

Maritime Rules

Part 24C: Carriage of Cargoes – Specific Cargoes

Maritime New Zealand Consolidation

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Part objective

Part 24C outlines the specific requirements which ships carrying grain, solid bulk cargoes, timber deck cargoes and livestock are to comply with.

For ships loading and carrying grain Part 24C implements the provisions of SOLAS Chapter VI Part C.

For ships loading and carrying solid bulk cargoes Part 24C implements the provisions of SOLAS Chapter VI Part B. Part 24C also requires that the cargo is loaded and carried in accordance with the provisions of the *International Maritime Solid Bulk Cargoes Code (IMSBC Code)* published by the International Maritime Organization.

For ships loading and carrying timber deck cargoes Part 24C requires compliance with the provisions of the *Code of Safe Practice for Ships Carrying Timber Deck Cargoes* adopted by the International Maritime Organization.

For ships loading and carrying livestock Part 24C specifies requirements relating only to the safety of the ship and personnel aboard whilst livestock are loaded and carried. Requirements in respect of the welfare of livestock and associated shipboard conditions are to be found in various *Codes of Animal Welfare* endorsed as national codes by the Animal Welfare Advisory Committee and published by the Ministry for Primary Industries.

For ship loading oil fuel cargoes and bunkers and bulk liquid cargoes, Part 24C implements the provisions of SOLAS Chapter VI Part A.

The authority for making Part 24C is found in section 36(m) of the Maritime Transport Act 1994.

Maritime Rules (rules) are secondary legislation under the Legislation Act 2019. Under that Act, the rules are required to be presented to the House of Representatives. The House may, by resolution, disallow any rule. The Regulations Review Committee is the select committee responsible for examining all secondary legislation and may consider any matter relating to secondary legislation and report on it to the House. Anyone can make a complaint to the Regulations Review Committee about the operation of secondary legislation.

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www.maritimenz.govt.nz

History of Part 24C

Part 24C first came into force on 1 February 1998 and now incorporates the following amendments:

Amendment	Effective Date
Amendment 1	27 May 2004
Amendment 2	30 June 2005
Amendment 3	4 September 2008
Amendment 4	30 July 2009
Amendment 5	1 April 2011
Amendment 6	1 July 2014
Amendment 7	1 January 2015
Amendment 8	1 April 2015
Amendment 9	1 June 2015
Amendment 10	1 November 2016
Amendment 11	1 February 2018
Amendment 12	13 December 2019
Amendment 13	31 March 2021
Amendment 14	1 December 2025

Summary of Amendments

Amendment 1 Maritime Rules Amendments 20-90	PO, 24C.2, 24C.4, 24C.14, Appendix 2
Amendment 2 Part 24B Amendment	Appendix 2: Clause 2.8(6)
Amendment 3 Maritime (Various Amendments) 2008 (Part 20-91)	24C.4
Amendment 4 Maritime (Various Amendments) Rules 2009, Parts 21-80	24C.2
Amendment 5 Maritime Rules Various Amendments 2011	24C.2
Amendment 6 Parts 19 and 44: Consequential Amendments	24C.14
Amendment 7 Maritime Rules Various Amendments 2014	Part objective, 24C.2, 24C.4, 24C.7, 24C.14, Appendix 2

Amendment 8 Maritime Rules Various IMO-related Amendments 2015	24C.4, 24C.6(5)(a), 24C.7, 24C.10(4)(a)
Amendment 9 Maritime Rules Various SOLAS related Amendments 2015	Part objective, 24C.2, 24C.3, 24C.7, 24C.9, 24C.10, 24C.11, 24C, Section 5, 24C.19, 24C.20, 24C.21
Amendment 10 Maritime Rule Various Amendments 2016	24C.2
Amendment 11 Maritime Rules Various Amendments [Changes Related to Conventions] 2017	24C.2, 24C.7
Amendment 12 Maritime Rules Various Amendments 2019	24C.11
Amendment 13 Maritime Rules (International Omnibus) Various Amendments 2020	24C.3
Amendment 14 Maritime Rules Amendments 2025 (No 2)	Part objective, 24C.4

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General

24C.1 Entry into force

Part 24C shall come into force on 1 February 1998.

24C.2 Definitions

In Part 24C:

barge means any barge, lighter, or like vessel that does not have any means of self-propulsion:

Director means the person who is for the time being the Director of Maritime Safety under section 439 of the Maritime Transport Act 1994:

foreign ship means any ship that is not a New Zealand ship:

grain means wheat, maize (corn), oats, rye, barley, rice, and pulses; and includes any seeds or processed forms of wheat, maize (corn), oats, rye, barley, rice, or pulses whose behaviour while being so carried or stored in a ship is similar to that of grain in its natural state:

IMSBC Code means the International Maritime Solid Bulk Cargoes Code adopted by the International Maritime Organization:

internal waters of New Zealand means the internal waters of New Zealand as defined by section 4 of the Territorial Sea, Contiguous Zone and Exclusive Economic Zone Act 1977:

international voyage means a voyage from New Zealand to a port outside New Zealand or the converse:

MPI means the Ministry for Primary Industries:

New Zealand ship means a ship that is registered under the Ship Registration Act 1992; and includes a ship that is not registered under that Act but is required or entitled to be registered under that Act:

New Zealand waters means—

- (a) the territorial sea of New Zealand; and
- (b) the internal waters of New Zealand; and
- (c) all rivers and other inland waters of New Zealand:

owner,—

- (a) in relation to a ship registered in New Zealand under the Ship Registration Act 1992, means the registered owner of the ship:
- (b) in relation to a ship registered in any place outside New Zealand, means the registered owner of the ship:
- (c) in relation to a fishing ship, other than one to which paragraph (a) or paragraph (b) of this definition applies, means the person registered as the owner under section 57 of the Fisheries Act 1983:
- (d) in relation to a ship to which paragraph (a) or paragraph (b) or paragraph (c) of this definition applies, where, by virtue of any charter or demise or for any other reason, the registered owner is not responsible for the management of the ship, includes the charterer or other person who is for the time being so responsible:
- (e) in relation to an unregistered ship or a registered ship that does not have a registered owner, means the person who is for the time being responsible for the management of the ship:
- (f) for the purposes of the documents referred to in rule 21.7, means the company to which the document relates:

Part means a group of rules made under the Maritime Transport Act 1994:

rules includes maritime rules and marine protection rules:

shipper means any person who offers goods for carriage by sea, and includes any person who arranges for the carriage of goods by sea on behalf of any other person:

territorial sea of New Zealand means the territorial sea of New Zealand as defined by section 3 of the Territorial Sea and Exclusive Economic Zone Act 1977:

transportable moisture limit means the maximum moisture content of a material to be carried, derived in accordance with the IMSBC Code, for carriage in ships without the arrangements specified in rule 24C.9(2)(b)(i).

24C.3 Cargo information

- (1) The shipper of a cargo to be carried on a ship to which section 2 or section 3 or section 4 of Part 24C applies must—
 - (a) provide the master or the master's representative with information on the cargo that includes—
 - (i) general description of the cargo; and
 - (ii) the gross mass of the cargo or of the cargo units; and
 - (iii) any relevant special properties of the cargo; and
 - (b) ensure the information is—
 - (i) provided sufficiently in advance of loading to enable the precautions that may be necessary for proper stowage and safe carriage of the cargo to be put into effect; and
 - (ii) confirmed in writing¹; and
 - (iii) confirmed by appropriate shipping documents prior to loading on the ship.
- (2) The shipper of a cargo to be carried on a ship to which section 2 of Part 24C applies must, in addition to 24C.3(1), provide the master or the master's representative with information in writing—
 - (a) on the stowage factor of the cargo; and
 - (b) the trimming procedures; and
 - (c) in the case of a concentrate or other cargo that may liquefy, additional information on—
 - (i) the moisture content of the cargo; and
 - (ii) its transportable moisture limit.
- (3) The shipper of a cargo to be carried on a ship to which section 2 of Part 24C and the IMSBC Code apply must provide the master or the master's representative with the information required by section 4 of the IMSBC Code.
- (4) The shipper of cargo to be carried on a ship to which section 2 applies, must—
 - (a) classify that cargo in accordance with Appendix I of Annex V of MARPOL; and
 - (b) declare whether the cargo is harmful to the marine environment.

¹ This may include the use of electronic data processing or electronic data interchange transmission techniques.

