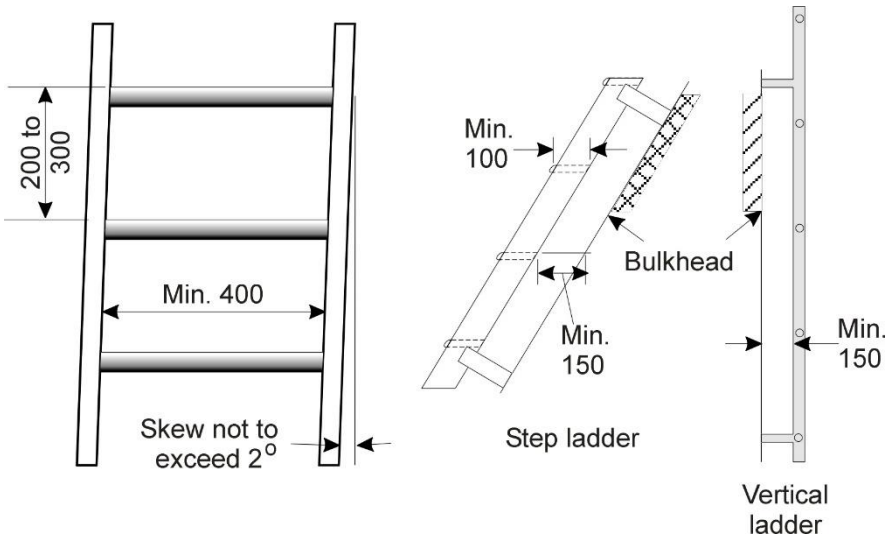
(c) the treads must be securely and permanently secured to the stringers;

(d) if its stringers are flexible steel wire ropes — it cannot be constructed as an escape route; and

(e) the method of support and length of stays must reduce vibration to a practical minimum.

(6) A rung ladder must not be skewed by more than 2 degrees (see Figure 13).

Figure 13 Ladder details



(7) A step ladder must have handrails of substantial construction on both sides in accordance with clause 5.12, fitted at a convenient distance above the treads.

(8) A ladder in a cargo hold must be designed and arranged so that the risk of damage from cargo handling gear is minimised.

SAFETY INFORMATION

5.16 Safety information and escape marking

(1) Where compartments, decks (open or enclosed), or spaces on the vessel under normal operation contain more than 12 persons, the number of passengers permitted within the compartment, deck or spaces must be indicated on signage placed in a visible location at the entry or within the space, deck or compartment.

(2) The signage required by clause 5.16(1) must be a minimum of A7 (7 cm x 10 cm).

NOTE The signage required is designed to ensure that the number of persons in a space or on a deck does not compromise the safety of a vessel and the persons on it. For example, an upper open passenger deck could impact the safety of the vessel if it was overloaded with people, and a small compartment with only a low-capacity escape cannot safely hold more persons than can be evacuated quickly.

(3) The following locations must be clearly and permanently marked and must be able to be illuminated in an emergency:

(a) escape routes from spaces intended to contain more than 12 persons;

(b) assembly stations if assembly stations are required under clause 5.8;

(c) entrances to evacuation routes; and

(d) for a vessel carrying more than 12 berthed persons, or 36 or more passengers:

(i) an escape route from an accommodation space;

(ii) a route to an assembly station; and

(iii) an evacuation route to an embarkation point.

(4) The illumination required under clause 5.16(3) may be either:

(a) emergency lighting complying with NSCV C5B which illuminates the locations mentioned in clause 5.16(3); or

(b) low location lighting (LLL) in accordance with clause 5.16(5).

(5) LLL must comply with either:

(a) ISO 15370 Ships and marine technology — Low Location Lighting (LLL) on passenger ships — Arrangement; or

(b) all of the following:

(i) be placed not more than 300 mm above the deck at all points of the route including angles and intersections;

(ii) if power operated, be arranged so that a failure of any single light or cut in a lighting strip will not result in the marking being ineffective;

(iii) be visible:

A. by day and by night; and

B. for vessels carrying more than 36 passengers or more than 12 berthed passengers, in smoke-filled conditions; and

(iv) each lighting strip must comply with one of the options in Table 26.

Table 26 Marking of escapes

Options	Minimum output
1. Low location lighting supplied by a central emergency power source (Example: Generator)	1000 Lumens per metre
2. Low location lighting supplied by a self-contained emergency power source (Example: Battery)	
3. Photoluminescent marking	Luminance of 15 mcd/m^2 measured 10 minutes after the removal of all external illuminating sources. The system shall continue to provide luminance values greater than 2 mcd/m^2 for 60 minutes)

(6) Markings must remain visible for at least the greater of:

(a) the time mentioned for emergency lighting in NSCV C5B; or

(b) 60 minutes.

(7) Markings for escape and evacuation routes must comply with either:

(a) for vessels carrying more than 12 berthed passengers or more than 36 day passengers:

i. SOLAS Chapter II-2 – Construction – Fire Protection, Fire Detection and Fire Extinction — Part D – Escape; and

ii. IMO Resolution A.1116(30); or

(b) for all other vessels – Annex B.

5.17 Instruction for safe escape

(1) This clause applies to a vessel:

(a) carrying more than 12 berthed passengers; or

(b) carrying more than 36 day passengers.

(2) A vessel must have directions for rapid escape and evacuation as follows:

(a) simple ‘mimic’ plans, showing the ‘you are here’ position and escape routes marked by arrows, must be prominently displayed on the inside of each cabin door of berthed accommodation and in public spaces; and

(b) the plan must be properly oriented in relation to its position on the vessel showing:

(i) the directions of escape;

(ii) the location of primary and any secondary means of escape;

(iii) the number of the crew or passengers normally occupied within the space; and

(iv) the location of the relevant assembly stations (where the vessel has assembly stations) and survival craft embarkation positions.

