



REFORM OF THE DISABILITY STANDARDS FOR ACCESSIBLE PUBLIC TRANSPORT 2002

Removable gangway working group – revised option

November 2024

The removable gangway working group met four times between 2 July and 10 September 2024. The working group consisted of representatives from:

- Department of Infrastructure, Transport, Regional Development, Communications and the Arts (Chair).
- Australian Maritime Safety Authority
- People with Disability Australia
- Women With Disabilities Australia
- Guide Dogs Australia
- Department of Transport and Main Roads, Queensland
- Transport for New South Wales
- Queenslanders with Disability Network

The working group has agreed the revised option for Chapter 42: Removeable gangway design – ferries, outlined below. This option amends the Transport Standards to replicate elements from the former National Standards for Commercial Vessels Part C1 specifications, and includes additional requirements that were outlined in the reform area regarding profile, luminance contrast, and handrails. In response to feedback receive during the consultation process for reforms to the Transport Standards, requirements regarding edge barriers are also included in the revised option. Public transport operators and providers will be required to implement these requirements for all new, additional or replacement removable gangways brought into service on or from the date the amended Transport Standards come into effect.

The working group also discussed issues relating to the specifications for luminance contrast specified in the Australian Standards. The Department will consider methods to advocate for change to these standards to facilitate better outcomes for people with disability in the future. Further information is provided below.

Chapter 42: Removeable gangway design – ferries

Regulatory option

New requirements would be inserted into the Transport Standards to provide that removeable gangways must meet the following specifications.

Length, width and security

A removable gangway must have:

- i. sufficient length to ensure that when deployed during normal operations—over the normal range of tide and vessel freeboards—the entry and exit points of the gangway are kept well clear of the edge of the quayside or pontoon and the ferry deck.
- ii. a clear trafficable width of at least 800 mm for the full length of the removable gangway.
- iii. an effective means to mechanically secure the water side and land side for a normal range of tide and vessel freeboards.

Handrails

A removable gangway must have continuous handrails on both sides of its walking surface over its full length. The handrails must:

- i. have at least 800 millimetres clear width between handrails, with a greater width preferred if safe and practicable.
- ii. be at least 1000 mm high, measured from the walking surface.
- iii. comply with AS1428.1 (2009) Design for access and mobility, Section 12 (b) Handrails.
- iv. have a consistent finish across the entire length, and have a luminance contrast with the removable gangway walking surface and other fixed surfaces within 2 meters, of at least 30% under both wet and dry conditions.
- v. luminance contrast testing is to be determined according to methodology in AS1428.1 (2021) Appendix B.
- vi. not protrude from gangway into access paths or circulation spaces.
- vii. if the handrail is interrupted a domed warning indicator with a height of between 4–5 mm and a diameter of between 10–12 mm must be provided on the top of the handrail 150 mm from the end of the handrail.

Side barriers

A removable gangway must be fenced on each side of its entire length with upper and intermediate side rails or barriers:

- i. with fixed rails, taut ropes, taut chains or nylon barrier; and
- ii. if the gap between the walking surface and the lowest intermediate course of rail exceeds 230 mm — with boards at least 60 mm above the walking surface; and
- iii. arranged so that any covering material used on ropes or chains is readily removable to allow inspection of their condition; and
- iv. supported by stanchions spaced not more than 2150mm apart, each fitted with a locking device to prevent accidental dislodgment.
- v. arranged so that the maximum clear gap between the handrail and intermediate rail or barrier does not exceed 600 mm.

Edge barriers

A removable gangway must have continuous edge barriers on both sides of the walking surface if the gap between the walking surface and the lowest intermediate course of intermediate rail or side barrier exceeds 230 mm. Edge barriers must:

- i. have at least 800 mm in clear width between edge barriers measured across the walking surface, with a greater width preferred if safe and practicable.
- ii. rise at least 65 mm above the walking surface with 75 mm preferred.
- iii. have a luminance contrast with the removable gangway walking surface and other fixed surfaces within 2 meters, of at least 30% under both wet and dry conditions.
- iv. Edge barriers may be curved, chamfered or tapered at either end and should not have sharp edges that may cause injury or damage or protrusions that present a trip hazard.

