

Egress and means of escape from passenger spaces

May 2018

Maritime New Zealand Position Statement

PS-01-18

This document is uncontrolled if printed. Please refer to the Maritime New Zealand website for the latest version.

Purpose of this position statement

This position statement sets out Maritime New Zealand's position on the requirements for egress and means of escape from passenger accommodation spaces. It has been developed to inform ship designers, ship builders, operators and surveyors.

Vessels it applies to

This position statement applies to ships less than 45 metres that proceed to the offshore limits which are non-SOLAS passenger ships or non-SOLAS non-passenger ships.

Maritime Rules Part 40A & 40 C set out the requirements for the design, construction and equipment of these ships.

Relevant legislation

Maritime Rule Part 40A.19

This rule includes specific requirements for the type of egress and means of escape from passenger decks, passenger accommodation and passenger compartments. It details the minimum width of openings from a passenger compartment to open deck spaces and specific requirements for ladderways and stairways.

Maritime Rule Part 40C.16(2)

This rule requires ships that proceed beyond restricted limits carrying 12 or less passengers to meet the type of 'egress' and 'means of escape' required under 40A.19.

You can read the text of these rules in Annex 2.

Issues

Rule 40A.19 requires:

1. 'ready egress' to be provided from a deck or compartments by a stairway and any combination of stairways and ladderways. It does not provide for doors to be used as 'ready egress'
2. the second 'means of escape' from below the weather deck to be a trunked ladderway or stairway. A general exemption has been issued to permit open ladderways (which may be vertical) instead of trunked ladderways on vessels less than 45 metres as this is often the way that the ship has been designed
3. two 'means of escape' from all levels of passenger accommodation. This position statement clarifies the type of space and conditions where a single 'means of escape' may be acceptable.

Maritime NZ's position

The purpose of 'ready egress' and 'means of escape' is to safely evacuate passengers and crew, in an emergency, to a muster station and/or embarkation station.

Maritime NZ understands that it is not always practical for ships less than 45 metres to fully meet the requirements of the maritime rules related to egress and means of escape.

Two general exemptions, GE-01-17 and GE-06-17, have been issued to allow for alternate forms of ready egress and means of escape.

Under GE-01-17, for ships not having egress or means of escape meeting the requirements prescribed in Maritime Rules 40A.19(1) or 40A.19(6), alternate forms of ready egress or means of escape must meet the required outcomes of Part C, Section 1, Chapter 5 of the National Standard for Commercial Vessels (NSCV).

The Maritime Rules constitute the minimum standards for maritime operators to achieve. Section 30 of HSWA requires duty holders to eliminate or minimise risks to health and safety, so far as is reasonably practicable. It may be 'reasonably practicable' for an operator to achieve a higher standard under the Health and Safety at Work Act 2015 (HSWA) than the standard specified in the Maritime Rules, or the terms of the general exemption. Simple compliance with the Maritime Rules, or the general exemption, may not absolve an operator of responsibility under HSWA if that higher standard is found to have been 'reasonably practicable'.

Maritime NZ considers that, where reasonably practicable, two 'means of escape' as widely separated as possible, should be provided from each passenger and crew accommodation space, and space where the crew is normally employed. The 'means of escape' should form part of a safe escape route for all reasonably foreseeable emergency situations.

However, under GE-01-07, if it is not reasonably practicable for two means of escape to be provided, spaces providing only one means of escape may be permitted on existing vessels if they meet the requirements of Part C, Section 1, Chapter 5, Table 16 of the Australian National Standard for Commercial Vessels (NSCV). See the table in Annex 4 – Spaces not required to have an alternative means of escape.

The NSCV 'required outcomes', 'deemed-to-satisfy solutions' and the control measures required by the exemptions, are considered to be an effective alternative to achieving compliance with the relevant rule or the requirements of the general exemption.

Maritime Transport Act 1994 and Health and Safety at Work Act 2015

The general provisions of the Maritime Transport Act 1994 (MTA) and the Health and Safety at Work Act 2015 (HSWA) apply to means of escape and evacuation procedures on board a ship.

Section 30 of HSWA requires duty holders to eliminate or minimise risks to health and safety, so far as is reasonably practicable.

General Exemptions explained

General Exemption GE-01-17

The exemption provides for a recognised surveyor to accept alternate means of 'ready egress' or 'means of escape'.

This applies to passenger accommodation spaces which accommodate 12 or less passengers in a single passenger compartment under rules 40A.19 and 40C.16.