(3) On a vessel with 4 or more deck levels:

(a) each deck must be sequentially numbered, starting with ‘1’ at the tank top or lowest deck; and

(b) the numbers must be prominently displayed at stair landings and lift lobbies.

CHAPTER 6 PERSONAL SAFETY

6.1 Application

This Chapter applies to all vessels.

DEEMED TO SATISFY SOLUTIONS

PROTECTION OF PERSONS FROM THE ELEMENTS

6.2 Protection of persons from the elements

(1) For a vessel that is not subject to the Load Lines Convention:

(a) efficient and appropriate measures for the protection of persons from the elements must be fitted to all exposed parts of the freeboard and superstructure decks;

(b) each exposed part of the freeboard and superstructure decks must have at least one measure acceptable for that deck in accordance with Table 27.

Table 27 Means of safe passage across exposed decks

Measure	Deck subject to seas coming on board in normal conditions (A)		Deck subject to seas coming on board only in severe weather conditions (B)	
	Passengers	Crew	Passengers	Crew
Underdeck passages	Acceptable	Acceptable	Acceptable	Acceptable
Raised gangways	Acceptable	Acceptable	Acceptable	Acceptable
Harness, safety lines, clipping points and jack-stays — see clause 6.11	Not acceptable	Acceptable (C)	Acceptable (C)	Acceptable (C)
Guardrails or handrails	Not acceptable	Not acceptable	Acceptable	Acceptable

KEY to Table 27:

(A) Normal conditions include all conditions other than severe weather conditions.

(B) Examples of severe weather conditions include: lightning, hail, sudden increases in wind gusts (commonly referred to as squalls), significant wave heights, reduced visibility from fog, severe ship movements.

(C) Where harness, safety lines, clipping points and jack stays are used, the arrangements must comply with clause 6.11.

(2) The following vessels must be provided with a cabin, enclosure or other permanent rigid structure to protect those on board from the weather:

(a) an Operational Area A or B extended vessel;

(b) an Operational Area B or C vessel engaged on a voyage of at least 12 hours; and

(c) a sheltered water (Operational Area D or E) vessel engaged in voyages of at least 36 hours.

6.3 Safe movement of persons on vessels

Stairways and ladders

(1) Stairways and ladders for general access not forming part of escape or evacuation routes must comply with clause 5.13.

(2) A suspended walkway that is more than 10 mm from a permanent structure and from which an object could fall more than 2 m must have a toe board at least 60 mm above the top surface.

(3) A stairway, ladder, suspended walkway or handrail that is used only by the crew for tending plant, may comply with either this clause 6.3 or *AS 1657- Fixed platforms, walkways, stairways and ladders — Design, construction and installation*.

Walking surfaces

(4) Floor plates, gratings, ladders or other removable walking surfaces must be securely fitted and have a slip-resistant surface.

(5) Openings located in walking surfaces causing an unacceptable risk of injury must have guardrails or other means of protection

Lighting

(6) In addition to clause 4.8, there must be adequate natural light, or fixed artificial light, in all areas of the vessel that require it for normal operations or passenger movement.

NOTE The applicable approved code of practice that covers workplace lighting is the *Code of Practice — Managing the work environment and facilities, Safe Work Australia* and it provides additional guidance for anyone who has a duty of care

6.4 Bulwarks and guardrails

(1) A vessel must have bulwark and guardrails near the periphery of an exposed deck that a person or vehicle may access, unless:

(a) the deck is a special purpose deck or a special working deck that complies with clause 6.6; or

(b) for a collared vessel carrying divers and operating at speeds of up to 25 knots, the deck has seating on the collar that complies with clause 4.14(5)

NOTE Work health and safety (WHS) requirements may also apply to your vessel. The Model WHS Codes of practice for prevention of falls, and risk management in workplaces provide methodologies for managing risks of falls in workplaces.

(2) The minimum height of the bulwarks and guardrails on a vessel must be in accordance with Table 28.

Table 28 Minimum heights of bulwarks and guardrails

Vessel measured length	General purpose deck (mm)	Special purpose deck (mm)	Special working deck (mm)
> 16 m	1000	800 (A)	600 (A)
≤ 16 m	800	600 (A)	600 (A)

KEY to Table 28:

(A) Where a bulwark or guardrail is lower than the standard height (the height required for a general purpose deck) on a special purpose deck or a special working deck, additional fall protection measures from Table 31 must be used. These additional measures should be listed in vessel's SMS, see clause 6.6 below.

(3) Where fixed guardrails are used, they must comply with the following:

(a) a horizontal course must have an angle to the horizontal of not greater than 30 degrees;

(b) for a guardrail with intermediate horizontal courses — the courses are arranged so that the spacing between courses does not exceed the values mentioned in Table 29; and

(c) for a guardrail constructed without horizontal courses — the courses are arranged so that the maximum gap between palings, bars or other barrier elements does not exceed that which would allow a 125 mm diameter sphere to pass through the gap.

NOTE 'Horizontal course' is defined at clause 1.5 as the lateral connection between vertical stanchions forming a guardrail.

Table 29 Maximum permissible clear opening between horizontal courses

Location	Maximum permissible opening (mm)		
	General purpose deck	Special purpose deck	Special working deck
Between lowest course and the deck	230	230 to 300	Not specified
Between other courses	380 (A)	380	Not specified

KEY to Table 29:

(A) On vessels considered as public transport, the maximum permissible opening must not exceed 230 mm between the courses.

(4) An opening in a bulwark, including a freeing port, must be protected by bars or other barrier elements to limit the maximum dimension of any clear opening to no greater than that mentioned for guardrails in clause 6.4(3).