Section 1—Grain cargoes

24C.4 Definitions relating to section 1

In section 1 of Part 24C:

authorised person means a person employed by a recognised organisation who has been delegated powers from the Director to issue and suspend certain maritime documents under Part 5 of the Maritime Transport Act 1994, pursuant to an instrument of delegation made under section 444 of the Act:

Document of authorisation means the document of authorisation issued in accordance with rule 24C.6(3) or a document of authorisation issued in accordance with the Grain Code and recognised by the Director under section 41 of the Maritime Transport Act 1994:

Grain Code means the International Code for the Safe Carriage of Grain in Bulk adopted by the International Maritime Organization by Maritime Safety Committee Resolution 23(59), as amended from time to time:

recognised organisation means an organisation that has entered into a memorandum of agreement with the Director in compliance with the International Maritime Organization Code for Recognized Organizations (RO Code) whereby that organisation may carry out surveys and issue convention certificates on behalf of the Director in respect of the International Convention for the Safety of Life at Sea.

24C.5 Application of section 1

Section 1 applies to—

- (a) a New Zealand ship that loads grain; and
- (b) a foreign ship that loads grain in a New Zealand port; and
- (c) a foreign ship carrying grain in New Zealand waters that is to be unloaded at a New Zealand port.

24C.6 Requirements for ships carrying grain

- (1) The owner and the master of a ship to which this rule applies must ensure that the ship—
 - (a) loads; and
 - (b) carries—
the grain in accordance with the Grain Code.
- (2) Subject to Rule 24C.6(4), the owner and the master of a ship to which this rule applies must ensure that the ship does not load grain unless the ship holds a document of authorisation in English.
- (3) The Director or an authorised person must issue a maritime document called a document of authorisation to a ship, in accordance with section 41 of the Act, if—
 - (a) the ship is capable of complying with the requirements of the Grain Code; and
 - (b) the owner of the ship has made an application in accordance with section 35 of the Maritime Transport Act 1994.
- (4) The owner and the master of a ship to which this rule applies that does not hold a document of authorisation, must ensure the ship does not load grain until—
 - (a) a recognised organisation; or
 - (b) the port state Administration—
is satisfied that the ship in its proposed loading condition complies with the requirements of the Grain Code.

Section 2—Solid bulk cargoes other than grain

24C.7 Definitions applying to section 2

In section 2 of Part 24C:

recognised organisation means an organisation that has entered into a memorandum of agreement with the Director in compliance with the International Maritime Organization Code for Recognized Organizations (RO Code) whereby that organisation may verify compliance with rule 24C.10(4):

solid bulk cargo means any material, other than liquid or gas, consisting of a combination of particles, granules or any larger pieces of material, generally uniform in composition, that is loaded directly into the cargo spaces of a ship without any intermediate form of containment.

24C.8 Application of section 2

Section 2 of Part 24C applies to a ship that is a New Zealand ship, or a foreign ship in a New Zealand port, that loads a solid bulk cargo other than—

- (a) grain; or
- (b) liquids in bulk; or
- (c) gases in bulk; or
- (d) dangerous goods in bulk.

24C.9 Acceptability for shipment

- (1) The owner and the master of a ship to which this rule applies must ensure that a solid bulk cargo is not loaded until the master is in possession of—
 - (a) comprehensive information on the distribution of the cargo; and
 - (b) comprehensive information on the ship's stability.
- (2) The owner and the master of a ship to which this rule applies must ensure that solid bulk cargoes that may liquefy are only accepted for loading—
 - (a) when the actual moisture content of the cargo is less than its transportable moisture limit; or
 - (b) when the actual moisture content of the cargo exceeds the transportable moisture limit and—
 - (i) arrangements to prevent the flow of the cargo are implemented to the satisfaction of the Director or the port state Administration; and
 - (ii) the ship has sufficient structural integrity for the carriage of solid bulk cargo that may liquefy.
- (3) The owner and the master of a ship to which this rule applies must ensure that prior to loading a solid bulk cargo that has chemical properties that may create a hazard, precautions are taken to minimise the hazard in accordance with the applicable recommendations in the IMSBC Code.
- (4) The owner of a ship to which this rule and the IMSBC Code apply must ensure that the booklet required by SOLAS Chapter VI, Regulation 7, paragraph 2, is provided to the ship.
- (5) Where solid bulk cargo is being loaded onto or unloaded from a ship to which this rule and the IMSBC Code apply, the master and a representative of the port must ensure that—
 - (a) the ship has a loading and unloading plan complying with SOLAS Chapter VI, Regulation 7, paragraph 3; and

- (b) if the cargo is being loaded or unloaded at a New Zealand port, the plan required by subrule (5)(a) is submitted to the Director in advance of loading or unloading; and
 - (c) if the cargo is being loaded or unloaded at a port outside New Zealand, the plan required by subrule (5)(a) is submitted to the appropriate authority of the port state of loading or unloading.
- (6) A shipper of cargo not listed in Appendix 1 of the IMSBC Code must ensure the cargo is not presented for loading onto a ship to which this rule and the IMSBC Code apply at a port or other facility in New Zealand without prior approval from the Director.
- (7) An application for the approval required under subrule (6) must—
- (a) be made by the shipper to the Director; and
 - (b) include information on the characteristics and properties of the cargo.

24C.10 Requirements for ships loading, unloading, and carrying solid bulk cargo

- (1) The owner and the master of a ship to which this rule and the IMSBC Code apply must ensure that cargoes are—
- (a) loaded, unloaded; and
 - (b) carried—
- in accordance with SOLAS Chapter VI, Regulation 7, the plan required by rule 24C.9(5), and the IMSBC Code.
- (2) The owner and the master of a ship to which this rule applies must ensure that a solid bulk cargo is—
- (a) loaded; and
 - (b) trimmed reasonably level, if necessary to the boundaries of the cargo space—
- to minimise the risk of cargo shifting, in order to ensure that adequate stability is maintained throughout the voyage.
- (3) The owner and the master of a ship to which this rule applies must ensure that when solid bulk cargoes are carried in a 'tween-deck—
- (a) the hatchway of the 'tween-deck is closed when loading information indicates an unacceptable level of stress on the bottom structure if the hatchway is left open; and
 - (b) the cargo is—
 - (i) trimmed reasonably level extending from side to side; or
 - (ii) secured by additional longitudinal divisions of sufficient strength; and
 - (c) the safe load-carrying capacity of the 'tween-deck is complied with.
- (4) The owner and the master of a ship to which this rule applies must ensure that the following are provided when transporting a solid bulk cargo that is liable to emit toxic or flammable gas, or cause oxygen depletion in the cargo space:
- (a) an instrument that is acceptable to a recognised organisation for measuring the concentration of gas or oxygen in the air; and
 - (b) detailed instructions for the instrument's use.
- (5) The master of a ship to which this rule and the IMSBC Code apply, may, during loading or unloading, suspend the loading or unloading if the limits in the plan required by rule 24C.9(5) are exceeded, or are likely to be exceeded.
- (6) If loading or unloading is suspended under subrule (5)—
- (a) if the ship is in a New Zealand port, the master must notify the Director; and

- (b) if the ship is in a port outside New Zealand, the master must notify the authority in the port State with which the plan has been lodged; and
 - (c) the master and the representative of the port where the ship is being loaded or unloaded must ensure that corrective action is taken.
- (7) When a ship to which this rule and the IMSBC Code apply is being unloaded, the representative of the port must ensure that the method used to unload the ship does not damage the ship's structure.
- (8) The master of a ship to which this rule and the IMSBC Code apply must ensure that where possible:
- (a) the ship's draught is checked regularly during loading and unloading to confirm tonnage figures:
 - (b) the draught and tonnage are recorded in a cargo load-book.
- (9) The master of a ship to which this rule and the IMSBC Code apply must ensure that cargo operations are continuously monitored.
- (10) The master of a ship to which this rule and the IMSBC Code apply must ensure that, where there are significant deviations from the plan required by rule 24C.9(5), cargo or ballast operations are adjusted to correct the deviations.

Section 3—Timber deck cargoes

24C.11 Definitions applying to section 3

In section 3 of Part 24C:

a load line ship means any ship to which section 1 of Part 47 applies:

cant means a log that is ripped length wise so that the resulting thick pieces have two opposing, parallel flat sides and in some cases a third side that is sawn flat:

Code for Timber Deck Cargoes means *The Code of Safe Practice for Ships Carrying Timber Deck Cargoes* adopted by the International Maritime Organization by Assembly Resolution A.1048(27) as amended from time to time:

freeboard deck means the deck from which the freeboard is calculated when determining the load lines to be assigned to the ship under Part 47 of the maritime rules:

superstructure means a decked structure on the freeboard deck, extending from side to side of the ship or with the side plating not being inboard of the shell plating more than 4 percent of the breadth (B). A raised quarterdeck is regarded as a superstructure:

timber means sawn wood or lumber, cants, logs, poles, pulpwood, and all other types of timber in loose or packaged forms. The term does not include wood pulp or other similar cargo:

timber deck cargo means a cargo of timber carried on an uncovered part of a freeboard or superstructure deck. The term does not include wood pulp or similar cargo.

