

## **Secondary Legislation**

DCE - MTI 3C - 1/1

# **Maritime Transport (Design, Construction, and Equipment – Watertight and Weathertight) Instrument [year]**

**DRAFT FOR PUBLIC CONSULTATION**

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## Section 1 Preliminary provisions

### 1.1 Title

This MTI is the Maritime Transport (Watertight and Weathertight) Instrument [year].

### 1.2 Commencement

This MTI comes into force on [same date as Part 3C].

### 1.3 What this MTI does

This MTI specifies standards and requirements for the design and construction of New Zealand ships that are commercial ships and their watertight and weathertight integrity, for the purposes of Part 3C: Maritime (Design, Construction, and Equipment – Watertight and Weathertight) Rules.

### 1.4 Application

This MTI specifies—

- (a) requirements with which a ship, described in rule 3C: A1.3(1), must comply; and
- (b) standards that are, for the purposes of rule 3C: C1.1, the relevant design, construction, and installation standards.

### 1.5 Interpretation

- (1) If a conflict exists between this MTI and material incorporated by reference in this MTI, the MTI applies.
- (2) A term that is used in this MTI and defined in Part 3C has the same meaning as in Part 3C.
- (3) In this MTI, unless the context otherwise requires,—

**classification society** means a classification society specified in clause 7.2(3)

**gastight** means a space that has properties specified in Part 3D: Maritime (Design, Construction, and Equipment – Fire Protection) Rules <sup>1</sup>

**minor fire hazard area** has the meaning set out in Part 3D: Maritime (Design, Construction, and Equipment – Fire Protection) Rules

**moderate fire hazard area** has the meaning set out in Part 3D: Maritime (Design, Construction, and Equipment – Fire Protection) Rules

**restricted coastal limits** has the meaning set out in Part 20: Operating Limits

**rules of a classification society** means the rules for the manufacture, examination, testing, and certifying of glazed openings, published by the recognised organisation

**safety glass** means glass with additional safety features that makes it less likely to break, or less likely to pose a threat when broken

**tug** means any ship designed for the purpose of towing, pushing, or otherwise manoeuvring other ships.

- (4) In this MTI, codes and official standards (such as *BS* and *ISO*) are referred to as standards and by the abbreviations listed in Appendix 2.

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<sup>1</sup> Draft Rule Part 3D and MTI consulted on in 2024.

## **Section 2 Weather decks, superstructure, and deckhouses**

### **2.1 Application of requirements for weather decks, superstructure, and deckhouses**

This Section specifies requirements for the type and design of weather decks, superstructure, and deckhouses on a ship for the purposes of rule 3C: C2.2.

### **2.2 Type and design of weather decks, superstructure, and deckhouses**

#### *Sailing ships*

If a recess on a sailing ship is fitted with lockers that provide direct access to the interior of the hull,—

- (a) each locker must be fitted with a weathertight cover; and
- (b) the cover to each locker must be—
  - (i) permanently attached to the ship's structure; and
  - (ii) fitted with effective locking devices to secure the cover in the closed position when not in use.

## **Section 3 Watertight doors and weathertight doors**

### **3.1 Application of requirements for watertight doors and weathertight doors**

This Section specifies requirements for the type and design of watertight doors and weathertight doors on a ship for the purposes of rule 3C: C3.2.

### **3.2 Type, design, and installation of watertight doors and weathertight doors**

- (1) A watertight door on a ship must—
  - (a) comply with subclause (2)(a) and (c); and
  - (b) be a sliding or hinged door that is normally kept closed at sea; and
  - (c) have a notice attached on each side stating “Must be kept closed at sea”.
- (2) An access opening in a bulkhead of an enclosed superstructure on a ship, and other structures through which water could enter and endanger the ship, must have a door that is—
  - (a) permanently attached to the bulkhead, framed, and stiffened to ensure the structure's strength is equivalent to an unpierced structure; and
  - (b) weathertight when closed; and
  - (c) either—
    - (i) secured by gaskets and clamping devices that are permanently attached to the bulkhead or the door and are operable from both sides of the bulkhead; or
    - (ii) a sliding door.
- (3) If a sliding door is located in the aft or protected area of the wheelhouse, it must be operable when the ship is listed up to 15 degrees either way.
- (4) The height of a door sill or access to an enclosed deckhouse or superstructure must comply with the requirements for minimum heights above the deck specified in Tables 1 and 2 in Appendix 1.