(5) On a Class 1 vessel, an opening in a bulwark or guardrail on a deck that is accessible by passengers must be fitted with arrangements that limit the size of a single clear opening below the top of the rail to not more than would allow the passage of a 125 mm diameter sphere.

(6) A guardrail must meet the following design and construction standards:

(a) a guardrail, other than one mentioned in clause 6.4(7), must be designed and constructed to withstand a point load of 890 N applied at any point in any direction, and a uniform load of 725 N/m applied to the top rail in any direction;

(b) if the guardrail includes a gate, it must meet the criteria with the gate open; and

(c) if glass is used in the construction of the guardrail, the design and construction of the guardrail must comply with Lloyd's Rules.

(7) A guardrail formed by horizontal courses of flexible wire may be fitted on a Class 1 vessel of less than 24 m length or a Class 2 or 3 vessel, provided the guardrail complies with clauses 6.4(8) and 6.4(9).

(8) Stanchions must be designed, arranged and constructed as follows:

(a) the maximum spacing between stanchions must not exceed 2150 mm;

(b) the horizontal courses must not pass outboard of a line angled at 10 from the vertical from a point located 50 mm above the intersection of the deck and the hull side; and

(c) the guardrail stanchions without courses must achieve the following when tested with the forces directed outboard at the point of intersection with the uppermost course and perpendicular to the guardrail direction at that point:

(i) the deflection must not exceed 50 mm at the point of application of the force when a horizontal force of 280 N is applied;

(ii) there must be no permanent deformation of the stanchion after the force mentioned in subparagraph (i) has been removed; and

(iii) the stanchion must withstand a horizontal force of 560 N without breaking.

(9) A vessel must have the following measures for flexible horizontal courses:

(a) each course of flexible wire or similar material used to form horizontal courses must have a minimum ultimate breaking strength of 13 kN for Operational Area A or B, or 9 kN for Operational Area C, D or E;

(b) arrangements for tensioning to keep horizontal courses taught must be incorporated into the guardrail, of strength not less than the material used in the horizontal course; and

(c) the flexible wire or similar material used to form horizontal courses must be arranged so that it is visible for inspection purposes.

Additional fall protection standards

6.5 'No climb zone' for public transport vessels

(1) To reduce the risk of passengers climbing and falling overboard, public transport vessels must have 'no climb zones' which comply with the requirements for one of the options specified in Table 30.

(2) The 'no climb zone' applies to open decks that are accessible to passengers and extends:

(a) 450 mm inboard from the inner edge of the gunwale, guardrail or bulwark; and

(b) to the same height as the, guardrail or bulwark above the deck.

NOTE See Figure C1 for an illustration of the 'no climb zone'.

Table 30 Preventing falls overboard on public transport vessels

Option	Requirement	Control type (hierarchy of control)
No seating in 'no climb zone'	No seating is located in the 'no climb zones'.	Elimination
Increased handrail, bulwark or guardrail height	Where seating that could be used as footholds is located in a 'no climb zone', the increased handrail, bulwark or guardrail heights set out in Annex C are met.	Engineering control
Signage	Where seating that could be used as footholds is located in a 'no climb zone', signage is placed on each seat in the 'no climb zone' which states 'do not stand on seats'. This signage must meet the rectangular size requirements of Table B1. Where a seat in the 'no climb zone' accommodates multiple persons, the sign must be clearly legible from all positions a person could climb.	Administrative control

More effective

Less effective

6.6 Special purpose decks and special working decks

All of the additional fall protection measures specified in Table 31 that apply to the vessel must be provided on each special purpose deck and special working deck on the vessel.

NOTE The additional fall protection measures should be listed in the vessel's safety management system.

Table 31 Additional fall protection measures for nominated special purpose decks and special working decks

Measure	Special purpose deck		Special working deck	
	Operational area A, B or C	Operational area D or E	Operational area A, B or C	Operational area D or E
Measure 1 Slip-resistant surface (clause 6.7)	Applies	Applies	Applies	Applies
Measure 2 Foot-stop/toe rail if guard rail fitted (clause 6.8)	Applies	Applies	Applies	Applies
Measure 3 Handholds (clause 6.9)	Applies (A)	Applies (A)	Applies (A)	Applies (A)
Measure 4 Guardrails / bulwarks (clause 6.10)	Applies	Applies (B)	Applies	Either Measure 4 or Measure 5 (B)
Measure 5 Harnesses, safety lines, anchor points and jackstays (clause 6.11)	Applies	Either Measure 5 or Measure 7 (B)	Applies	Either Measure 5 or Measure 7 (B)
Measure 6 Fixed seating for all persons (clause 6.12)	Applies	Applies	Not Required	Not Required
Measure 7 Wearing of lifejacket	Applies	Either Measure 5 or Measure 7 (B)	Applies	Either Measure 5 or Measure 7 (B)
Measure 8 Personal locating device (clause 0)	Applies	Not required	Applies	Not required
Measure 9 Means of reboarding (clause 6.14)	Applies	Applies	Applies	Applies

KEY to Table 31:

(A) Does not apply to flat top barges that do not have persons on board.

(B) Class 2 unpowered barges operating in sheltered waters where personnel have limited access to within 1 m of unprotected edges of the vessel, must comply with either: measure 4 or measure 5 or measure 7.

6.7 Measure 1: Slip resistant surfaces

A special purpose deck or special working deck must have the following measures for slip resistant surfaces:

(a) deck areas must be slip-resistant;

(b) slip-resistant surfaces need not be continuous; and

(c) the maximum spacing between slip-resistant patches must not be greater than 75 mm, except for glazed areas where the maximum spacing must not be greater than 500 mm, unless the lateral sides of the area are fitted with foot stops in accordance with clause 6.8.

6.8 Measure 2: Foot stops and toe rails

(1) A foot-stop or toe rail must be provided in a special purpose deck or a special working deck:

(a) along those outboard edges of the accessible portion of the deck; and

(b) as close as practicable to the outboard edges of the accessible portions of the deck.

