

[LEGAL NOTICE NO. 90]

MARITIME TRANSPORT DECREE 2013
(DECREE NO. 20 OF 2013)

Maritime (Carriage of Specific Cargoes) Regulations 2014

IN exercise of the powers conferred upon me by section 241(1)(m) of the Maritime Transport Decree 2013, I hereby make the following Regulations—

PART I — PRELIMINARY

Short title and commencement

1. These Regulations may be cited as the Maritime (Carriage of Specific Cargoes) Regulations 2014 and shall come into force a date appointed by the Minister by notice in the *Gazette*.

Interpretation

2. In these Regulations, unless the context otherwise requires—

“Authority” means the Maritime Safety Authority of Fiji;

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

“Chief Executive Officer” means the Chief Executive Officer of the Maritime Safety Authority of Fiji;

“Decree” means the Maritime Transport Decree 2013;

“existing ship” means a ship that is not a new ship;

“grain” means wheat, maize (corn), oats, rye, barley, rice, and pulses, and includes any seed or processed form 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;

“IMO” means the International Maritime Organization;

“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;

“SOLAS” means the International Convention for the Safety of Life at Sea 1974 as amended; and

“transportable moisture limit” means the maximum moisture content of a material to be carried, derived in accordance with the BC Code, for carriage in ships without the arrangements specified in regulation 10(2)(b)(i).

Purpose

3.—(1) These Regulations outline the specific requirements which ships carrying grain, solid bulk cargoes, timber deck cargoes and livestock are required to comply with.

(2) For ships loading and carrying —

- (a) grain, these Regulations implement Chapter VI Part C of SOLAS;
- (b) solid bulk cargoes, these Regulations implement Chapter VI Part B of SOLAS and also require that the cargo be loaded and carried in accordance with the provisions of the Code of Safe Practice for Solid Bulk Cargoes (BC Code) published by the International Maritime Organization;
- (c) timber deck cargoes, these Regulations require compliance with the provisions of the Code of Safe Practice for Ships Carrying Timber Deck Cargoes adopted by the International Maritime Organization; and
- (d) livestock, these Regulations specify requirements relating only to the safety of the ship and personnel aboard whilst livestock are loaded and carried.

(3) Pursuant to sub-regulation (2)(c) requirements in respect of the welfare of livestock and associated shipboard conditions may be found in various Codes of Animal Welfare endorsed as national codes by the Animal Welfare Advisory Committee and published by the Ministry of Agriculture.

Cargo information

4.—(1) The shipper of a cargo to be carried on a ship to which Part 3, Part 4 or Part 5 applies, shall be required to —

- (a) provide to the master or the master’s representative information on the cargo including —
 - (i) a general description of the cargo;
 - (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 required under paragraph (a) 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;

- (ii) confirmed in writing; 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 Part 3 applies shall, in addition to sub-regulation (1), be required to provide to the master or the master's representative written information—

- (a) on the stowage factor of the cargo;
- (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.

PART 2—GRAIN CARGOES

Definitions

5. In this Part—

“authorised organisation” means an organisation that has entered into a memorandum of agreement with the Chief Executive Officer in compliance with the International Maritime Organization Assembly Resolution A.739 (18) and the Annexes as amended by Resolution MSC 208(81) thereto entitled “Adoption of Amendments to the “Guidelines for the Authorisation of Organisations Acting on Behalf of the Administration” whereby that organisation may carry out surveys and issue convention certificates on behalf of the Chief Executive Officer in respect of the International Convention for the Safety of Life at Sea;

“authorised person” means a person employed by an authorised organisation and appointed under section 38(1) of the Decree to carry out such inspections and such audits as the Authority considers necessary for the purposes of these Regulations;

“document of authorisation” means the document of authorisation issued in accordance with regulation 7(3) or a document of authorisation issued in accordance with the Grain Code and recognised by the Chief Executive Officer under section 24 of the Decree; and

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

Application of Part 2

6. This Part shall apply to—

- (a) a Fiji ship that loads grain;

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

Requirements for ships carrying grain

7.—(1) The owner and the master of a ship shall be required to ensure that the ship loads and carries grain in accordance with the Grain Code.

(2) Subject to sub-regulation (4), the owner and the master of a ship shall be required to ensure that the ship does not load grain unless the ship holds a document of authorisation in English.