Deemed-to-satisfy solutions

Under GE-01-17, for ships not having means of escape meeting the requirements prescribed in 40A.19(3) or 40A.19(6) alternate egress or means of escape must comply with the required outcomes of the Australian NSCV, Design and Construction for access, escapes and evacuation. In summary, a solution needs to:

- provide for escape from hazards within spaces on the vessel
- provide for redundancy in escapes
- facilitate movement for evacuation
- facilitate movement between decks
- accommodate the needs of a large proportion of passengers and crew.

You can read the full text for the required outcomes in Annex 3.

These outcomes should also be applied to crew accommodation and spaces where the crew is normally employed.

Doors

Doors should be used as primary exits (normal and ready egress) from spaces leading to an open deck on the same level or in combination with stairways or ladders.

Escape hatch

A hatch leading to an open deck may be used as a second means of escape from vessels less than 45 metres. The hatch must meet the standards of Rule 40A.24(d) and be:

- large enough to allow a person to pass through wearing a lifejacket and, in any event, not less than 460mm x 460mm
- capable of being opened from both sides
- clearly marked and kept clear at all times.

A bunk or other suitable furniture may be used to reach the hatch instead of a ladder. The difference in height from the top of the bunk (or furniture) to the hatch must be 750mm or less.

Ladders

Ladders required for ready egress or as a second means of escape from passenger accommodation spaces, must meet the standards of Rule 40A.19(4), with the following exceptions:

- The ladder may be a vertical or inclined conventional ladderway if the vessel is less than 45 metres in length
- A landing is required if the height exceeds six metres.

Ladders required for egress or as a second means of escape from crew accommodation spaces and spaces in which the crew is normally employed (other than machinery spaces):

- may be a vertical or inclined conventional ladderway if the vessel is less than 45 metres in length
- may be a step ladder or rung ladder
- must have a landing if the height exceeds six metres.

Sliding windows, portholes, popout windows and breakable windows

These may be used as a second means of escape. They must be:

- large enough to allow a person to pass through wearing a lifejacket
- clearly marked and preferably lead to the open deck.

Smoke Detectors and fire extinguishers

Where there is only one means of escape, smoke detectors should be installed, to give early warning of a fire emergency that could cut off that means of escape, in addition to the requirement for fire extinguishers.

Stairways

Stairways required for egress or as a second means of escape from accommodation spaces must meet the standards of Rule 40A.19(5).

Refer to the Maritime NZ website for the full text of the General Exemptions:

maritimenz.govt.nz/rules/general-exemptions

General Exemption GE-06-17 provides for two normal egress openings (exits) to be used where the rule requires one wider opening

Minimum width of exits

The minimum width for any exit, including doors and stairways from a passenger compartment to open deck spaces should meet either:

- a) Table 40A.2 as set out in rule 40A.19(1), or
- b) The following table which provides for two exits to satisfy the requirement for one wider exit when accommodating more than 12 and no more than 100 passengers.

Number of passengers accommodating for the compartment		Number and total width of egress (mm)
Exceeding	Not exceeding	
	12	1 x 600
12	30	2 x 600
30	45	2 x 600
45	60	2 x 600
60	75	2 x 600
75	90	2 x 750
90	100	2 x 750

(General Exemption GE-06-17)

Passenger evacuation – Operators and Masters should note

The ship's maritime transport operator plan must include procedures for:

- crew familiarisation, including:
 - a) actions they must take in an emergency
 - b) emergency duties to assist passengers (if assigned on the muster list)
 - c) location of lifesaving and fire appliances and equipment
 - d) location of emergency exits, escape routes and muster stations.
- emergency drills (recorded in the register of drills or logbook)
- passenger safety briefings, including:
 - a) crew instructions to be followed in the event of an emergency
 - b) actions they must take in an emergency
 - c) how to put on a lifejacket, and
 - d) location of emergency exits, escape routes and muster stations.
- passenger evacuation.