24C.12 Application of section 3

Rule 24C.13 applies to any load line ship engaged in the carriage of timber deck cargoes that is—

- (a) a New Zealand ship; or
- (b) a foreign ship in a New Zealand port.

24C.13 Requirements for ships carrying timber deck cargoes

- (1) The owner and the master of a ship to which this rule applies must ensure that the deck cargo of timber is—

- (a) stowed; and
- (b) secured—
- in accordance with the applicable requirements of the *Code for Timber Deck Cargoes*.
- (2) The owner and the master of a ship to which this rule applies must ensure that the applicable operational measures in the *Code for Timber Deck Cargoes* are complied with, including recommendations on—
- (a) stability; and
- (b) personnel protection and safety devices; and
- (c) action to be taken during the voyage.
- (3) Where the requirements prescribed in rule 24C.13(1) and (2) are impracticable, alternative arrangements satisfactory to the Director must be used.

Section 4—Livestock

24C.14 Definitions relating to section 4

Certificate of Surveyor Recognition—

- (a) has the same meaning as in Part 44; and
- (b) includes any document that is deemed under Part 44 to be a valid Certificate of Surveyor Recognition:

Code for animal transportation within New Zealand means the *Code of Recommendations and Minimum Standards for the Welfare of Animals Transported within New Zealand* published by MPI as amended from time to time:

current, in relation to a document means that it is valid, has not expired, and, in the case of a maritime document, has not been suspended or revoked by the Director:

existing ship means a ship that is not a new ship:

export livestock means livestock carried on an international voyage:

international voyage means a voyage from New Zealand to a port outside New Zealand or the converse:

livestock means any living animal that is carried on board a ship and for which freight is paid:

new ship means a ship the keel of which is laid or which is at a similar stage of construction on or after the date of entry into force of Part 24C:

surveyor means a person who holds a current Certificate of Surveyor Recognition under Part 44.

24C.15 Application of section 4

- (1) Rules 24C.16 and 24C.17 apply to each New Zealand ship, and each foreign ship in a New Zealand port that—
- (a) loads livestock for carriage on a voyage between New Zealand ports only²; and

² Note that the Code for animal transportation within New Zealand does not allow the shipment by barge of livestock between

- the North and South Islands;
- the North or South Islands and Stewart Island;
- the North, South or Stewart Islands and the Chatham Islands,

- (b) has a deck area occupied by pen or stall structures that exceed 25 percent of the sum of the area of the uppermost continuous deck and the highest 'tween deck, if any, including hatchway covers, that are available for the carriage of cargo.
- (2) Rules 24C.16 and 24C.18 apply to every New Zealand ship, and every foreign ship in a New Zealand port, that—
- (a) carries livestock; or
 - (b) loads livestock—
- for carriage on an international voyage.

24C.16 Restrictions on carriage of livestock

- (1) The owner and the master of a ship to which this rule applies must ensure that livestock are not carried, or loaded for carriage, on or in any part of a ship, where the livestock or livestock fittings or livestock equipment or carrying arrangements would—
- (a) obstruct access to any accommodation space or working space necessary for the safe running of the ship; or
 - (b) obstruct the means of egress from any hold or underdeck space; or
 - (c) interfere with the life-saving or fire-fighting appliances; or
 - (d) interfere with the sounding of tanks or bilges; or
 - (e) interfere with the operation of closing appliances; or
 - (f) interfere with the operation of freeing ports; or
 - (g) interfere with the lighting or ventilation of other parts of the ship; or
 - (h) interfere with the proper navigation of the ship.
- (2) If the casing or bulkhead of an engine room, boiler room, or heated fuel tank forms the boundary of a space in which livestock is to be carried, that casing or bulkhead must be effectively insulated.

24C.17 Requirements for the carriage of livestock within New Zealand

- (1) The owner of a new ship or new barge to which this rule applies that is being designed or built to carry livestock on a voyage between New Zealand ports must ensure that the ship or barge has its design approved by a surveyor.
- (2) A surveyor must approve the design of a ship or barge referred to in rule 24C.17(1) if it—
- (a) meets the stability requirements of Appendix 1; and
 - (b) meets the penning requirements of Appendix 2.
- (3) A surveyor who has approved in accordance with rule 24C.17(1) the design of a new barge or a new ship to which this rule applies and section 1 of Part 21 of the maritime rules applies to that ship must—
- (a) issue a certificate to that new barge or new ship that states that the barge or ship has been approved to carry livestock in accordance with rule 24C.17(2); and
 - (b) indicate on that certificate any conditions that may apply in respect of the carriage of livestock.
- (4) A surveyor issuing a certificate under rule 21.13(2) in respect of a new ship to which rule 24C.17(1) applies must—

unless the operator can satisfy MAF that the operator can comply with a standard of inspection and care of animals while at sea.

- (a) ensure that the ship has had its design approved in accordance with rule 24C.17(2); and
 - (b) endorse on the certificate issued under rule 21.13(2) that the new ship has been approved to carry livestock in accordance with rule 24C.17(2) and indicate any conditions that may apply in that respect.
- (5) The owner of an existing ship or barge to which this rule applies that is designed or built to carry livestock on voyages between New Zealand ports must ensure that the ship is issued with a certificate in accordance with rule 24C.17(3) or that the certificate issued under rule 21.13(2) is endorsed in accordance with rule 24C.17(4)(b), within two years of the coming into force of Part 24C.
- (6) The owner and the master of a ship to which this rule applies that is not designed to carry livestock and that carries livestock on a voyage between New Zealand ports must ensure that—
- (a) the stability requirements of Appendix 1 are complied with during the voyage; and
 - (b) the penning requirements of Appendix 2 are complied with during the voyage; and
 - (c) the stability and penning conditions have been approved by a surveyor before the livestock are loaded.
- (7) The surveyor that approves a ship or barge under rule 24C.17(6)(c) must—
- (a) ensure that the ship or barge complies with—
 - (i) the stability requirements of Appendix 1; and
 - (ii) the penning requirements of Appendix 2; and
 - (b) inform the Director and the master in writing if the ship—
 - (i) intending to load livestock; or
 - (ii) loaded with livestock—is not approved for the load conditions for the intended voyage.
- (8) The master of a ship to which this rule applies must ensure that any road vehicle, horse float, or portable equipment used to transport livestock is properly stowed and secured aboard the ship.

24C.18 Requirements for the carriage of export livestock

- (1) The owner and the master of a ship to which this rule applies must ensure that—
- (a) no livestock are loaded until a surveyor is satisfied that the ship and its intended load conditions comply with the requirements of 24C.18(2) to 24C.18(5) inclusive; and
 - (b) 48 hours notice is given to that surveyor of the intention to load livestock.
- (2) The owner and the master of a ship to which this rule applies must ensure, before loading commences, that—
- (a) the stability of the ship in its intended load conditions comply with the requirements of Appendix 1; and
 - (b) the ship has the ability to comply with the stability criteria specified in Appendix 1 at all stages of the voyage; and
 - (c) the stability information specified in Appendix 1(5) is provided on the ship.
- (3) Except as provided in rule 24C.18(6), the owner and the master of a ship to which this rule applies must ensure that—
- (a) the penning arrangements comply with the requirements of Appendix 2; and
 - (b) the hold lighting complies with the requirements of Appendix 3; and

- (c) the fire fighting appliances comply with the requirements of Appendix 4; and
 - (d) the means of loading fodder comply with the requirements of Appendix 5; and
 - (e) the means of egress and access for persons comply with the requirements of Appendix 6; and
 - (f) the means of drainage from pen spaces comply with the requirements of Appendix 7.
- (4) Where a surveyor is not satisfied that the requirements of 24C.18(2) and (3) have been complied with, that surveyor must notify in writing—
- (a) the master; and
 - (b) the Director—
- as soon as practicable.
- (5) The master of a ship on which livestock is to be loaded must, if requested by the Director, produce for examination the stability information specified in Appendix 1(5) and the stability calculations for the intended voyage.
- (6) The owner and master of a ship to which this rule applies are not required to comply fully with rule 24C.18(3) if the ship—
- (a) is permanently fitted for the carriage of export livestock; and
 - (b) carried export livestock from a port in New Zealand or Australia prior to 1 July 1983; and
 - (c) the surveyor is satisfied that the livestock fittings, livestock equipment and carrying arrangements are substantially in compliance with the requirements of rule 24C.18(3) and fit for purpose.