(3) The Chief Executive Officer or an authorised person shall issue a document of authorisation to a ship, in accordance with section 24 of the Decree, 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 23 of the Decree.

(4) The owner and the master of a ship that does not hold a document of authorisation, shall be required to ensure the ship does not load grain until—

- (a) the Chief Executive Officer; or
- (b) an authorised organisation is satisfied that the ship in its proposed loading condition complies with the requirements of the Grain Code.

(5) Any owner or master of a Fiji ship who contravenes this regulation commits an infringement offence in accordance with section 262 of the Decree and shall be liable to a fine not exceeding \$3,000.

(6) For foreign ships, Port State Control measures shall be applicable in instances of contravention of this regulation.

PART 3—SOLID BULK CARGO OTHER THAN GRAIN

Definitions

8. In this Part—

“BC Code” means the Code of Safe Practice for Solid Bulk Cargoes published by the International Maritime Organization, as amended from time to time; and

“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.

Application of Part 3

9. This Part shall apply to a Fiji ship, or a foreign ship in a Fiji port, which loads a solid bulk cargo other than—

- (a) grain;

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

Acceptability for shipment

10.—(1) The owner and the master of a ship to which this regulation applies shall be required to ensure that a solid bulk cargo is not loaded until the master is provided with comprehensive information on the distribution of the cargo and on the ship's stability.

(2) The owner and the master of the ship shall only accept for loading solid bulk cargoes that may liquefy, when—

- (a) the actual moisture content of the cargo is less than its transportable moisture limit; or
- (b) 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 Chief Executive Officer 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 shall be required to ensure, prior to loading a solid bulk cargo that has chemical properties which may create a hazard, that precautionary measures are taken in accordance with the applicable recommendations in the BC Code, to minimise any possible hazard.

Requirements for ships carrying solid bulk cargo

11.—(1) The owner and the master of a ship to which this regulation and the BC Code apply shall be required to ensure that cargoes are loaded and carried in accordance with the BC Code.

(2) The owner and the master of a ship shall be required to ensure that a solid bulk cargo is loaded and 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 shall be required to ensure that when solid bulk cargoes are carried on 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;
- (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) When transporting a solid bulk cargo that is likely to emit toxic or flammable gas, or cause oxygen depletion in the cargo space, the owner and the master of a ship shall be required to ensure that the following are provided—

- (a) an instrument that is acceptable to the Chief Executive Officer or an authorised organization for measuring the concentration of gas or oxygen in the air; and
- (b) detailed instructions for the instrument's use.

PART 4—TIMBER DECK CARGO

Definitions

12. In this Part—

- “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 the Maritime (Fiji Small Craft Code) Regulations 2014 and the Maritime (Fiji Maritime Code) Regulations 2014;
- “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 per cent 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 and does not include wood pulp or other similar cargo; and
- “timber deck cargo” means a cargo of timber carried on an uncovered part of a freeboard or superstructure deck and does not include wood pulp or similar cargo.

Application of Part 4

13. This Part shall apply to any load line ship engaged in the carriage of timber deck cargoes that is a Fiji ship or a foreign ship in a Fiji port.

Requirements for ships carrying timber deck cargo

14.—(1) The owner and the master of a ship shall be required to ensure that the deck cargo of timber is stowed and secured in accordance with the applicable requirements of the Code for Timber Deck Cargoes.

(2) The owner and the master of a ship shall be required to ensure that the applicable operational measures in the Code for Timber Deck Cargoes are complied with, including recommendations on—

- (a) stability;
- (b) personnel protection and safety devices; and
- (c) action to be taken during the voyage.

(3) Where the requirements prescribed in sub-regulations (1) and (2) are impracticable, alternative arrangements satisfactory to the Chief Executive Officer shall be used.

(4) Any owner or master of a Fiji ship who contravenes this regulation commits an infringement offence in accordance with section 262 of the Decree and shall be liable to a fine not exceeding \$3,000.

(5) For foreign ships, Port State Control measures shall be applicable in instances of a contravention of this regulation.