#### *Sailing ships*

- (5) Every exposed door in a superstructure or deckhouse on a sailing ship that leads to any space below the weather deck must have a coaming height of—
  - (a) 150 millimetres, if the door is in an aft-facing location; and
  - (b) 300 millimetres, if the door is in a forward or side-facing location.

## Section 4 Hatches, hatchways, and coamings

### 4.1 Application of requirements for hatches, hatchways, and coamings

This Section specifies requirements for the type, design of hatches, hatchways, and coamings on a ship for the purposes of rule 3C: C4.2.

### 4.2 Type, design, and installation of hatches, hatchways, and coamings

- (1) A hatch, a hatchway, and a coaming on a ship must comply with subclauses (2) to (9), as applicable.

#### *Flush hatches*

- (2) A flush hatch on a ship must only be installed where permitted under Table 1 or Table 2 in Appendix 1.
- (3) A flush hatch must comply with the following requirements:
- (a) there must be a weathertight seal on the hatch:
  - (b) the opening of the hatch must be dogged or secured at all edges:
  - (c) a space accessible through the hatchway must be serviced by a bilge pump and a bilge alarm:
  - (d) the hatch must not be used as a dedicated passenger access and must not be necessary for general operations (where access is required to the space at sea):
  - (e) the hatch must not be of a width greater than half the beam of the ship at the location of the hatch:
  - (f) both sides of the hatch cover must be marked with “Must be kept closed at sea”:
  - (g) if access is required through the hatch for activation of firefighting systems or bilge systems, a remote means of activation from outside the space must be provided:
  - (h) if the hatch is the only means of access to an unmanned machinery space, the ship must have a second independent and separated machinery space providing propulsion redundancy:
  - (i) the hatch must provide adequate weather protection for escape purposes in all sea state and weather conditions expected to be encountered.

#### *Hatchway covers*

- (4) A cover to a hatchway (other than a cargo hatch cover used exclusively for catch or cargo loading or unloading) must be—
- (a) hinged, sliding, or permanently secured to the ship’s structure; and
  - (b) provided with sufficient positive locking devices to secure it in the closed position.
- (5) A hatchway with a hinged cover that is located in the forward quarter of the ship must—
- (a) open outwards; and
  - (b) have the hinges fitted to the forward side to protect the opening from boarding seas, unless subclause (6) applies.

#### *Hatchways*

- (6) A hatchway must be provided with a suitable portable blanking plate—
- (a) if it is not possible to fit hinges to the forward side of the hatchway due to its shape or moulding; and
  - (b) unless it is a small technical space drained directly overboard by gravity alone.

- (7) Subject to subclause (8), a hatchway intended to be open during a fishing operation must be arranged near to the ship's centreline.
- (8) A surveyor may approve hatchways in positions other than near to the ship's centreline, having regard to the minimum angle of downflooding specified in Part 3B: Maritime (Design, Construction, and Equipment – Stability, Drainage, Freeboard, and Subdivision) Rules.<sup>2</sup>

#### *Coaming heights*

- (9) Coaming heights for a general hatch, a machinery access hatch, and an escape hatch must comply with the requirements for minimum heights above the deck specified in Tables 1 and 2 in Appendix 1.