Annex 1

Definitions

Conventional ladderway	General Exemption – GE-01-17 refers to ‘conventional ladderway’. ‘Conventional ladderway’ is taken to mean a step ladder with flat or curved steps (or a rung ladder within crew spaces only) and handrails on each side, enabling passengers or crew to move between two levels.
Deemed-to-satisfy solution	This position statement refers to ‘deemed-to-satisfy solutions’. The phrase ‘deemed-to-satisfy solution’ is not defined in the rules, but means an acceptable means of compliance with the relevant rule or general exemption.
Egress	A means of going out or exiting a space.
Embarkation station	Means a place from where a survival craft is boarded.
Means of escape	Rules 40A & 40C refer to ‘means of escape’. ‘Means of escape’ is not defined in the rules, but is taken to mean the structural items that provide a safe escape route from a deck, compartment or accommodation space such as doors, hatches, ladderways or stairways leading to a muster station or embarkation station.
Muster Station	Means the area where passengers and crew are assembled in the event of an emergency.
Normal egress	A means of going out or exiting a space in routine situations. For example, “ <i>the door was the normal means of access and egress from the cabin</i> ”.
Opening hatch	General Exemption – GE-01-01-07 refers to ‘opening hatch’. ‘Opening hatch’ is taken to mean an ‘escape hatch’ as described in Rule 40A.24(1)(d) and 40C.19(1)(b). The escape hatch must be capable of being opened from both sides.
Passenger accommodation	Rule 40A.19(6) requires two means of escape to be provided from all levels of ‘passenger accommodation’. ‘Passenger accommodation’ is not defined in the rules, but is taken to mean the same as ‘passenger accommodation space’.
Passenger accommodation spaces	Rule 40A.19(6) defines the required means of escape from ‘passenger accommodation spaces’. ‘Passenger accommodation space’ is not defined in the rules, but is taken to mean; a public space, passenger cabin or any other space used for passengers’ leisure or living. It does not include other spaces only for crew, cargo, storage or the mechanical working of the vessel.
Passenger compartment	Rule 40A.2(1) provides a table to determine the minimum width of any single opening from any ‘passenger compartment’ to open deck spaces. ‘passenger compartment’ is not defined in the rules, but is taken to mean the same as ‘passenger accommodation space’.
Ready egress	Rule 40A.19(3) defines the required means of ‘ready egress’ from decks or compartments accommodating passengers. Ready egress is not defined in the rules, but is taken to mean an exit that provides for rapid movement of passengers in an emergency or incident.
SOLAS	The International Convention for the Safety of Life at Sea.
Trunked ladderway	Rule 40A.19(6) requires the second of two means of escape from below the weather deck to be a ‘trunked ladderway’. ‘Trunked ladderway’ is not defined in the rules, but is taken to mean a vertical passageway fitted with a ladder, which is protected

	by a structural trunk, offering a protected egress from fire.
Weather deck	A deck exposed to the weather and sea.

Annex 2

Rule extracts

40A.19 Egress

- (1) The minimum width of any single opening, including any door and stairway, that gives normal egress from any passenger compartment to open deck spaces must be determined from Table 40A.2.

Table 40A.2

Number of passengers for which compartment measured in accordance with Appendix 2		Width of Egress
Exceeding	Not exceeding	mm
	12	600
12	30	750
30	45	900
45	60	1050
60	75	1200
75	90	1350
90	100	1500

- (2) A passenger compartment that is permitted, in accordance with Appendix 2, to accommodate more than 100 passengers must be provided with more than one normal means of egress, having a combined width of clear opening of 1500 mm plus 25 mm for every 10 passengers or part thereof in excess of 100. No such means of normal egress may have a clear width of opening of less than 750 mm.
- (3) Ready egress must be provided from—
- decks or compartments that are permitted, in accordance with Appendix 2, to accommodate 12 or less passengers by—
 - at least 1 stairway; and
 - any combination of stairways and ladderways.
 - decks or compartments that are permitted, in accordance with Appendix 2, to accommodate more than 12 passengers, by stairways that meet the requirements of rule 40A.19(5).
- (4) Ladderways required by subrules (3) and (6) must—
- have a width of not less than 600 mm, measured between the inside of the handrails or any obstruction protruding within the handrails; and
 - have a tread width of not less than 100 mm with a non-slip surface; and
 - have an angle of not less than 22° to the vertical; and
 - be aligned, as far as possible, fore and aft and not athwartships; and
 - be well illuminated by day and night.

40A.19 continued

- (5) Stairways required by subrules (3) and (6) must—
 - (a) be provided with handrails at a vertical height of not less than 850 mm above the nosing of the treads, that are fitted so that there is no obstruction on or above the handrails that would tend to break a hand hold. Provided that, in the case of a stairway serving a step or break that does not exceed 1 metre in height, handrails may be omitted if suitable hand holds are provided; and
 - (b) be provided with a centre line dividing rail where the width of the stairway is 1500 mm or more; and
 - (c) have a clear vertical height of not less than 1.9 metres above the treads; and
 - (d) have an angle to the vertical of not less than 45° when the number of passengers exceeds 200, and 37° when that number is 200 or less; and
 - (e) in any ship proceeding beyond enclosed waters, be aligned forward and aft and not athwartships, if practicable; and
 - (f) have stair treads that—
 - (i) are not less than 150 mm wide; and
 - (ii) are not less than 200 mm or more than 225 mm vertically apart; and
 - (iii) have a non slip surface; and
 - (g) be well illuminated by day and night.
- (6) At least two means of escape must be provided from all levels of passenger accommodation¹⁰ in accordance with the following:
 - (a) below the weather deck the main means of escape from a passenger accommodation space must be a stairway and the second means must be either a trunked ladderway or a stairway, unless more than 12 passengers are permitted in the space, in which case the second means must be a stairway; and
 - (b) above the weather deck the means of escape from a passenger accommodation space must be stairways, or doors to an open deck, or a combination of stairways and such doors; and
 - (c) the means of escape must be so located as to minimise the risk of access to both escapes being cut off in an emergency.
- (7) A corridor or part of a corridor from which there is only one route of escape must not exceed 7 metres in length.