(2) The foot-stops or toe rail must comply with the following:

(a) the height of the upper edge of the foot-stop or toe rail measured perpendicular to the adjacent special working deck or special purpose deck must be at least 25 mm; and

(b) if the shape of the foot-stop or toe rail is configured other than to have a vertical upstand, the foot-stop must comply with *ISO 15085 Small craft — Man-overboard prevention and recovery*.

(3) The foot-stop or toe rail may have gaps for the following:

(a) stanchions;

(b) pulpit feet;

(c) cleats;

(d) other similar fittings;

(e) water drainage.

(4) Each gap must not be greater than 100 mm to the edge of the adjacent fitting, or foot stop or toe rail.

(5) A fitting providing a foot-stopping action is a local foot-stop or toe rail.

6.9 Measure 3: Handholds

(1) Handholds must be provided in a special purpose deck or special working deck, and may be any of the following:

(a) handrails;

(b) overhead rails;

(c) handles on fixed seats;

(d) pillars;

(e) cleated handrails on coach houses.

NOTE Handholds are not required on flat top barges that do not have persons on board while the vessel is moving – see Table 31.

(2) The handholds must:

(a) be designed to facilitate a secure grip;

(b) be located having regard to the demographic characteristics of a person likely to use them;

(c) not be spaced more than 1.5 m apart; and

(d) be capable of withstanding a horizontal force of 1500 N without any permanent yield or rupture.

6.10 Measure 4: Bulwarks and guardrails

(1) The minimum height of the bulwarks and guardrails must be in accordance with Table 28.

(2) The bulwarks and guardrails must comply with the applicable requirements of clauses 6.4(3) to 6.4(9).

6.11 Measure 5: Harnesses, safely lines, anchor points and jack-stays

(1) If Measure 5 is the applicable measure in accordance with Table 31, the vessel must comply with this clause.

Harnesses and safety lines

(2) The vessel must have on board:

(a) at least 2 harnesses; and

(b) a safety line of appropriate length for each person who is to use the special purpose deck or special working deck that complies with:

(i) AS 2227 Yachting harnesses and lines — Conventional lines; or

(ii) for vessels ≤24m, ISO 12401 Small craft — Deck safety harness and safety line – Safety requirements and test methods.

Anchor points

(3) For an accessway leading onto a special purpose deck or special working deck, there must be anchor points or jack-stays for a person to clip on before coming on deck and unclip after going below deck.

(4) The following applies for anchor points:

(a) if the option of anchor points and harnesses is adopted for a space, an anchor point must be provided at each place where persons work or otherwise occupy for long periods; and

(b) if a deck contains any of the features mentioned in Table 32, an anchor point must be provided within the distance from the feature mentioned in the table; and

(c) sufficient anchor points must also be provided so that they are located no more than 3 m apart.

(5) An anchor point must:

(a) be designed to facilitate attachment by the harness hook; and

(b) not exceed 15 mm diameter which is the maximum permissible dimension that can be accommodated within the inside of the harness hook; and

(c) withstand a horizontal force of 6 kN once installed.

(6) An anchor point complying with the any of the following standards is an acceptable alternative:

(a) for vessels ≤24m, ISO 12401:2009 Small craft – Deck safety harness and safety line – Safety requirements and test methods. Requirements for hooking points; or

(b) BS EN 795: 2012 Personal fall protection equipment – Anchor devices.

Table 32 — Anchor point locations

Feature	Location of clipping point
Accessways to spaces inside the vessel	Within 1 m of the outside edge of accessway
Each steering position	Within 2 m
Each mast on a sailing vessel	Within 2 m
Each winch position on a vessel (including a sailing vessel) where the winches are likely to be operated underway	Within 2 m
The windlass	Within 2 m
Towing strong point	Within 2 m
Fishing positions and game fishing chairs on sports fishing vessels	Within 2 m

Jack-stays

(7) The vessel must have sufficient jack-stays allowing a person on a special purpose deck or special working deck to perform his or her functions.

(8) A sailing vessel must have jack-stays port and starboard.

(9) The jack-stays:

(a) must be arranged to minimise the need for clipping and unclipping; and

(b) may be in sections; and

(c) must have each section as long as practicable.

(10) A jack-stay must be made of stainless steel wire, webbing or equivalent with breaking strength of at least 20 kN.

(11) If made from stainless steel wire, the jack-stay must be uncoated and used without sleeving to facilitate monitoring of its condition.

(12) An anchor point must be:

(a) fitted at the ends of each section of jack-stay; and

(b) reliably attached to the structure of the vessel.

(13) An anchor point for a jack-stay must withstand a horizontal force of 20 kN applied in the direction of and up to an angle of 30° from a line connecting them.

(14) An anchor point for a jack-stay need not be designed specifically for the purpose if it complies with clauses 6.11(7) to 6.11(13).

6.12 Measure 6: Fixed seating

The fixed seating for all persons must comply with the requirements for seating for passengers contained in clauses 4.14(3) and 4.14(4).

6.13 Measure 8: Personal locating device

Crew must wear:

(a) when conducting single handed operations — a person overboard alert device complying with AS/NZS 4869; or

(b) when conducting multiple crew operations — a personal locating beacon complying with AS/NZS 4280.2 and must be registered with AMSA.

6.14 Measure 9: Reboarding

A vessel with a nominated special purpose deck or special working deck must have a means of reboarding that is:

(a) accessible to, or deployable by, the person in the water without assistance from other persons and without the use of tools (eg ladders, steps, handholds, brackets);

(b) suited to the demographic characteristics of persons likely to need it;

(c) located away from any propeller if practicable;

(d) for a vessel that will have passengers on the special purpose deck — a ladder or stairs having a lowest rung or step at least 300 mm below the worst case waterline; and

(e) for a vessel with a special working deck but without a special purpose deck and having a minimum freeboard less than 500 mm — a single handhold, suitably located to allow reboarding, with consideration of the vessel's stability.