#### *Sailing ships*

- (10) A sailing ship must comply with the requirements for hatches and hatchways in subclauses (11) to (15).
- (11) If the hatchway is forward of the maximum beam, it must have a weathertight cover that—
  - (a) opens outwards; and
  - (b) is permanently attached to the ship; and
  - (c) is as near as practical to the centreline of the ship.
- (12) An escape hatch must—
  - (a) be clearly marked; and
  - (b) be provided with covers that are capable of being opened from both sides; and
  - (c) allow sufficient clearance for a fully clothed crew member to pass through.
- (13) An access hatch, which may be kept open for lengthy periods at sea, must—
  - (a) be as small as practicable, not exceeding 1 square metre; and
  - (b) have hinges on the forward side, if the permanently attached cover is hinged.
- (14) A companionway hatch opening leading to a space below the weather deck must comply with the following requirements:
  - (a) the opening must be fitted with a coaming of the height, as required in clause 3.2(5) for an exposed door, above—
    - (i) the deck; or
    - (ii) the sole of a cockpit or recess:
  - (b) the maximum breadth of the opening must not exceed 1 metre, and the lower edge of the opening, from a cockpit that is open aft to the sea, must not be below deck level.
- (15) If a washboard is used to close the vertical opening in a companionway hatch,—
  - (a) the washboard must be arranged and fitted so that it will not be readily dislodged; and
  - (b) the washboard, when in place, must be capable of being secured to the ship by a lanyard, or other means acceptable to a surveyor, to prevent it being washed away; and
  - (c) secure stowage must be available, in a readily accessible location, for the washboard when it is not in use.

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<sup>2</sup> Draft Rule Part 3B and MTI consulted on concurrently with draft Rule Part 3C in 2025.

## Section 5 Ventilators

### 5.1 Application of requirements for ventilators

This Section specifies requirements for the type and design of ventilators on a ship for the purposes of rule 3C: C5.2.

### 5.2 Type, design, and installation of ventilators

- (1) A ventilator on a ship must comply with subclauses (2) to (8).

#### *Weathertight closing*

- (2) A ventilator opening must be provided with an efficient weathertight closing appliance unless the following conditions are met:
- (a) the downflooding angle to the top of the coaming does not occur at an angle of heel less than 40 degrees in all conditions of loading:
  - (b) the height of the lower edge of the ventilator opening or baffle above the deepest loaded waterline is at least—
    - (i) 1.7 metres when the ship is operating within enclosed water limits, inshore limits, or inshore fishing limits; and
    - (ii) 2.3 metres when the ship is operating beyond inshore limits or inshore fishing limits:
  - (c) there is a means to prevent the ingress of seawater and sea spray into the ventilation system:<sup>3</sup>
  - (d) filters or separators used to prevent the ingress of water are installed and tested in accordance with Part 1A: Maritime (Design, Construction, and Equipment – Survey and Certification) Rules:
  - (e) if a wall ventilator is fitted, it has an internal baffle that rises above the upper edge of the exterior opening, so that water entering the inlet will fall within the air box and does not flood over the baffle:
  - (f) suitable arrangements are in place to expel entrained water from the system:
  - (g) the discharge from a ventilator within the engine room is situated to prevent water falling from the outlet onto primary machinery, systems, or other equipment that may create an unsafe state:
  - (h) the ventilation system is provided with a means of closing gastight a minor, moderate, or major fire hazard area that it serves in accordance with Part 3D: Maritime (Design, Construction, and Equipment – Fire Protection) Rules.
- (3) A ventilator with a means of closing weathertight may have a downflooding angle that is less than 40 degrees heel, provided that the applicable requirements in Part 3B: Maritime (Design, Construction, and Equipment – Stability, Drainage, Freeboard, and Subdivision) Rules are complied with.

#### *Coaming heights*

- (4) The coaming height for a wall ventilator fitted with an internal baffle that rises above the upper edge of the exterior opening may be measured to the top of the baffle.
- (5) The height above deck of a ventilator coaming must comply with the requirements for minimum heights above the deck specified in Tables 1 and 2 in Appendix 1.

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<sup>3</sup> For example, a minimum 2 stage vane separator and coalescing filter or the open end of a ventilator is adequately protected by other structure(s) such as being located within an enclosed bulwark.