Section 5 – Oil fuel and bulk liquid cargoes

24C.19 Definitions relating to section 5

restricted limits has the same meaning as in Part 20:

SOLAS ship means:

- (a) all passenger ships operating in the unlimited area; and
- (b) all non-passenger ships of 500 tons gross tonnage or over operating in the unlimited area; and
- (c) all passenger ships and non-passenger ships of 45 metres or more in length operating outside restricted limits:

unlimited area has the same meaning as in Part 20:

24C.20 Material safety data sheets

The owner and the master of a SOLAS ship carrying oil or oil fuel, as defined in Part 120, must ensure that material safety data sheets, based on the recommendations in MSC.286(86), are provided on the ship prior to the loading of such oil as cargo in bulk or bunkering of oil fuel.

24C.21 Prohibition of the blending of bulk liquid cargoes and production processes during voyages

- (1) The owner and the master of a SOLAS ship must ensure that bulk liquid cargoes are not physically blended during voyages. Physical blending refers to the process whereby the ship's cargo pumps and pipelines are used to internally circulate two or more different cargoes with the intent to achieve a cargo with a new product designation. This

prohibition does not preclude the master from undertaking cargo transfers for the safety of the ship or protection of the marine environment.

- (2) Subrule (1) does not apply to the blending of products for use in the search and exploitation of seabed mineral resources on board ships used to facilitate such operations.
- (3) The owner and the master of a SOLAS ship must ensure that production processes are not undertaken on board a ship during voyages. This means any deliberate operation whereby a chemical reaction between a ship's cargo and any other substance or cargo takes place.
- (4) Subrule (3) does not apply to the production processes of cargoes for use in the search and exploitation of seabed mineral resources on board ships used to facilitate such operations.

Appendix 1 – Stability Requirements

The stability requirements of this Appendix apply only to ships and barges where the animals are carried in deck pens.

- (1) In this Appendix—
 - angle of flooding** means the angle of heel at which openings in the hull, superstructures, or deckhouses, that cannot be closed weathertight, immerse. Small openings through which progressive flooding cannot take place may be ignored in determining the angle of flooding;
 - heeling curve** means the curve taking into account the effects of shift of livestock and fodder, and if applicable, the effect of wind.
- (2) The stability criteria to be met throughout a voyage, taking into account, as specified in Appendix 1(4), the effects of shift of livestock and fodder, and if the ship has a pen structure on or above the uppermost continuous deck, the effect of wind, are:
 - (a) the area under the righting lever curve must be not less than 0.055 metre-radians up to 30 degrees angle of heel and not less than 0.09 metre-radians up to 40 degrees angle of heel, or the angle of flooding if this angle is less than 40 degrees; and
 - (b) the area under the righting lever curve between the angles of heel of 30 degrees and 40 degrees, or between 30 degrees and the angle of flooding if this angle is less than 40 degrees, must be not less than 0.03 metre-radians; and
 - (c) the righting lever must be not less than 0.20 metre at an angle of heel equal to, or greater than 30 degrees; and
 - (d) the maximum righting lever must occur at an angle of heel not less than 25 degrees; and
 - (e) the initial metacentric height must be not less than 0.15 metre; and
 - (f) the area under the righting lever curve, up to 40 degrees or the angle of flooding, whichever is less, in excess of the area under the heeling lever curve due to the combined effects of shift of livestock and fodder and of wind to the same limiting angle, must be not less than 0.018 metre-radians plus 20 percent of the area of the righting lever curve to the same limiting angle; and
 - (g) the angle of heel due to wind must be not more than 10 degrees; and
 - (h) in calculating the stability of the ship, the use of fuel oil, fresh water and fodder, the movement of ballast and the build up of waste material must be taken into account.
- (3) If—
 - (a) a ship is carrying other cargo in addition to livestock; and
 - (b) that cargo has a tendency to shift; and
 - (c) the maritime rules prescribe stability requirements for that cargo—

those stability requirements must be taken into account in addition to the stability criteria specified in Appendix 1(1).
- (4) Effects of shift and wind

The effects of the shift of livestock and fodder and the effect of wind is to be taken into account in the following manner:

 - (a) Shift of livestock criteria—
 - (i) The heeling lever due to the shift of livestock at 0° is to be given by:

$$\frac{\text{average mass of livestock carried} \times \text{livestock shift constant}}{\text{floor area required per head of livestock} \times \text{displacement}}$$

where—

average mass of livestock carried means the average mass of livestock to be carried on the intended voyage; and

floor area required per head of livestock means the floor area required per head of average mass of the livestock to be carried on the intended voyage; and

livestock shift constant is—

- (aa) $\frac{1}{6} \sum [\text{length of each pen} \times (\text{breadth of each pen})^2]$; but
- (bb) for ships with uniform breadth of pens, the livestock shift constant becomes—
 $\frac{1}{6} (\text{breadth of pen} \times \text{total floor area of pens})$; and
- (cc) for ships with varying breadth of pens, the largest breadth may be used and the livestock shift constant becomes—
 $\frac{1}{6} (\text{maximum breadth of pen} \times \text{total floor area of pens})$
- (ii) The heeling lever due to the shift of livestock at 40° is to be given by—
0.8 (heeling lever due to the shift of livestock at 0°)
- (iii) The heeling lever curve is to be taken as a straight line joining the heeling lever at 0° and the heeling lever at 40°.
- (b) Shift of fodder criteria
 - (i) The heeling lever due to the shift of fodder in pellet form carried in bulk at 0° is to be given by—

$$\frac{\text{total shift moment of fodder}}{\text{stowage factor of fodder} \times \text{displacement}}$$

where—

total shift moment may be calculated by either—

- (aa) the sum of the shift moment of each compartment that is to be given by $0.044 \ell b^3$ where—
 ℓ is the maximum length of the compartment; and
 b is the maximum breadth of the compartment; or
- (bb) the use of volumetric shift moments for the fodder, where the surface is assumed to take up an angle of slope of 15° to the horizontal for full compartments and 25° to the horizontal for partly filled compartments.
- (ii) The heeling lever due to the shift of fodder in pellet form carried in bulk at 40° is to be given by—
0.8(heeling lever due to the shift of fodder at 0°).
- (iii) The heeling lever curve is to be taken as a straight line joining the heeling lever at 0° and the heeling lever at 40°.
- (c) Effect of wind criteria
 - (i) The heeling lever due to the effect of wind at 0° is to be given by:

$$\frac{\text{PAH}}{\text{displacement}}$$

where—

P is a wind pressure of 0.05 tonnes/m²; and

A is the lateral area of the ship above the waterline in square metres; and

H is the vertical distance between the centroid of the lateral area of the ship above the waterline and the centroid of the ship's underwater lateral area³.

(ii) The heeling lever due to the effect of wind at 40° is to be given by—
0.8 (heeling lever due to the effect of wind at 0°).

(iii) The heeling lever curve is to be taken as a straight line joining the heeling lever at 0° and the heeling lever at 40°.

(5) Information to be provided on a ship

The following stability information is to be carried on the ship:

(a) Livestock shift constant

(i) The livestock shift constant is to be determined for all conditions of pen utilisation that may arise in practice unless the maximum value is used for all calculations.

(ii) This constant will vary for different configurations of pen utilisation, for example, where cattle are carried the constant will be different to the constant applicable where sheep are carried.

(b) Heeling moment for fodder

The heeling moment for each compartment is to be determined separately unless the greatest heeling moment for all compartments added together is provided: that is, the total heeling moment for the worst condition of stability.

(c) Wind effect

The values of A and H will vary with the draft of the ship. Values therefore are to be provided for the range of drafts that may occur in practice or alternatively the wind effect—

$\frac{PAH}{\text{displacement}}$

may be given in tabular or graphical form.

³ For many ships the vertical position of the centroid of the underwater lateral area may be taken at half the draught to the underside of the keel at amidships.

Appendix 2 – Penning Requirements

2.1 Sheep

Number that may be carried

- (1) The maximum number of sheep that may be carried on a ship or a part of a ship engaged in the carriage of export livestock (and to which rule 24C.18 applies) is to be determined by calculating the number permitted by Appendix 2.1(2) and applying the following—

- (a) a 5 percent reduction for sheep penned on an open deck; or
- (b) a 10 percent reduction for sheep penned on enclosed decks.