PROTECT FROM HAZARDOUS PLANT

6.15 Hazardous plant

(1) In this clause:

plant means any machinery, equipment appliance, implement or tool on the vessel, including any component, fitting or accessory.

(2) Plant must be arranged for safe access as follows:

(a) the overall design of a space containing plant must be arranged to facilitate reasonable access to all items that may require inspection or attention in service; and

(b) passageways passing close to potentially hazardous elements of plant must be of sufficient width to minimise the risk of exposure to the hazards.

(3) A vessel must have shields and guards to protect a person from exposure to hazardous elements of plant including moving parts, hot and cold surfaces and toxic substances in both normal and abnormal conditions of operation.

ACCESS TO AND FROM THE VESSEL

6.16 Safe means of boarding and disembarkation

(1) A vessel must have a safe means of access to and from the vessel which:

(a) facilitates the safe boarding and disembarkation of persons;

(b) has a slip-resistant surface;

(c) is positioned away from potentially hazardous activities such as cargo handling operations;

(d) is illuminated if used during the hours of darkness; and

(e) provides protection from falls for users.

NOTE For vessels providing public transport, see also the *Disability Standards for Accessible Public Transport 2002* and the *Disability Standards for Accessible Public Transport Guidelines 2004 (No.3) for more information on the access requirements for people with disability*.

(2) The vessel must be adequately secured and stationary when persons are boarding or disembarking.

6.17 Gangways and accommodation ladders

(1) Where a gangway or accommodation ladder is used as the means of access to and from the vessel, it must:

(a) be of sufficient length so that it can be landed clear of the edge of the wharf or other potential hazards such as mooring lines;

(b) be of sufficient length so that it can be at an angle that will allow safe access to the vessel for all likely variations in vessel freeboard and tidal range while alongside;

(c) be marked with working load limit; and

(d) be adequately secured when in use.

(2) If a gangway or accommodation ladder is fixed or attached to the vessel, or carried on the vessel as part of the vessel's equipment, it must be of sufficient length to ensure that when deployed during normal operations over the normal range of tide and vessel freeboards:

(a) the landing of the gangway or accommodation ladder is kept well clear of the edge of the quayside;

(b) the angle of the gangway does not exceed the maximum permissible angle for cleated inclined ramps of 30°; and

(c) the angle of the accommodation ladder does not exceed the maximum permissible angle of 55°.

NOTE For vessels providing public transport, the gangway angles may need to be reduced to provide access for people with disability. See the *Disability Standards for Accessible Public Transport 2002* and the *Disability Standards for Accessible Public Transport Guidelines 2004 (No.3)* for more information on the access requirements for vessels providing public transport.

(3) If a gangway or accommodation ladder is fixed or attached to the vessel, or carried on the vessel as part of the vessel's equipment, it must comply with:

(a) ISO 7061 Ships and marine technology — Aluminum shore gangways for seagoing vessels; or

(b) ISO 5488 Ships and marine technology — Accommodation ladders: or

(c) for vessels only operating in D and E waters:

(i) BS EN 14206: 2003 Inland navigation vessels. Gangways for passenger vessels. Requirements, tests; or

(ii) BS EN 526:1995 Inland navigation vessels. Gangways with a length not exceeding 8 m. Requirements, types; or

(iii) an Equivalent Australian standard.

NOTE 1 Access structures compliant to AS 1657:2018 Fixed platforms, walkways, stairways and ladders — Design, construction and installation may be suitable in some circumstances.

NOTE 2 Local work health and safety (WHS) requirements may also apply to access arrangements between a vessel and shore. Additional guidance that may assist in managing the risks are:

- *Safety and health in ports. ILOC Code of practice(Section 3.4 — Shore-side access to ships),*
- *Model Code of Practice – Managing risks in Stevedoring – Safe Work Australia,*
- *Model Code of Practice – Managing the work environment and factilities — Safe Work Australia,*
- *Model Code of Practice – Managing the risk of falls at the workplace – Safe Work Australia.*

PILOT TRANSFER AND LAUNCH ARRANGEMENTS

6.18 Pilot transfer arrangements

A seagoing vessel of at least 50 m measured length must have safe pilot transfer arrangements complying with Regulation 23 of Chapter V of SOLAS in:

(a) operational Area A;

(b) operational Area Extended B;

(c) operational Area B; and

(d) if the vessel is not to operate with a pilotage exemption — operational Area C.

6.19 Pilot launches

(1) A pilot launch must be constructed so that:

(a) the deck that is used for access to the pilot transfer position is clear and free of obstructions;

(b) there is at least 750 mm between the gunwale and deckhouse or superstructure on the deck that is used for access to the pilot transfer position;

(c) the pilot transfer position is forward of the wheelhouse;

(d) from the launch master's normal driving position, the pilot and deck hand can be seen when they are outside the cabin;

(e) a person in the launch master's normal driving position has, as far as is practicable, a clear view at every stage, of a pilot or deck hand moving from the cabin to the pilot transfer position or transferring the pilot's bags to or from the vessel;

(f) a person in the launch master's normal driving position can see the pilot:

(i) when leaving the deck of the pilot launch and when ascending the pilot ladder; and

(ii) when descending the pilot ladder and arriving on the deck of the pilot launch; and

(g) the helm, engine controls and all other launch handling controls are at the normal driving position;

(h) normal access from the open deck to accommodation space for use of pilots is not through a forward-facing weather tight door;

(i) all external walkways have an efficient non-slip surface; and

(j) either:

(i) the external colour is substantially a highly visible colour and clearly marked with the word 'pilot' on both sides of the vessel in letters at least 300 mm high; or

(ii) the vessel has a transmitting Automatic Identification System (AIS) that complies with the standards and requirements for AIS specified in NSCV C7C.