Gradient when deployed

- i. Removable gangways may be convex in profile.
- ii. For unassisted access, no part of the curve shall exceed a gradient of 1:8 while the removable gangway is deployed.
- iii. If the gradient on the curve exceeds 1:8, then direct assistance must be available.
- iv. Gangways may be articulated to achieve the 1:8 maximum gradient over the curve.
- v. Note See sections 33.3 to 33.6 in relation to equivalent access and direct assistance.

Surfaces

A removable gangway must have:

- i. a slip resistant walking surface which complies with AS1428.1(2021) Clause 4.1.
- ii. a solid 50 to 75 millimetre strip on the gangway's leading edges that provides a luminance contrast with the walkway surface and the surfaces on which it is deployed by at least 30 percent.
- iii. Gaps in the surface created by articulation or similar must conform to the horizontal and vertical maximums of AS1428.1 (2021) Clause 4.2.

Strength

A removable gangway must be designed and constructed to withstand:

- i. a pressure of 5.5 kPa.
- ii. a concentrated load of 5000 N at any point along its length.

Strength testing

A removable gangway:

- i. must be tested for safe boarding and disembarkation by applying the loading mentioned above and
- ii. is satisfactory if the gangway or gangplank does not fail or suffer permanent deformation after the load is removed; and
- iii. must be demonstrated to be safe by a practical trial of the arrangements for boarding and disembarkation, taking into account the variances likely in the vessel's operations.

Supporting guidance

Specific guidance may include:

Design

- Removable gangways must be able to maintain two points of contact on moving pontoon and ferry decks. They must also accommodate lateral movement of the ferry to and from the pontoon. A convex profile is required and removable gangways with convex profiles are standard for most ferry systems. To ensure independent access, the gradient along the curve of the removable gangway should not exceed 1:8 at any point when the gangway is deployed for boarding and alighting.
 - Direct assistance should be provided at gradients over 1:8.
- Where possible, removable gangways should exceed the minimum 800 millimetre clear width between handrails and edge barriers. Any extra width must be balanced against the weight added to the structure, but even modest increases in clear width will enhance the accessibility of the removable gangway for passengers using mobility aids.

Staff safety

- Removable gangways must be long enough to achieve a safe overlap on both decks due to the risk posed by lateral movement of the ferry while berthed. Removable gangway length is ultimately limited by occupational health and safety considerations. Removable gangways are a sturdy apparatus that must be of a size and weight that is safe and convenient for the deckhand to deploy and is also of a size that is suitable to be stationed on a pontoon or ferry. Consultation with operators, their staff and occupational health and safety experts is strongly advised when designing removable gangways.

Equivalent Access, marine environment and design considerations

- As an alternative to prescriptive compliance with the DSAPT Section 33.3 permits Equivalent Access solutions. These solutions permit flexibility and innovation. In some locations it may not be possible to meet all of the prescriptive requirements for removable gangways. Ferry terminals operate in a marine environment with a number of factors influencing boarding accessibility and removable gangway slope and stability. For example, differential freeboard height between a given pontoon and vessel is influenced by:
 - base difference in vessel freeboards
 - number of passengers and distribution onboard (load)
 - level of fuel, water, waste water
 - pontoon freeboard (minor difference terminal to terminal)
 - wave action during boarding activity.
- Where necessary, equivalent access solutions as per DSAPT Sections 33.3, 33.4 and 33.5 can be developed that include tolerances for marine environments. Equivalent access solutions can also allow the flexibility required to account for varying vessel designs and different jetty infrastructure boarding points.

Luminance contrast

- Consultation with people who have vision impairments and with relevant subject matter experts is advised regarding luminance contrast requirements for removable gangways. The 30% minimum usually required for fixtures in AS1428.1 may be insufficient in the dynamic environment of ferry alighting and boarding. Passenger safety may require much higher luminance contrast of fixtures. This may extend to colouring the entire removable gangway to provide a high degree of luminance and visual contrast with both pontoon deck and ferry.
- Operators and providers should undertake consultation and user testing to ensure usability and safety for people with low vision.
- In situations where it is difficult to achieve the minimum luminance contrast, equivalent access provisions may be warranted. This would need to be considered in consultation with users through a co-design process.