For lines of horned sheep an additional 10 percent of pen space must be allowed, and as a minimum there must be room for all sheep in a pen to lie down at the same time.

- (2) The maximum number of sheep is obtained by—

- (a) determining the average mass of sheep to be carried, in a manner acceptable to a MPI veterinary officer, and deriving the minimum permissible floor area per sheep in accordance with Table 1; and
- (b) dividing the pen area available in square metres, excluding any area for spare pens required by Appendix 2.7, by the minimum permissible floor area per sheep.

Table 1

Average mass of sheep determined in accordance with Appendix 2.1(3) (kilograms)	Minimum permissible floor area per sheep (square metres)
20 or less	0.24
40	0.29
60	0.34
80	0.44
100	0.54
120 or more	0.64

- (3) A record of the aggregating totals of the mass and number of sheep must be made available to the surveyor and a MPI veterinary officer by the shipper.

- (4) The maximum number of sheep that may be carried on a ship engaged in the carriage of livestock within New Zealand (and to which rule 24C.17 applies) is to be determined from the loading densities given in the *Code for animal transportation in New Zealand*.

Design of pens and passageways

- (5) (a) Subject to Appendix 2.1(5)(b), the construction of pens for sheep and of adjacent passageways must comply with the details specified in Table 2.

Table 2

Detail of design	Dimension
Maximum distance between rails aligned fore and aft	4.5 metres
Minimum distance between rails aligned fore and aft	2.0 metres
Maximum distance between rails aligned athwartships	Not more than twice the distance between rails aligned fore and aft
Minimum distance between rails aligned athwartships	Not less than the distance between rails aligned fore and aft
Maximum clear floor area within pen	40.5 square metres
Minimum clear height within pen	1.4 metres
Minimum height of top edge of upper most rail above pen floor except that the height of that rail may be decreased if the clear height above that rail does not exceed 300 millimetres	900 millimetres
Maximum clear vertical distance between rails	210 millimetres
Maximum clear vertical distance below bottom edge of lowest rail of pen installed at deck level	160 millimetres
Maximum clear vertical distance below bottom edge of lowest rail of pen not installed at deck level except where a vertical plate or board is fitted in accordance with 26.5	50 millimetres
Minimum width of adjacent passageway clear of receptacles and any other obstructions	550 millimetres

- (b) In respect of the side of a pen in a structure above the weather deck, if that side forms part of the boundary of that structure but is not contiguous with a passageway—
- (i) the maximum clear vertical space below the bottom edge of the lowest rail and the top of a deck boundary angle or fashion plate, must be 100 millimetres; and
 - (ii) the maximum clear vertical space between rails must be 200 millimetres except that the maximum clear vertical space between the upper most rail and the next lower rail may be 250 millimetres.
- (6) The clear floor area within a pen referred to in Table 2 is the area of the pen exclusive of any receptacle or other object or structure occupying any part of the area of the pen.

Strength of pen fittings

- (7) Subject to Appendix 2.1(10), rails and stanchions forming a fore and aft boundary of a sheep pen must be capable of withstanding a load per metre length determined by the application of Formula 1, uniformly distributed up to the height of the top of the uppermost rail, the centre of which is at a height of not more than 900 millimetres above the pen floor.⁴

Formula 1

$$F = 1668 B (0.574 + 0.0252 Z) \text{ newtons per metre length}$$

where:

F = load per metre length of boundary; and

B = maximum breadth of pen, in metres; and

Z = the vertical distance from a point 0.50 metre above the pen floor to the ship's water-line

corresponding to the anticipated lightest load, in metres.

- (8) Rails and stanchions forming a boundary of a sheep pen other than a fore and aft boundary referred to in Appendix 2.1 (7), must be of substantially the same method of construction and of substantially the same scantlings as required for the fore and aft boundaries.
- (9) (a) Subject to Appendix 2.1(10), the floor and floor supports of a sheep pen must be capable of withstanding a load, determined by the application of Formula 2, uniformly distributed over any two-thirds of the area of the pen floor.

Formula 2

$$F = 2500 [1 + 1 / d((0.094 - 0.00035L)y + (7.4 - 0.016L))] \text{ newtons per square metre}$$

where:

F = floor load per square metre; and

d = draught of the ship corresponding to the anticipated lightest loaded water - line, in

metres; and

y = longitudinal distance from the midpoint of the pen to amidships, in metres; and

L = length between the perpendiculars of the ship in metres.

- (b) A floor support of a sheep pen that also forms a boundary of a lower pen must comply with Appendix 2.1(7), (8), and 9(a).
- (10) In respect of a livestock pen structure above the uppermost continuous deck, the requirements of Appendix 2.1 (7), (8), and 9(a) may be dispensed with if a surveyor approves calculations showing that the rails and stanchions of the pens and the pen floor and floor supports of those pens in that structure are capable of withstanding appropriate design forces using the criteria specified by the classification society responsible for approval of the design of the structure.
- (11) The maximum stresses permissible for materials used in the construction of the boundaries and floors of a pen must not exceed the values specified in Table 3 when under the loads determined in accordance with Appendix 2.1(7), (9)(a), and (10), as appropriate.

Table 3

⁴ A rail, the centre of which is at a height of more than 900 millimetres above the pen floor, is not considered to be load bearing for the purposes of Appendix 2.1(7).

Material	Maximum permissible tensile stress	Maximum permissible shear stress
Steel	0.75 x minimum yield stress	50 percent of maximum permissible tensile stress
Aluminium	0.75 x 0.2 percent proof stress	50 percent of maximum permissible tensile stress
Other	As determined by the Director	

Arrangement of pens

- (12) A passageway must be provided on at least one longitudinal side of each sheep pen.
- (13) The means of closing sheep access to a pen is to be a gate or portable rails—
- (a) capable of maintaining continuity of strength and the alignment of the adjoining boundary; and
 - (b) capable of being secured against accidental lifting or removal.
- (14) A pen floor must be so constructed as to be watertight within the pen boundaries and must have a surface that provides a satisfactory non-slip foothold for the sheep.
- (15) If sheep are to be moved between decks, a ramp must be provided that—
- (a) has a minimum clear width of 550 millimetres; and
 - (b) has sides that are free from protrusions and that extend to a height of not less than 900 millimetres perpendicular to the ramp floor; and
 - (c) is fitted with foot battens—
 - (i) of a minimum height of 25 millimetres and a minimum breadth of 10 millimetres with edges well rounded; and
 - (ii) spaced at regular intervals of not more than 300 millimetres, each end batten being not more than 100 millimetres from the end of the ramp; and
 - (d) has a gradient not exceeding 1 in 2.
- (16) If a lower tiered pen on a deck has a water or food receptacle adjacent to a passageway, the upper tiered pen must have fitted to the side adjoining the passageway, a vertical plate or board of a height not less than 300 millimetres that abuts the floor of the pen.⁵
- (17) Pens at the forward end of a livestock structure on or above the uppermost continuous deck of a ship, and feeding and watering arrangements provided for those pens, must be effectively screened from sea spray.
- (18) If pens are on an exposed deck, the uppermost pens must be fitted with a roof of a height that provides at least the minimum clear height specified by Appendix 2.1 for each pen and that is waterproof and extends not less than 450 millimetres beyond the deck area occupied by the pens.
- (19) (a) If pens are constructed in more than one tier on a deck, walkways must be provided so that no pen floor is at a height of more than 1.50 metres above the deck or a walkway.

⁵ Provision (16) of Appendix 2.1 is intended to prevent the fouling of food and water of livestock lower tiers.

- (b) Walkways referred to in Appendix 2.1 (14)(a) must be so constructed as to not interfere with the safe use of any passageway beneath a walkway and must—
- (i) in a ship that is not an existing ship, have a minimum clear height of 2.0 metres; and
 - (ii) in an existing ship, have a minimum clear height of 1.8 metres.

2.2 Cattle

Number that may be carried

- (1) The maximum number of cattle that may be carried on an international voyage in pens on a ship or a part of a ship must be determined in accordance with Appendix 2.2(2).
- (2) The maximum number of cattle is obtained by—
 - (a) determining the average mass of cattle to be carried, in a manner acceptable to a MPI veterinary officer, and deriving the minimum permissible floor area per head in accordance with Table 4; and
 - (b) dividing the pen area available in square metres, excluding any area for spare pens required by Appendix 2.7, by the minimum permissible floor area per head.