(2) For the purposes of clause 6.19(1)(j)(i), the highly visible colour must either:

(a) comply with the definition of highly visible colour contained in the LSA Code for life-saving appliances; or

(b) be of an international or vivid reddish orange, safety yellow, or a comparably highly visible colour that would assist detection at sea.

NOTE 'Highly visible colour' only includes colours of strong chromatic content. Colours such as white, all shades of grey and all shades of blue will not be accepted as 'comparable' colours.

(3) A pilot launch must be fitted with the following:

(a) for each seafarer on board the launch and for each pilot carried so that all people on board the launch may be seated simultaneously — one impact absorbing seat fitted with adjustable suspension and dampers to reduce shock loads and vibration;

(b) seats allowing comfortable access to any controls and equipment required to be used by the launch master, seafarers or pilots;

(c) an air conditioner that can maintain a temperature in the range of 21° to 25°C inside the cabin in all ambient weather conditions in the area of operation; and

(d) sound proofing so that ambient noise levels inside the accommodation, except the engine space, do not exceed 85 dB when measured:

(i) at the height approximately equal to the level of a person's head while sitting in the impact absorbing seats provided; and

(ii) with the engines running at normal sea-going operating revolutions; and

(iii) with the doors closed; and

(iv) with the air conditioner running.

(4) A pilot launch must be fitted with the following equipment:

(a) fendering that:

(i) allows the pilot launch to come alongside vessels underway in all normal operating conditions without sustaining damage;

(ii) does not interfere, obstruct or hinder pilot transfer;

(iii) is continuous along gunwales; and

(iv) is not constructed using material that can become fouled on the pilot ladder or recovery line;

(b) onboard lighting sufficient to ensure that operations can be conducted safely,

(c) safety handrails on deck and inside the accommodation that are:

(i) capable of withstanding a load in either the vertical or horizontal direction of at least 1.2 kN; and

(ii) situated both inside and outside of the cabin so that a person can leave any of the impact absorbing seats provided in the cabin and move to the pilot transfer area with the continuous aid of the handrails;

(d) an uninterrupted, continuous safety rail system:

(i) which a lanyard or webbing strap capable of withstanding a load of 6 kN, or complying with AS 2227 or ISO 12401, may be attached;

(ii) that when connected to a safety line (complying with clause 6.11) does not allow the Marine pilot or crew members torso to reach the edge of the pilot vessel when attached to the travellers of the safety rail attached and clipped to a harness complying with clause 6.11;

NOTE See Figure 14 for an illustration.

(iii) that is located on each side of the accommodation to the pilot transfer area;

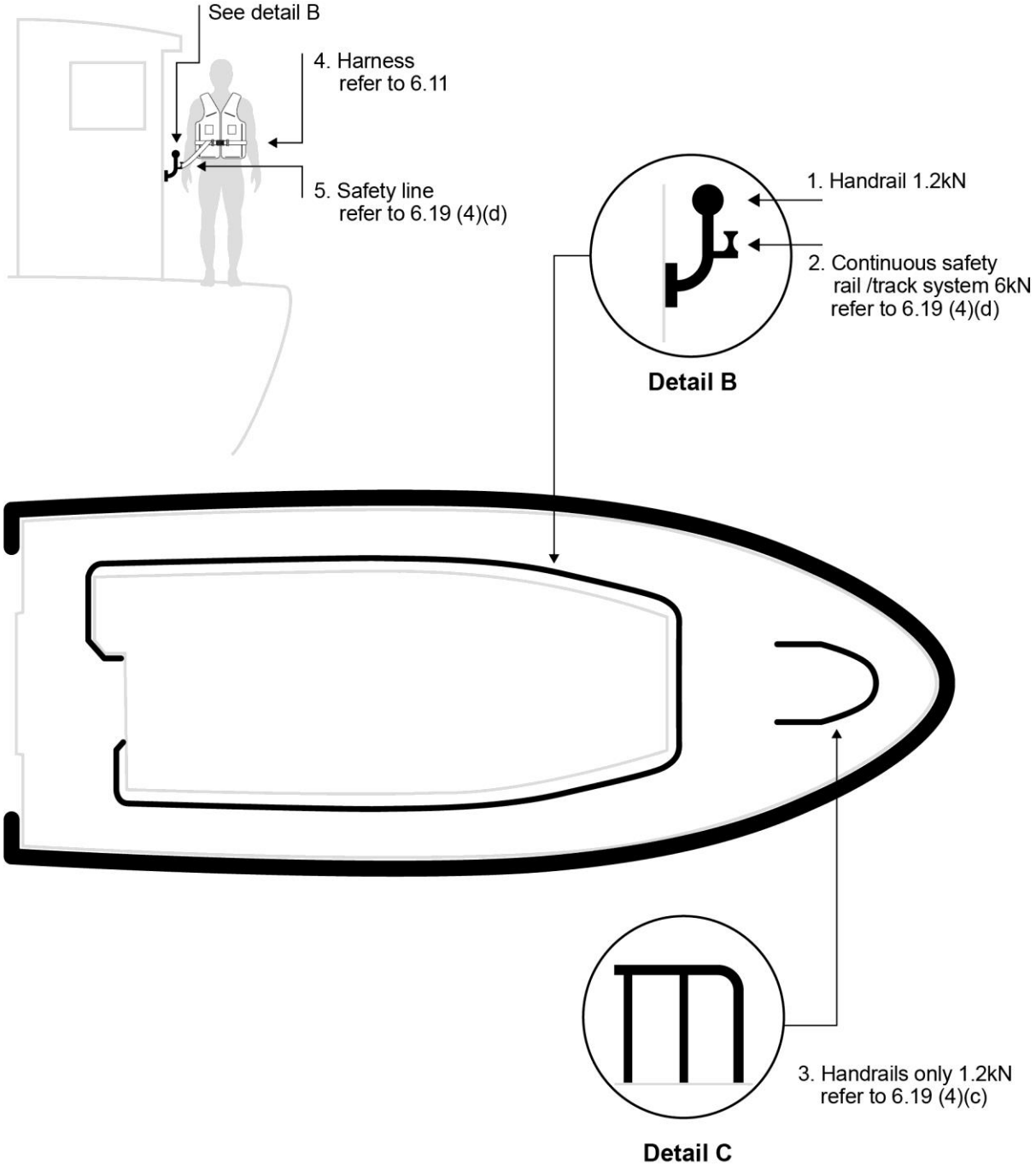
(iv) for which pre-installation testing or certification has provided evidence that the safety rail can withstand a static load test with a horizontal or vertical force of at least 6 kN load in at least 3 locations (typically at both ends and at any rail joint or in the middle); and