### *Warning notices*

- (6) For the purposes of rule 3C: C5.2(3), a ventilator, in a battery room or space with a gas stove installed, that has a closing device fitted must have a warning notice—
- (a) stating “Closing device must not be closed except in the event of fire or other emergency”; and
  - (b) located on or near the closing device, to mitigate the possibility of inadvertent closing.

### *Sailing ships*

- (7) A ventilator on a sailing ship must be—
- (a) as near to the ship centreline as practicable; and
  - (b) protected from the weather; and
  - (c) high enough above the weather deck to prevent the ready admission of water when the ship is heeled.
- (8) The location and height of a ventilator on a sailing ship, that must be kept open, must be approved by a surveyor, taking into account the ship’s downflooding angle.

## **Section 6 Air pipes**

### **6.1 Application of requirements for air pipes**

This Section specifies requirements for the type and design of air pipes on a ship for the purposes of rule 3C: C6.2.

### **6.2 Type, design, and installation of air pipes**

- (1) An air pipe on a ship must comply with subclauses (2) and (4), for the purposes of rule 3C: C6.2(2).
- (2) An air pipe extending above the deck must have a weathertight closing device including (but not limited to) weighted flaps and ball float heads, if the opening is more than 30 millimetres bore.
- (3) A tug operating within enclosed water limits must have closing devices on gooseneck air pipes.
- (4) An air pipe must—
  - (a) comply with the requirements for minimum heights above the deck specified in Tables 1 and 2 in Appendix 1; and
  - (b) have a sign or marking to identify the space or tank it leads to at the upper end of the pipe; and
  - (c) be protected from mechanical damage if located in an area where mechanical damage may occur; and
  - (d) lead to an exposed deck, unless the air pipe is from a void space, in which case it may lead to a space that is adequately ventilated.

## **Section 7 Glazed openings**

### **7.1 Application of requirements for glazed openings**

This Section specifies requirements for the type and design of glazed openings on a ship for the purposes of rule 3C: C7.2.

### **7.2 Type and design of glazed openings**

- (1) A glazed opening on a ship must comply with subclauses (2) to (12).

### *Standards for glazed openings*

- (2) The design and construction of a glazed opening must comply with 1 of the following standards that is applicable to the type and operations of the ship:<sup>4</sup>
- (a) the rules of a classification society:
  - (b) *ABYC H-3*, for a hire and drive boat not proceeding beyond restricted coastal limits:
  - (c) *ISO 12216: 2020*, for a ship of less than 24 metres in LLL not proceeding beyond restricted coastal limits:
  - (d) *BSI - BS MA 25*:
  - (e) *ISO 1751*:
  - (f) *ISO 3903*:
  - (g) *ISO 5797*:
  - (h) *ISO 614: 2012*:
  - (i) *ISO 6345*:
  - (j) *ISO 21005*:
  - (k) *ISO 11336*.
- (3) A classification society means any of the following:
- (a) American Bureau of Shipping:
  - (b) Bureau Veritas:
  - (c) Det Norske Veritas (DNV):
  - (d) Lloyd's Register:
  - (e) Nippon Kaiji Kyokai (ClassNK).

### *Glazed openings*

- (4) The following types of glazed openings must have a factor of 1.5 applied to the design pressure of the glazed opening for the purposes of rule 3C: C7.2(5):
- (a) a glazed opening in position 1 on a deckhouse or superstructure with direct access leading below deck:
  - (b) a glazed opening on a deckhouse or superstructure considered buoyant in stability calculations prescribed in Part 3B: Maritime (Design, Construction, and Equipment – Stability, Drainage, Freeboard, and Subdivision) Rules.
- (5) A ship is not required to comply with subclause (4) if it carries storm covers or deadlights for at least—
- (a) 50 percent of the front windows and portholes of the superstructure or deckhouse on the weather deck; and
  - (b) each size of glazed opening; and
  - (c) the windows and portholes in the forward half of the superstructure or deckhouse side on the weather deck, unless interchangeable port and starboard, in which case sufficient storm covers or deadlights must be carried for the forward half of one side of the ship.