Safety net

- If the difference in levels between the ends of the gangway exceeds 1.5 m, there should be safety nets:
 - of adequate length and width to prevent injury to a person falling from the gangway; and
 - composed of mesh of:
 - › breaking load not less than 1.23 kN, and
 - › size such that the aperture of the mesh is more than 190 mm measured between opposite knots when the mesh is hung or cut to make it square mesh; and
 - › constructed so that every corner of each mesh is secured to prevent movement; and
 - › having a framing rope of at breaking load not less than 3.9 kN; and
 - › resistant to actinic degradation (ie caused by solar radiation); and
 - › secured in position at each corner, and intermediate points if required, by suitably secured lengths of framing rope.

Removable gangway storage

- Removable gangways should be stored safely so that they do not present a safety hazard. For example, in gated enclosures that are only accessed by staff.

Emergency situations

- People with disability should be considered when planning for emergency situations that impact the deployment of the removable gangway.

Continuous accessibility of access paths

- The means of mechanically securing the removable gangway to the water and land sides should not protrude into the access path.

Strength testing

- A removable gangway:
 - must be tested for safe boarding and disembarkation by applying the loading mentioned above and to be outlined in the Transport Standards. To conduct the load testing:
 - › the gangway should be secured and placed in its fully raised position;
 - › apply the test load to the surface of the gangway at various points along the length of the gangway, including the central point. Leave the load in each position for 5 minutes;
 - › remove the load and inspect the gangway to ensure it does not fail or suffer permanent deformation or any fracture, or signs of residual weakness or damage after the load is removed,;
 - must be demonstrated to be safe by a practical trial of the arrangements for boarding and disembarkation, taking into account the variances likely in the vessel's operations.

Maintenance

- A removable gangway should be maintained and subject to regular inspection to ensure the gangway continues to meet the requirements of the Transport Standards, and ensuring:
 - there is no distortion of the side or edge barriers;
 - the anti-slip surface is adequately secured and does not present a trip hazard;
 - if applicable, the roller or wheels revolve freely;
 - the stanchions, handrails and side barriers can be easily erected, if applicable, and are secured in position; and
 - luminance contrast requirements of handrails and edge barriers are maintained.

Side barriers

- If the side barrier is a taut chain, it should be covered to prevent chains snagging and pinching.

Issue for further consideration: Australian Standards luminance contrast requirements

The Transport Standards include a number of references to the luminance contrast requirements in Australian Standard 1428.1 *Design for access and mobility* (AS1428.1). The minimum luminance contrast required for fixtures in AS1428.1 is 30 per cent.

The working group members raised concerns that the 30 per cent minimum requirement does not meet the needs of the low vision community, and may no longer be supported by contemporary evidence or user testing. Working group members also noted that the testing requirements are often difficult to apply, and that anecdotally many people with low vision find colour contrast or the use of 'safety yellow' preferable and more discernible in many environments. The working group agreed that further research and user testing on luminance and colour contrasting for safety in a public transport context is required.

Despite these concerns, the working group has agreed to adopt the Australian Standard requirements, recognising this issue is beyond the scope of the Transport Standards. As part of the revised option, guidance will be developed highlighting the importance and value of user testing. Guidance will highlight that the 30 per cent minimum required may be insufficient and higher contrasts should be adopted. Guidance will also highlight that operators and providers have the opportunity to consult with people with low vision regarding the use of equivalent access solutions where appropriate.

The inadequacy of the Australian Standard requirement is a recurring concern that was also raised where luminance contrast was an element of other reforms to the Transport Standards. The objective of the referenced Australian Standards is to provide design requirements to enable access for people with disability. Working group members highlighted that anecdotally it seems that the standard may no longer be achieving this objective.

Noting the issues identified by the working group and recognising that the agreed reform option will not address broader issues with the luminance requirements that go beyond the scope of the Transport Standards, the working group recommended the Department advocates for reform to the Australian Standards requirement.