Table 4

Average mass of Cattle (kilograms) ⁶	Minimum permissible floor area per head of cattle (square metres)		Average mass of cattle (kilograms) ⁷	Minimum permissible floor area per head of cattle (square metres)	
	Voyages of less than 10 days	Voyages of 10 days or more		Voyages of less than 10 days	Voyages of 10 days or more
200 or less	0.770	0.770	420	1.505	1.518
210	0.804	0.804	430	1.533	1.552
220	0.838	0.838	440	1.560	1.586
230	0.872	0.872	450	1.588	1.620
240	0.906	0.906	460	1.615	1.654
250	0.940	0.940	470	1.643	1.688
260	0.974	0.974	480	1.670	1.722
270	1.008	1.008	490	1.698	1.756
280	1.042	1.042	500	1.725	1.790

⁶ In respect of an average mass per head of cattle between the figures given, the minimum permissible floor area is determined by linear interpolation using only four figures after the decimal point.

⁷ In respect of an average mass per head of cattle between the figures given, the minimum permissible floor area is determined by linear interpolation using only four figures after the decimal point.

290	1.076	1.076	510	1.753	1.824
300	1.110	1.110	520	1.780	1.858
310	1.144	1.144	530	1.808	1.892
320	1.178	1.178	540	1.835	1.926
330	1.212	1.212	550	1.863	1.960
340	1.246	1.246	560	1.890	1.994
350	1.280	1.280	570	1.918	2.028
360	1.314	1.314	580	1.945	2.062
370	1.348	1.348	590	1.973	2.096
380	1.382	1.382	600	2.000	2.130
390	1.416	1.416	650	2.150	2.500
400	1.450	1.450	700	3.000	3.000
410	1.478	1.484			

- (3) A record of the aggregating totals of the mass and number of cattle must be available to a surveyor or a MPI veterinary officer during the loading of the ship.
- (4) Distribution of cattle must be—
- (a) such that the floor area per head is not less than the minimum permissible under Table 4; or
 - (b) if a MPI veterinary officer considers it necessary that cattle be grouped according to mass or type, such that the floor area per head is not less than the minimum permissible in respect of the average mass for each group, determined under Table 4.
- (5) If cattle are carried in stalls, mature bulls must be carried in a separate stall.
- (6) The maximum number of cattle that may be carried on a ship engaged in the carriage of livestock within New Zealand (and to which rule 24C.17 applies) is to be determined from the loading densities given in the *Code for animal transportation in New Zealand*.

Design of Pens, stalls, and passageways

- (7) Subject to Appendix 2.2(8), the construction of pens for cattle and of adjacent passageways must comply with the details specified in Table 5.

Table 5

Detail of design	Dimension
Maximum distance between rails aligned fore and aft	4.5 metres
Minimum distance between rails aligned fore and aft	2.1 metres
Minimum distance between rails aligned athwartships	2.3 metres
Maximum clear floor area within pen	21.0 square metres
Maximum height of top edge of lowest rail above pen floor	600 millimetres
Minimum clear height within pen—	
(a) if a mechanical ventilation system is provided	1.8 metres
(b) in any other case	2.3 metres
Minimum width of adjacent passageway clear of receptacles and any other obstructions	1.0 metre

- (8) The height of the rails of a pen may be varied, with the approval of a surveyor and the agreement of a MPI veterinary officer, by 75 millimetres more or less than those specified in Table 5.
- (9) (a) Subject to Appendix 2.2(9)(b), there must be a maximum clear space of 300 millimetres between the rails of a pen or between a rail and the overhead structure of the ship, except that a rail need not be placed at a height of more than 1.40 metres.
- (b) If a water or food receptacle is fitted to the outside of a pen, or if fodder is distributed on the floor outside a pen, a clear vertical space of not more than 500 millimetres, for the purpose of watering or feeding livestock in the pen, may be provided between adjacent stanchions on the side of the pen adjoining the passageway.
- (10) The clear floor area within a pen referred to in Table 5 is the area of the pen exclusive of any receptacle or other object or structure occupying any part of the area of the pen.
- (11) If cattle are to be carried in stalls, the design and dimensions of the stalls must comply with Appendix 2.3(1).

Strength of pen and stall fittings

- (12) Subject to Appendix 2.2(14), rails and stanchions forming a fore and aft boundary of a cattle pen must be capable of withstanding a load per metre length determined by the application of Formula 3, uniformly distributed up to the height of the top of the uppermost rail, the centre of which is at a height of not more than 1.40 metres above the pen floor.⁸

Formula 3

$$F = 3336 B (0.574 + 0.0252 Z) \text{ newtons per metre length}$$

where:

F = load per metre length of boundary; and

B = maximum breadth of pen in metres; and

⁸ A rail, the centre of which is at a height of more than 1.40 metres above the pen floor, is not considered to be load bearing for the purposes of Appendix 2.1(3).

Z = the vertical distance from a point 0.75 metres above the pen floor to the ship's waterline corresponding to the anticipated lightest load, in metres.

- (13) Rails and stanchions forming a boundary of a cattle pen, other than a fore and aft boundary referred to in Appendix 2.2(12), must be of substantially the same method of construction and of substantially the same scantlings as determined to be required for the fore and aft boundaries.
- (14) (a) Subject to Appendix 2.2(15), the floor and floor supports of a cattle pen must be capable of withstanding a load determined by the application of Formula 4, uniformly distributed over any two-thirds of the area of the pen floor.

Formula 4

$F = 5000 [1 + 1/d ((0.094 - 0.00035 L) y + (7.4 - 0.016 L))]$ newtons per square metre

where:

F = floor load per square metre; and

D = draught of the ship corresponding to the anticipated lightest loaded water-line, in metres; and

Y = longitudinal distance from the midpoint of the pen to amidships, in metres; and

L = length between perpendiculars of the ship in metres.

- (b) A floor support of a cattle pen that also forms a boundary of a pen on a lower deck must comply with Appendix 2.2(12), (13), and (14)(a).
- (15) In respect of a livestock pen structure above the uppermost continuous deck, the requirements of Appendix 2.2(12) and (14) may be dispensed with if a surveyor approves calculations showing that the rails and stanchions of the pens and the pen floor and floor supports of those pens in that structure are capable of withstanding appropriate design forces using the criteria specified by a classification society responsible for the design of the structure.
- (16) The maximum stresses permissible for materials used in the construction of the boundaries and floors of a pen must not exceed the values specified in Table 6 when under the loads determined in accordance with Appendix 2.2(12), (13), and (14)(a), as appropriate.

Table 6

Material	Maximum permissible tensile stress	Maximum permissible shear stress
Steel	0.75 x minimum yield stress	50 percent of maximum permissible tensile stress
Aluminium	0.75 x 0.2 percent proof stress	50 percent of maximum permissible tensile stress
Other	As determined by the Director	

- (17) If cattle are to be carried in stalls, the stalls must be constructed in accordance with Appendix 2.3(1).

Arrangement of pens and stalls

- (18) (a) A passageway must be provided—
- (i) if cattle are carried in pens, on at least one longitudinal side of each cattle pen; and

- (ii) if cattle are carried in stalls, at the head of each stall.
 - (b) Cattle stalls must be arranged so that access is provided to the rear of each stall.
- (19) The means of closing a cattle access to a pen or stall is to be a gate or portable rails—
 - (a) capable of maintaining continuity of strength and the alignment of the adjoining boundary; and
 - (b) capable of being secured against accidental lifting or removal.
- (20) A pen floor or stall floor must have a surface that provides a satisfactory non-slip foothold for the cattle.
- (21) If cattle are to be moved between decks, a ramp must be provided that must—
 - (a) have a minimum clear width of 750 millimetres; and
 - (b) have sides that—
 - (i) are free from protrusions; and
 - (ii) extend to a height of not less than 1.40 metres perpendicular to the ramp floor; and
 - (iii) are panelled or sheathed to a height of not less than 1.20 metres perpendicular to the ramp floor; and
 - (c) be fitted with foot battens—
 - (i) of a minimum height of 50 millimetres and a minimum breadth of 25 millimetres with edges well rounded; and
 - (ii) spaced at regular intervals of not more than 300 millimetres, each end batten being not more than 200 millimetres from the end of the ramp; and
 - (d) have a gradient not exceeding 1 in 2.
- (22) If pens or stalls are on an exposed deck, the uppermost pens or stalls must be fitted with a roof—
 - (a) of a height that provides at least the minimum clear height required by Appendix 2.2 for each pen or stall; and
 - (b) that is waterproof; and
 - (c) that extends not less than 450 millimetres beyond the deck area occupied by the pens or stalls.
- (23) Pens and stalls at the forward end of a livestock structure on or above the uppermost continuous deck and the feeding and watering arrangements provided for those pens and stalls must be effectively screened from sea spray.