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<sup>4</sup> The ship must be within the scope of the standard chosen. For example, fitting large yacht windows to a salvage tug is not appropriate, and ISO standards or rules of a classification society may have different operating limits to those in Part 20. The appropriate standard for the intended type, operations and operational area of the ship must be chosen.

### *Portholes*

- (6) A ship may have an opening porthole in the main hull below the weather deck if—
  - (a) the ship is arranged with 1 compartment subdivision; and
  - (b) the damage stability calculations confirm that the lower edge of the porthole will not be immersed at damage equilibrium, provided the opening porthole complies with subclause (7).
- (7) An opening porthole—
  - (a) must be located as high as practicable to the freeboard deck, with a height of—
    - (i) 750 millimetres above the deepest loaded waterline, for a ship of less than 12 metres in LOA; and
    - (ii) 1 metre above the deepest loaded waterline, for a ship of 12 metres or more in LOA; and
  - (b) must be—
    - (i) of the non-readily opening type, securely closed when the ship is underway and marked “Do not open while underway”; and
    - (ii) fitted with hinged watertight deadlights; and
  - (c) must not be located in—
    - (i) the forward quarter of the hull; and
    - (ii) in a major fire hazard area.
- (8) If a ship carries passengers, an indicator must be fitted at the helm or continuously manned control station to alert the master or crew as to whether the porthole is open or closed.
- (9) The lower edge of the glass of a non-opening porthole or window must comply with the requirements for minimum heights above the deepest loaded waterline in any condition of heel or trim, specified in Tables 1 and 2 in Appendix 1.

### *Skylights*

- (10) A skylight must not be placed where it may be continuously immersed in water during the dynamic motions of the ship.
- (11) A skylight fitted in position 1 or position 2 on a ship must—
  - (a) be weathertight; and
  - (b) have protection against mechanical damage; and
  - (c) for a ship operating beyond inshore limits or inshore fishing limits, be fitted with a robust deadlight or storm cover permanently attached.
- (12) An opening skylight must have an efficient means of weathertight closure.

### *Sailing ships*

- (13) An opening skylight on a sailing ship must have an efficient means of weathertight closure.
- (14) A skylight that serves as a means of escape must be capable of being opened from both sides.
- (15) A porthole below the weather deck of a sailing ship must comply with the following requirements:
  - (a) the porthole must be designed and constructed in accordance with subclause (2):
  - (b) the glazed area of a porthole of a non-opening type below the weather deck must not exceed 0.16 square metres (or a round area with maximum diameter of 450 millimetres):

- (c) the glazed area of a porthole of an opening type below the weather deck must not exceed 0.07 square metres (or a round area with maximum diameter of 300 millimetres), unless a larger size is assessed and approved by a DA surveyor in accordance with a standard specified in subclause (2):
  - (d) the size and shape of a porthole below the weather deck must be approved by a DA surveyor:
  - (e) the securing method of an opening type of porthole below the weather deck must be approved by a DA surveyor:
  - (f) each porthole of an opening type fitted below the weather deck must be either—
    - (i) fitted with a deadlight cover that is capable of being closed weathertight; or
    - (ii) provided with a blanking plate (on the basis that the ship must carry blanking plates for at least 50 percent of each size of these portholes) that can be efficiently secured in place, in the event of breakage:
  - (g) an opening porthole fitted below the weather deck must be secured in a closed position when the ship is in navigation:
  - (h) the glazing material of a porthole and the method of fixing the porthole in its frame must be equivalent to that of the surrounding structure.
- (16) A window fitted in a weathertight superstructure or deckhouse on a sailing ship must comply with the following requirements, if made of glass:
- (a) the glass must be made of toughened safety glass; and
  - (b) the glass thickness, and the thickness of other glazing material, must comply with 1 of the standards specified in subclause (2).
- (17) The window and skylight glazing and their securing methods on a sailing ship must comply with a standard specified in subclause (2).