PART 5—LIVESTOCK

Definitions

15. In this Part—

“Protection of Animals Act (Cap.169) for transportation of livestock within Fiji” means the laws for the welfare of animals transported within Fiji administered by the Ministry of Agriculture;

“export livestock” means livestock carried on an international voyage;

“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 these Regulations;

“surveyor” means any suitably qualified person who has been—

- (a) recognised and approved by the Chief Executive Officer as a surveyor entitled to undertake functions referred to in this Part; and
- (b) holds a valid maritime document as a surveyor.

Application of Part 5

16.—(1) Regulations 17 and 18 shall apply to a Fiji ship, and foreign ship in a Fiji port that—

- (a) loads livestock for carriage on a voyage between Fiji ports only; and
- (b) has a deck area occupied by pen or stall structures that exceed 25% 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) Regulations 17 and 19 shall apply to every Fiji ship, and every foreign ship in a Fiji port, that carries livestock or loads livestock for carriage on an international voyage.

Restrictions on carriage of livestock

17.—(1) The owner and the master of a ship shall be required to ensure that livestock are not carried, or loaded for carriage, on or in any part of a ship, where livestock or livestock fittings, or livestock equipment or carrying arrangements—

- (a) obstruct access to any accommodation space or working space necessary for the safe running of the ship;
- (b) obstruct means of egress from any hold or under deck space;
- (c) interfere with life-saving or fire-fighting appliances;
- (d) interfere with sounding of tanks or bilges;
- (e) interfere with operation of closing appliances;
- (f) interfere with operation of freeing ports;
- (g) interfere with lighting or ventilation of other parts of the ship; or
- (h) interfere with 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.

(3) Any owner or master of a Fiji ship who contravenes this regulation commits an infringement offence in accordance with section 262 of the Decree and shall be liable to a fine not exceeding \$3,000.

(4) For foreign ships, Port State Control measures shall be applicable in instances of a contravention of these Regulations.

Requirements for carriage of livestock within Fiji

18.—(1) The owner of a new ship or new barge for the carriage of livestock on voyages between Fiji ports shall require prior approval of a surveyor before construction of any such ship or barge.

(2) Pursuant to sub-regulation (1), approval shall be given if the design of the ship or barge meets—

- (a) stability requirements set out in Schedule 1; and
- (b) penning requirements set out in Schedule 2.

(3) A surveyor who has approved the design of a new barge or a new ship to which these Regulations and the Maritime (Safe Ship Management Systems) Regulations 2014 apply, shall be required to issue a certificate to that new ship or barge that—

- (a) states that the barge or ship has been approved to carry livestock in accordance with sub-regulation (2); and
- (b) indicates any condition that may apply in respect of the carriage of livestock.

(4) A surveyor issuing a certificate in respect of a new ship under sub-regulation (1) shall be required to—

- (a) ensure that the ship has had its design approved in accordance with sub-regulation (2); and
- (b) endorse the same on the certificate issued under regulation 13(2) of the Maritime (Safe Ship Management Systems) Regulations 2014 and indicate any condition that may apply in that respect.

(5) The owner and the master of a ship that is not designed to carry livestock and that carries livestock on a voyage between Fiji ports must ensure that—

- (a) stability requirements of Schedule 1 are complied with during the voyage;
- (b) penning requirements of Schedule 2 are complied with during the voyage; and
- (c) stability and penning conditions have been inspected and approved by a surveyor before loading the livestock.

(6) The master of a ship shall be required to ensure that any road vehicle, horse float or portable equipment used to transport livestock is properly stowed and secured aboard the ship.

(7) The Chief Executive Officer may exempt a Fiji ship that is not designed to carry livestock and that carries livestock on a voyage between any port in Fiji from the requirement of sub-regulation (5) with such terms and conditions the Chief Executive Officer considers necessary to ensure that the carriage of livestock does not pose a risk to passengers or to the livestock that is carried on board the exempted ship.

(8) Any owner or master who contravenes this regulation commits an infringement offence in accordance with section 262 of the Decree and shall be liable to a fine not exceeding \$1,000.

Requirements of the carriage of export livestock

19.—(1) The owner and the master of a ship shall be required to ensure that—

- (a) no livestock are loaded until a surveyor is satisfied that the ship and its intended load conditions comply with the requirements in this regulation; and
- (b) 48 hours' notice is given to the surveyor of the intention to load livestock.