2.3 Horses

General requirements

- (1) The minimum space required for each horse carried in a pen or stall is that specified by Table 7.
- (2) Before horses are carried their shoes are to be removed.

Design of stalls, pens and passageways

- (3)
 - (a) The construction of stalls for horses and of adjacent passageways must comply with the details specified in Table 7.
 - (b) The dimensions specified in Table 7, except the breadth and clear height of a stall, may, with the approval of a surveyor and the agreement of a MPI veterinary officer, be varied by 75 millimetres either way.
- (4)
 - (a) The construction of pens for the carriage of horses must be in accordance with the construction of pens for cattle contained in Appendix 2.2.

- (b) The clear height within a pen for horses must be such that there is sufficient clearance above the horse's head, so that it can stand in a normal stance without touching the roof of the pen.

Table 7

Detail of design	Species	Dimension
Maximum clear length within stall	Horses	2.50 metres
	Mules /donkeys	2.30 metres
Minimum clear length within stall		2.30 metres
Minimum clear passage— between 2 rows of stalls and bounded by the front rails between 2 rows of stalls and bounded by front and back rails in any other case	Horses	1.70 metres
	Mules/donkeys	1.50 metres
		1.20 metres
		1.00 metres
Minimum clear breadth within stall— if the stall is aligned athwartships if the stall is aligned fore and aft		0.70 metres
		0.90 metres
Height of uppermost front, back and side rail from floor to top edge		1.15 metres
Height of lowest front, back and side rail from floor to top edge		0.75 metres
Minimum clear height within stall		2.19 metres

Strength of stall and pen fittings

- (5) The rails and stanchions of a horse stall must be constructed of approved materials giving a strength not less than that of heavy gauge tubular steel pipe of 50 millimetres nominal bore.⁹
- (6) A pen for the carriage of horses must be constructed in accordance with Appendix 2.2(9) to (14) inclusive.

Arrangement of stalls and pens

- (7) A passageway must be provided at the front of each horse stall, and each stall or pen must be so arranged that access is provided to the rear of each horse.
- (8) The means of closing a horse access to a pen or stall, is to be a gate or portable rails—

⁹ Pipe complying with Australian Standard 1074 or an equivalent standard will be approved for the purposes of Appendix 2.3(6).

- (a) capable of maintaining continuity of strength and the alignment of the adjoining boundary; and
 - (b) capable of being secured against accidental lifting or removal.
- (9) The floor of a stall or pen must be of adequate strength, so constructed as to facilitate drainage and cleaning and—
- (a) if constructed of wood—
 - (i) in the case of a stall, must be boards close fitting at the front of the stall and spaced about 25 millimetres apart at the rear, effectively secured against lifting; and
 - (ii) foot battens of cross section not less than 50 millimetres by 50 millimetres with edges well rounded must be provided at the front and rear of the stall or pen; and
 - (b) if constructed of concrete, the concrete must provide a non-slip surface and, if necessary, suitable standings must be provided; and
 - (c) if constructed of metal mesh, the mesh must be made of rods having a diameter of approximately 9 millimetres placed to provide apertures of not more than 50 millimetres and suitable standings must be provided.¹⁰
- (10) If horses are to be moved between decks, a ramp must be provided that must—
- (a) have a minimum clear width of 750 millimetres; and
 - (b) have panelled or sheathed sides that are free from protrusions and that extend to a height of not less than two metres perpendicular to the ramp floor; and
 - (c) be fitted with foot battens that are—
 - (i) of a minimum height of 50 millimetres and a minimum breadth of 25 millimetres with edges well rounded; and
 - (ii) spaced at regular intervals of not more than 300 millimetres, each end batten being not more than 200 millimetres from the end of the ramp; and
 - (iii) have a gradient not exceeding 1 in 2.
- (11) If stalls or pens are on an exposed deck, the uppermost stalls or pens must be fitted with a roof—
- (a) of a height that provides at least the minimum clear height specified for cattle in Appendix 2.2 for each stall or pen; and
 - (b) that is waterproof; and
 - (c) that extends not less than 450 millimetres beyond any part of a stall or pen referred to in Appendix 2.3(13).
- (12) (a) A stall or pen on an exposed deck must—
- (i) in the case of an outermost stall or pen, be fitted with protective sheathing on its outboard side; and
 - (ii) in the case of a stall or pen the forward end of which would otherwise be exposed, be fitted with protective sheathing on its forward end.
- (b) Sheathing provided in accordance with Appendix 2.3(13)(a) must effectively screen the stall or pen and its feeding and watering arrangements from sea spray, but must not exclude natural ventilation¹¹.

¹⁰ Standings are floor cushioning materials such as rubber strips or fibre matting.

¹¹ Sheathing specified by Appendix 2.3(13) may be portable if it is capable of being fitted from outside a stall or pen.

- (13) If the back of a stall forms a boundary of a passageway or another stall, a kick rail or board must be fitted to that end of the stall so that the clear space between rails or between rail and board, does not exceed 150 millimetres.
- (14) (a) Each horse must be fitted with a collar made of leather or other suitable material and, in each stall, two cross ties and suitable fastenings must be provided to enable a horse to be restrained from biting, rearing or attempting to jump from the stall.
- (b) If chain cross ties are provided for the purposes of Appendix 2.3(15)(a), the master must ensure that a suitable set of bolt cutters is carried and is kept readily available.

2.4 Goats

- (1) Subject to Appendix 2.4(2) and (3), the carriage of goats must be in accordance with the requirements for sheep of Appendix 2.1.
- (2) If necessary for secure enclosures, further pen rails spaced at vertical intervals of not more than 300 millimetres must be provided to a height of 1.50 metres above the pen floor.
- (3) Space between the rails of a goat pen must be closed off with an effective means for the containment¹² of goats in the pen, and food and water receptacles must be located inside the pen.

2.5 Pigs

- (1) Subject to Appendix 2.5(2), the carriage of pigs must be in accordance with the requirements for sheep of Appendix 2.1.
- (2) For the carriage of pigs on a ship engaged in the carriage of export livestock Appendix 2.1 shall refer to Table 8 instead of Table 1.

Table 8

Average mass of pigs determined in accordance with Appendix 2.1(1)(c)	Minimum permissible floor area per pig (square metres)
10 or less	0.10
20	0.28
45	0.37
70	0.60
100	0.85
140	0.95
180	1.10
270 or more	1.50

- (3) The maximum number of pigs that may be carried on a ship engaged in the carriage of livestock within New Zealand (and to which rule 24C.17 applies) is to be determined from the loading densities given in the *Code for animal transportation in New Zealand*.

¹² Wire mesh is considered to be an effective means of containment.

2.6 Other species of livestock

- (1) If livestock other than sheep, cattle, horses, goats, or pigs is to be carried, a stall or pen must be provided that—
 - (a) is capable of safely containing the livestock for the period of the voyage; and
 - (b) is constructed having regard to the size and other characteristics and needs of the livestock to be carried; and
 - (c) is furnished with arrangements for the proper tending of the livestock—
 and other appropriate measures must be taken in conformity with the provisions of this Part to ensure the safety of the ship and of persons in the vicinity of the livestock.
- (2) The arrangements provided under Appendix 2.6(1) must be approved by a surveyor, acting with the advice of a MPI veterinary officer if necessary, prior to loading of the livestock.

2.7 Provision of spare pens and stalls

- (1) If sheep, goats, or pigs are carried, spare pens must be provided capable of carrying 0.25 percent of the number of livestock on board and, if the livestock is carried on more than one deck, the spare pens must be distributed on each deck in proportion to livestock carried on that deck, as far as is practicable.
- (2) Subject to the approval of the surveyor, the length and breadth of a spare pen may be less than that specified by Table 2 or Table 5, provided that no side of a pen is less than 1.50 metres in length.
- (3) If cattle are carried, spare pens must be provided on each deck on which cattle are carried, having a capacity determined in accordance with table 9.

Table 9

Number of cattle carried on deck	Capacity of spare pens
Not more than 10	Nil
More than 10 but not more than 100	Sufficient for one animal
More than 100	Sufficient for one animal for each 100 or part thereof

- (4) (a) If horses are carried, a spare stall must be provided—
 - (i) in respect of each 20 horses or part thereof except that a spare stall need not be provided if the number of horses carried is less than 6; or
 - (ii) in each unit of portable equipment in which the horses are carried.
- (b) A spare stall provided in accordance with Appendix 2.7(4)(a) must be so located as to be readily accessible for the transfer of a horse.
- (5) If livestock other than sheep, cattle, horses, goats, or pigs is carried, appropriate spare pens or stalls must be provided to the satisfaction of a MPI veterinary officer.
- (6) Spare pens or stalls provided in accordance with Appendix 2.7 must be constructed to the standard required for the species of livestock for which they are provided and must bear clear identification as spare pens or stalls.