40C.16 Shelter and passenger accommodation

- (1) The owner of a ship must ensure that, where the ship proceeds beyond enclosed water limits, the ship has spaces that provide shelter from the weather for the total number of persons that may be carried. Such sheltered spaces may be open at the after end in ships that do not proceed beyond inshore limits.
- (2) The owner of a ship that proceeds beyond restricted limits and carries 12 or less passengers must ensure that the ship complies with the applicable requirements of rules 40A.16 to 40A.21 inclusive of Part 40A of the maritime rules.

Annex 3

National Standards for Commercial Vessels (NSCV), Part C, Section 1, Chapter 5 – Access, escapes and evacuation

Required outcomes

5.3 Required outcome — escape from hazards within spaces on the vessel

Enclosed spaces on a vessel must have 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.

5.4 Required outcome — redundancy in escapes

Alternative escape routes on a vessel must control the risk of entrapment from the blocking of a single escape, having regard to the magnitude of risk if the escape route is blocked (eg the likelihood and consequences of exposure to hazards).

5.5 Required outcome — facilitate movement for evacuation

A vessel must be designed, constructed and furnished to facilitate in an emergency the orderly and timely movement of persons to:

- a) places of assembly; and
- b) disembarkation points for evacuation into survival craft.

5.6 Required outcome — facilitate movement between decks

Means of access between different deck levels on the vessel must be designed and constructed to facilitate the rapid movement of persons in an emergency and to avoid tripping hazards.

5.7 Required outcome — accommodate the needs of a large proportion of the population

Means of escape must be designed to accommodate at least a 95 percentile range of potential users, assuming users are wearing lifejackets of the type required to be provided on board the vessel.

Annex 4

National Standards for Commercial Vessels, Part C, Section 1, Chapter 5

Table 16 - Spaces not required to have an alternative means of escape

Type of space	Conditions
Accommodation space	<p>(a) the space does not accommodate more than 6 passengers or more than 8 persons in total</p> <p>(b) the single means of escape is not through a watertight door</p> <p>(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</p> <p>(d) The single means of escape does not lead to a space that does not itself have direct access to open decks</p> <p>(e) the space is not also of moderate fire risk (containing a small galley or a moderate fire risk machinery space)</p> <p>(f) the single means of escape does not lead to a space classified as high fire risk or moderate fire risk.</p>
High fire risk machinery space arranged for unmanned operation, dedicated moderate fire risk machinery space or galley	<p>(a) the maximum actual horizontal travel distance to the point of escape does not exceed 5 m</p> <p>(b) the single means of escape is not through a watertight door</p> <p>(c) the single means of escape does not lead to a space that does not itself have direct access to open decks</p> <p>(d) the single means of escape does not lead to a space classified as high fire risk or moderate fire risk.</p>
Space of low fire risk	<p>(a) it is only entered by crew</p> <p>(b) it is only occupied occasionally.</p>

(Extract from NSCV, Part C, Section 1, Table 16)

NSCV Part C, Section 4, Chapter 3

Table 3 - Categories of spaces

Space category	Description
High Fire Risk Spaces	<p>Spaces where, without appropriate controls, the likelihood and consequence of fire are high.</p> <p>Within such spaces, there is:</p> <ul style="list-style-type: none"> a) potential for the spillage or escape of potentially dangerous quantities of flammable liquid or explosive vapour, and b) the presence of one or more sources of heat or other sources of ignition.
Moderate Fire Risk Spaces	<p>Spaces that:</p> <ul style="list-style-type: none"> a) contain potentially dangerous quantities of flammable liquids but where the sources of ignition have relatively low frequency; or

	<ul style="list-style-type: none"> b) contain heat sources or other sources of ignition but where the quantity or nature of material within the space to fuel a fire is such that the risk is significantly reduced.
Accommodation Space	<p>Spaces that are likely to contain persons who:</p> <ul style="list-style-type: none"> a) are unfamiliar with the vessel, b) may be asleep or disoriented at the time of an emergency, or c) may inadvertently or deliberately initiate a fire.
Minor Fire Risk Spaces	Spaces where the likelihood and/or consequence of fire is low.

(Extract from NSCV, Part C, Section 4, Table 3)