(v) for which, post-installation testing and periodic testing of the safety rail has provided evidence that the safety rail can withstand a static load test with a horizontal force of at least 3 kN load in at 3 locations (typically at both ends and at any rail joint or in the middle), where the load has been applied for at least 30 seconds. The periodic testing must be in accordance with the manufactures' recommendations or at least once every 5 years (whichever is less); and

(e) windscreen wipers situated in front of the launch master that are effective in rough weather and a fixed system for applying fresh water to the area of the forward windows covered by the wipers.

NOTE Neither ISO 12401 nor AS 2227 use a fall-arrest mechanism in their makeup that could extend the length of the safety line during a fall, both do however seek to reduce the force on the occupant of the harness.

Figure 14 Pilot vessel uninterrupted, continuous safety rail system and clipping point illustration



ANNEX A METHODOLOGY FOR DETERMINING THE MINIMUM REQUIRED AGGREGATE WIDTH OF DOORS, STAIRWAYS, CORRIDORS AND WALKWAYS SERVING A SPACE

A1 Scope

This Annex specifies the deemed to satisfy method for determining the minimum required aggregate width of doors, stairways, corridors and walkways serving a space.

A2 Application

This Annex applies to escape and evacuation paths on a vessel.

A3 Objective

The objective of this Annex is to set standards to facilitate:

(a) the escape of all persons within a space from hazards that might arise within 5 minutes; and

(b) the evacuation of all persons on a vessel into survival craft within 30 minutes from the issue of the order to abandon the vessel.

A4 Size of accessways

The size of accessways must ensure that the calculated flow capacity of the accessway (clause A6) exceeds the required minimum flow of the accessway (clause A5).

A5 Required minimum flow through accessways

The required minimum size of accessways must assume a time of passage of the first to the last person of 2 minutes and accommodate a flow of persons of a number determined as follows:

(a) the number of persons accommodated within a space needing to use the access as a means of escape taking into account:

  (i) the number of other similar accessways serving the space;

  (ii) the standards for redundancy of flow capacity of means of escape if there are more than 12 persons in the space;

  (iii) the contribution of any low-capacity escapes that may also be installed to serve the space; and

  (iv) crew on duty that reduce the average number of persons in a crew accommodation space by one third; and

(b) the number of persons needing to use the accessway as part of an evacuation path taking into account:

  (i) whether the path leads to an assembly station or directly to an embarkation station or whether it leads from an assembly station to an embarkation station; and

(ii) the number of persons progressively entering the evacuation path from spaces along the evacuation path; and

(iii) specified minimum widths for individual stairways, corridors, doors and walkways.

A6 Calculated flow capacity of a single high-capacity accessway

The calculated flow capacity of a single accessway used as a high-capacity escape or evacuation path is:

$$N_A = 0.12\left(W_{AN} - 300\right)$$

where:

N_A is the number of persons passing through the accessway.

W_{AN} is the nominal width of the accessway not counting narrowing due to hand railings, in metres.

The values in Table A1 have been derived from this formula and are for ascertaining the flow capacity of a single accessway.

Table A1 Calculated flow capacity of a single accessway

Nominal width of single accessway (mm)	Calculated flow capacity (persons)
700	48
750	54
800	60
850	66
900	72
950	78
1000	84
1050	90
1100	96
1150	102
1200	108
1250	114
1300	120
1350	126
1400	132
1450	138
1500	144
1550	150

Nominal width of single accessway (mm)	Calculated flow capacity (persons)
1600	156
1650	162
1700	168
1750	174
1800	180
1850	186
1900	192
1950	198
2000	204
2100	216
2150	222
2200	228
2250	234
2300	240
2350	246
2400	252
2450	258
2500	264
2550	270
2600	276

NOTE Nominal width means the width of the accessway excluding any deduction from the intrusion of any handrails.

A7 Person flow capacity for low-capacity escapes

The deemed to satisfy person flow capacity of each low-capacity escape is 18 persons.

A8 Required combined flow capacity of escapes from a space

If a space is required to have more than 1 means of escape, the combined flow capacity of means of escape serving the space is:

$$N_A^1 + N_A^2 + ... + N_A^{N_E - 1} \geq N_{PE}$$

where:

$N_A^1, N_A^2, ..., N_A^{N_E}$ is the calculated flow capacity of each means of escape serving the space, in accordance with clause A6 if high capacity or clause A7 if low capacity.

$N_A^1 + N_A^2 + ... + N_A^{N_E - 1}$ is the assumed number of persons within the space.

N_{PE} is the assumed number of persons within the space.

The values given in Table A2 have been derived from this formula. They are valid assuming a space is served by equally sized high-capacity escapes without allowance for any low-capacity escapes.