2.8 Carriage of livestock in portable equipment

- (1) For the purposes of Appendix 2.8, portable equipment includes boxes, platforms, and containers.

- (2) Portable equipment must not be used for the carriage of export livestock unless it is approved by the surveyor with the agreement of a MPI veterinary officer.
- (3) The number of livestock that may be carried in portable equipment is to be determined in accordance with the relevant provisions of Appendices 2.1, 2.2, 2.3, 2.4, 2.5, or 2.6.
- (4) Portable equipment containing livestock must:
 - (a) be stowed in a position—
 - (i) that is suitably protected from the weather and machinery exhausts; and
 - (ii) that ensures suitable access to the portable equipment; and
 - (b) be secured to prevent movement; and
 - (c) be adequately lit and ventilated.
- (5) The arrangements provided under Appendix 2.8(4) for the carriage of export livestock are to be approved by a surveyor.
- (6) On voyages of less than 24 hours duration livestock may be transported in a road vehicle that can be secured in accordance with the requirements of rule 24B.

2.9 Pens fitted to existing ships

Pens that are fitted to existing ships engaged only in the carriage of livestock within New Zealand must generally be in accordance with the requirements of this Appendix. However, pens that are not in accordance with this Appendix may be accepted in such ships where they have proven satisfactory for at least 5 years and the materials and fittings remain in good condition to the satisfaction of a surveyor.

Appendix 3 – Lighting

- (1)
 - (a) In all parts of a ship where livestock is carried, passageways between pens and access routes between or from those parts must be provided with lighting to give a level of illumination of not less than 20 lux in those passageways and routes.
 - (b) In addition to the lighting specified in Appendix 3(1)(a), sufficient fixed or portable lighting must be provided to give a level of illumination of not less than 110 lux in any pen in which livestock is carried so that the livestock in that pen can be inspected.
- (2) Subject to Appendix 3(5), an emergency lighting system that is automatically activated on the failure of the main electrical installation—
 - (a) must be provided in the parts of a ship specified in Appendix 3(1) (a); and
 - (b) must be capable of giving a level of illumination of not less than 8 lux in all passageways and access routes; and
 - (c) must be capable of operation for a continuous period of not less than 15 minutes.
- (3) If fixed lighting is provided in a part of a ship above the uppermost continuous deck in order to meet the requirements of Appendix 3(1), that lighting must be capable of being controlled from the navigating bridge.
- (4) Light fittings provided to comply with Appendix 3(1) and Appendix 3(2) must be—
 - (a) waterproof; and
 - (b) either—
 - (i) of sufficient strength to resist damage by livestock; or
 - (ii) placed beyond possible contact by livestock.
- (5) Existing ships that are not fitted with emergency lighting in accordance with Appendix 3(2), or ships converted for the carriage of livestock for only one voyage after the coming into force of this Part, may be equipped with emergency hand lamps in place of the lighting system specified in Appendix 3(2).
- (6) If lighting or power points for portable lighting are located in a space used for carriage of fodder in bulk, they must—
 - (a) be of a type suitable for use in a dust-laden atmosphere; and
 - (b) be controlled by switches situated—
 - (i) on the navigating bridge; or
 - (ii) at the fodder-handling machinery control station; and
 - (c) have indicator lights provided to show when power is supplied to the lighting or power points.

Appendix 4 – Fire-fighting appliances

- (1) Fire hydrants connected to the fire main provided on the ship must be provided so that—
 - (a) no fewer than two jets of water from separate hydrants can be simultaneously directed to any part of a space or deck where livestock are located; and
 - (b) one of those jets of water is provided by a single length of hose.
- (2) A fire hose, together with the necessary connections and a nozzle capable of directing water in the form of a spray and a jet, must be provided—
 - (a) in an enclosed space, for each hydrant referred to in Appendix 4(1); and
 - (b) in any other space or on a deck, for each 50 metres length, or part thereof, of space or deck.
- (3) A fire hose referred to in Appendix 4(2) must be capable of being connected to any hydrant and to any other hose other than hydrants and hoses within the engine room or accommodation spaces.
- (4) Each fire hose, with its connections and nozzle—
 - (a) referred to in Appendix 4(2)(a) must be kept in a conspicuous position near the hydrant with which it is intended to be used; and
 - (b) referred to in Appendix 4(2)(b) must be placed in a conspicuous position close to the entrances or stairways leading to the space or deck referred to.
- (5) If hay or straw is carried or used in a space where livestock is located, there must be provided—
 - (a) a portable fire extinguisher that uses water as the extinguishing medium for every 18 metres or part thereof of the space, one of which must be placed adjacent to an entrance to the space; or
 - (b) a fixed fire-fighting installation that uses water as the extinguishing medium provided the installation and its location have been approved by a surveyor.
- (6) If electrical equipment, other than for the purposes of Appendix 3, is situated in an enclosed livestock space—
 - (a) an adequate number of portable fire extinguishers; or
 - (b) a fixed fire-fighting installation—suitable for use with electrical equipment, must be provided in that space.
- (7) The following equipment, when provided for the purposes of Appendix 4, must comply with Part 42B of the maritime rules—
 - (a) hydrants; and
 - (b) hoses; and
 - (c) hose connections; and
 - (d) hose nozzles; and
 - (e) portable fire extinguishers; and
 - (f) fixed fire-fighting installations.

- (8) Notices must be prominently displayed prohibiting smoking or the use of naked lights in a space in which—
- (a) hay; or
 - (b) straw; or
 - (c) other fodder; or
 - (d) other bedding—
- of a flammable nature is used or carried.

Appendix 5 – Loading of bulk fodder

- (1) When bulk fodder is to be loaded, the following provisions must be complied with—
 - (a) 'no smoking' signs must be posted adjacent to pipe delivery outlets:
 - (b) lighting installed in the fodder space must be suitable for use in a dust-laden atmosphere or, alternatively, the lighting circuits must be electrically isolated during loading:
 - (c) portable lighting in a fodder storage space must be suitable for use in a dust-laden atmosphere:
 - (d) electric motors and associated electrical equipment required to be used in the fodder storage space must be suitable for use in a dust-laden atmosphere:
 - (e) electric motors and lighting circuits close to pipe delivery outlets must—
 - (i) be suitable for use in a dust-laden atmosphere; or
 - (ii) alternatively, electrically isolated during loading.
- (2) When bulk fodder is loaded by means of portable piping, the following provisions must be complied with—
 - (a) a bulk fodder truck must be effectively earthed to a suitable part of the wharf or quay and, if a separate blower trailer is used, both truck and trailer must be earthed:
 - (b) the piping must, if possible, be so arranged that it is electrically continuous and if the pipes are so manufactured that they are not electrically continuous, a bare wire strong enough to withstand normal handling must be wound round the full length of the pipe in spiral fashion with a pitch of approximately 500 millimetres:
 - (c) the piping must be effectively earthed to the ship and all earth connections must be secured with clips so that there can be no interruption or disconnection during the handling or manoeuvring of the piping:
 - (d) if more than one pipe length is used, the pipes must not, if practicable, be insulated from one another:
 - (e) if pipe connections depend on heavy duty seals that are not electrically conductive, each individual pipe length must be earthed to the adjoining length by metal straps or must be earthed separately:
 - (f) a conductive sleeve approximately 500 millimetres long must be fitted at the discharge end of the pipe and must be electrically continuous with the pipe or, if fitted, the bare spiralled wire referred to in Appendix 5(2)(b).

Appendix 6 – Mean of egress and access for persons

- (1) Access to a livestock space for persons must be safe and, if combined with a ramp used for moving livestock between decks, must be separated from the livestock ramp by protective fencing.
- (2) A pen, stall, or similar fitting must be provided with a means of access for persons with a secure closing arrangement having a structural strength equivalent to the strength of that part of the pen, stall, or fitting.
- (3) If access is required between a ship's side and a pen, stall, or similar fitting for the purposes of the safe and proper operation of the ship, a passageway must be provided that has a clear width of not less than 550 millimetres between the ship's rail or bulwark and the rails or receptacles of the pen, stall, or fitting.
- (4) A means of egress or access or a passageway required by Part 24C, must be kept clear at all times during the voyage.

Appendix 7 – Drainage

Adequate and effective drainage arrangements are to be provided for removing fluids and semi-solid matter from livestock pen areas. The ship's bilge lines are not to be used for this purpose.