## Appendix 1: Minimum height requirements

**Table 1 Watertight and weathertight components for ships of less than 24 m in LLL and operating within enclosed water limits**

Watertight and weathertight components	Minimum height requirements in mm based on length of ship operating within enclosed water limits			
	Position 1	Position 2	No direct access leading below the weather deck <sup>5</sup>	Normally closed at sea
	Applied if “no direct access leading below weather deck” and “normally closed at sea” do not apply			
Openings (non-opening portholes and other miscellaneous small openings)	N/A			200 mm above deepest loaded waterline
Escape hatch coaming heights	500 mm above deepest loaded waterline, or minimum coaming height of 100 mm, or may be flush			
Machinery access hatch coaming heights	100 mm < 12 m	N/A	N/A	May be flush
	200 mm ≥ 12 m & < 24 m			
Other hatches coaming heights	100 mm	May be flush	May be flush	May be flush
Door and access sill heights to enclosed spaces	100 mm < 12 m	Nil		
	200 mm ≥ 12 m & < 24 m			
Ventilator heights	375 mm < 12 m	375 mm		N/A
	600 mm ≥ 12 m & < 24 m			
Air pipe heights	375 mm < 12 m	375 mm		N/A
	600 mm ≥ 12 m & < 24 m			

**Table 2 Watertight and weathertight components for ships of less than 24 m in LLL and operating beyond enclosed water limits**

Watertight and weathertight components	Minimum height requirements in mm based on length of ship operating beyond enclosed water limits			
	Position 1	Position 2	No direct access leading below the weather deck	Normally closed at sea
	Applied if “no direct access leading below weather deck” and “normally closed at sea” do not apply			
Openings (non-opening portholes and other miscellaneous small openings)	N/A			500 mm above deepest loaded waterline
Escape hatch coaming heights	800 mm above deepest loaded waterline for ships < 12 m or coaming height of 200 mm 1000 mm above deepest loaded waterline for ships ≥12m & < 24 m or coaming height of 300 mm, or may be flush			
Machinery access hatch coaming heights	200 mm < 12 m	150 mm	May be flush	May be flush
	300 mm ≥ 12 m & < 24 m	200 mm		
Other hatches coaming heights	150 mm < 12 m	May be flush	May be flush	May be flush
	200 mm ≥ 12 m & < 24 m			
Door and access sill heights to enclosed spaces	200 mm < 12 m	150 mm	Nil	
	300 mm ≥ 12 m & < 24 m	200 mm		
Ventilator heights	600 mm	375 mm	375 mm	N/A
Air pipe heights	600 mm < 12 m	375 mm	375 mm	N/A
	760 mm ≥ 12 m & < 24 m	450 mm	450 mm	

<sup>5</sup> Note that “direct access below weather deck” is to mean access via a stairway or other means that is not protected by a weathertight closing device normally kept closed at sea, and “no direct access leading below weather deck” and “normally closed at sea” can be applied regardless of position.

## Appendix 2: Codes of practice and official standards

**ISO** means **International Organization for Standardization** in the following:

*ISO 12216 2020 Small craft – Windows, portholes, hatches, deadlights and doors – Strength and watertightness requirements*

*ISO 1751 Shipbuilding and marine structures – Ships’ side scuttles*

*ISO 3903 Shipbuilding and marine structures – Ships’ ordinary rectangular windows*

*ISO 5797 Ships and marine technology – Windows and side scuttles for fire resistant constructions*

*ISO 614: 2012 Ships and marine technology – Toughened safety glass panes for rectangular windows and side scuttles – Punch method of non-destructive strength testing*

*ISO 6345 Shipbuilding and marine structures – Windows and side scuttles - Vocabulary*

*ISO 21005 Shipbuilding and marine technology – Thermally toughened safety-glass panes for windows and side scuttles*

*ISO 11336 Large yachts (≥ 24m and up to 3,000 gross tonnage) – Strength, weather tightness and watertightness of glazed openings*

**ABYC** means **American Boat and Yacht Council** in the following:

*ABYC H-3 Exterior Windows, Windshields, Hatches, Doors, Port Lights, and Glazing Materials*

**BS** means **British Standard** in the following:

*BSI - BS MA 25:1973 Specification for Ships’ Windows*