As the number of persons in a space increases, the provision of just 2 means of escape becomes increasingly impracticable. The green shaded cells show the optimum configuration based on minimum total width of means of escape from the space.

If low-capacity escapes also serve a space, the total number of persons assumed in the space may be reduced by 18 persons per low-capacity escape.

Table A2 Total nominal width of equally sized high-capacity door escapes serving a single space assuming no low-capacity escapes

Number of persons in the space (see note 1)	Minimum total of the nominal widths of escapes serving the space (mm) (see notes 2 and 3)			
	2 exits	3 exits	4 exits	5 exits
72	1800 #	2700*	3600*	4500*
100	2267 #	2700*	3600*	4500*
125	2683 #	2700*	3600*	4500*
150	3100	2775 #	3600*	4500*
175	3517	3088 #	3600*	4500*
200	3933	3400 #	3600*	4500*
250	4767	4025	3978 #	4500*
300	5600	4650	4533 #	4625
350	6433	5275	5089 #	5146
400	7267	5900	5644 #	5667
450	8100	6525	6200	6188 #
500	8933	7150	6756	6708 #
550	9767	7775	7311	7229 #
600	10600	8400	7867	7750 #

KEY to Table A2:

# indicates the preferred number of exits depending on the number of persons in the space.

* based on minimum 900 mm width of a door for each means of escape on a passenger vessel. Passageways would be at least 100 mm wider and stairways at least 200 mm wider due to the intrusion of handrails.

NOTE 1 Only be 67% of the crew needs to be accommodated within a crew accommodation space.
NOTE 2 Nominal width means the width of the accessway excluding any deduction from the intrusion of any handrails.
NOTE 3 The table assumes means of escape are all the same size. A larger value will be required where the sizes of means of escape differ from one another.

ANNEX B MARKING AND SIGNAGE

B1 Scope

This Annex specifies the deemed to satisfy-solution for marking and signage of escape and evacuation paths on vessels with 12 or fewer berthed passengers and 36 or fewer non-berthed passengers.

NOTE Vessels that carry more than 12 berthed persons, or 36 or more passengers, are higher risk vessels and must comply with clause 5.16(7)(a).

B2 Application

(1) This Annex applies to the marking and signage of escape and evacuation paths on vessels that are not required to comply with clause 5.16(7)(a).

(2) Signage may be reduced or omitted in areas where the configuration of the vessel promotes readily identifiable assembly point, escape routes and exits.

B3 Objective

The objective of this Annex is to set standards for marking and signage of escape and evacuation paths to ensure that they:

(a) are readily understood by the majority of passengers and crew within 60 seconds; and

(b) use symbols to aid in the rapid evacuation and escape of all persons on a vessel.

B4 Standards for marking and signage

(1) Signs and markings must be at least the sizes set out in Table B1 and pictorially the same or equivalent to Figure B1.

(2) Alternatively, compliance with the *ISO 24409* series of standards, *IMO Resolution A.1116(30)* or *AS 1319-1994, Safety Signs for the Occupational Environment* is a deemed to satisfy solution.

(3) Signs and markings must be maintained, serviced, and replaced in accordance with manufacturers recommendations.

Table B1 Size of signs and markings

Vessel length	Square shape (minimum size)	Rectangle shape (minimum size)	Colour
<12 m	100 mm x 100 mm	80 mm x 150 mm	White symbol or worded legend, or both, on a green rectangle or square with white enclosure. Signs must be either: a) Photoluminescent marking (minimum luminance of 30 mcd/m^2 for not less than 90 minutes)
≥12 m to <24m	150 mm x 150 mm	150 mm x 300 mm	
≥24 m	300 mm x 300 mm		

Vessel length	Square shape (minimum size)	Rectangle shape (minimum size)	Colour
			b) Non-Photoluminescents but marked by a lighting source capable of supply for 90 minutes in an emergency.

Figure B1 Exit and escape signs

NOTE 1 Photoluminescent signs have different ratings for indoor and outdoor use and different service and replacement intervals depending on the rating/quality of the sign/marking.

NOTE 2 Your vessel situation may not be represented by the limited examples above and other similar derivatives can be used if they meet the standards for size in Table B1.

NOTE 3 A small vessel may only require a limited number of the above escape signs for example, Escape Door, Escape Hatch, depending on the vessels' configuration and number of escapes.

ANNEX C NO CLIMB ZONES

C1 Scope

This Annex C provides standards for increasing guardrail or bulwark height where seating is placed in 'no climb zones' on public transport vessels.

It forms a normative (mandatory) part of this document, where seating is placed in the 'no climb zone' and increasing the handrail, bulwark or guardrail heights is the means chosen to reduce the likelihood of passengers falling overboard or between decks due to standing on seating near to guardrails or bulwarks.

NOTE Public transport vessels have 3 options for meeting the 'no climb zone' requirements:
- not placing seating in the 'no climb zone';
- increasing handrail, bulwark or guardrail height in accordance with this Annex C; or
- placing signage on seating in the 'no climb zone'.

See clause 6.5 and Table 30.

C2 Increased handrail, bulwark or guardrail heights

Where any seating layout that could potentially be used by a passenger as a foothold to stand on is located within the no climb zone:

(a) the guardrail or bulwark height must be increased:

(i) by a distance equal to the height of the seating or foothold above the deck; and

(ii) to a maximum height of 1500 mm; and

(b) the increased guardrail or bulwark height must extend a minimum 500 mm in width past the seating or foothold (see Figure C1 for details).

NOTE The no climb zone is set out in clause 6.5. It applies to open decks that are accessible to passengers and extends:
- 450 mm inboard from the inner edge of the gunwale, guardrail or bulwark; and
- to the same height as the guardrail or bulwark above the deck.

Figure C1 No climb zone