(2) The owner and the master of a ship shall be required to ensure before loading commences, that—

- (a) the stability of the ship in its intended load conditions comply with the requirements of Schedule 1;
- (b) the ship has the ability to comply with the stability criteria specified in Schedule 1 at all stages of the voyage; and
- (c) the stability information specified in paragraph 6 of Schedule 1 is provided on the ship.

(3) The owner and the master of a ship shall also be required to ensure that —

- (a) penning arrangements comply with the requirements of Schedule 2;
- (b) hold lighting complies with the requirements of Schedule 3;
- (c) fire fighting appliances comply with the requirements of Schedule 4;
- (d) means of loading fodder comply with the requirements of Schedule 5;
- (e) means of egress and access for persons comply with the requirements of Schedule 6; and
- (f) means of drainage from pen spaces comply with the requirements of Schedule 7.

(4) Where a surveyor is not satisfied that requirements under sub-regulations (2) and (3) have been complied with, he or she shall be required to notify the master or the Chief Executive Officer in writing as soon as practicable.

(5) The master of a ship on which livestock is to be loaded, shall be required to produce for examination the stability information specified in paragraph 6 of Schedule 1 and the stability calculations for the intended voyage, upon request by the Chief Executive Officer or an authorised person.

(6) Any owner or master of a Fiji ship who contravenes this regulation commits an infringement offence in accordance with section 262 of the Decree and shall liable to a fine not exceeding \$1,000.

(7) For foreign ships, Port State Control measures shall be applicable in instances of contravention of these Regulations.

Made this 14th day of December 2014.

P. TIKODUADUA
Minister for Infrastructure and Transport

SCHEDULE 1

STABILITY REQUIREMENTS

1. The stability requirements of this Schedule shall apply only to ships and barges where animals are carried in deck pens.

2. In this Schedule—

“angle of flooding” means the angle of heel at which openings in the hull, superstructures or deckhouses, that cannot be closed weather tight, immerse. Small openings through which progressive flooding cannot take place may be ignored in determining the angle of flooding; and

“heeling lever curve” means the curve taking into account the effects of shift of livestock and fodder, and if applicable, the effect of wind.

3.—(1) The stability criteria to be met throughout a voyage shall be as listed—

- (a) the area under the righting lever curve must not be 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;
- (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 not be less than 0.03 metre-radians;
- (c) the righting lever must not be less than 0.20 metre at an angle of heel equal to, or greater than 30 degrees;
- (d) the maximum righting lever must occur at an angle of heel not less than 25 degrees;
- (e) the initial metacentric height must be not less than 0.15 metre;
- (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 not be less than 0.018 meter-radians plus 20% of the area of the righting lever curve to the same limiting angle;
- (g) the angle of heel due to wind must not be 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.

(2) The stability criteria under sub-paragraph (1) takes into account, as specified in paragraph 5, 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.

4. If a ship is carrying other cargo in addition to livestock and—

(a) that cargo has a tendency to shift; and

(b) the Maritime Regulations prescribe stability requirements for that cargo,

those stability requirements must be taken into account in addition to the stability criteria specified in paragraph 1.

Effects of shift and wind

5.—(1) The effects of the shift of livestock and fodder and the effect of wind shall 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;

“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—

A. $\frac{1}{6} \sum [\text{length of each pen} \times (\text{breadth of each pen})]$; but

B. for ships with uniform breadth of pens, the livestock shift constant becomes $\frac{1}{6}$ (breadth of pen $\times$ total floor area of pens); and

C. for ships with varying breadth of pens, the largest breadth may be used and the livestock shift constant becomes $\frac{1}{6}$ (maximum breadth of pen $\times$ 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°); and

(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—

- A. the sum of the shift moment of each compartment that is to be given by $0.044lb$ where—
- (aa) l is the maximum length of the compartment; and
- (bb) b is the maximum breadth of the compartment; or
- B. the use of volumetric shift moments of 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°; and

(c) effect of wind criteria—

- (i) the heeling lever due to the effect of wind at 0° is to be given by—

$$\frac{PAH}{\text{Displacement}}$$

where—

P = a wind pressure of 0.05 tonnes/metre;

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

H = 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 area*

(*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);

- (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°); and
- (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°.

Information to be provided on a ship

6. The following stability information shall be required 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; and
- (ii) 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 may be given a tabular or graphical form—

$$\frac{\text{PAH}}{\text{Displacement}}$$

SCHEDULE 2

PENNING REQUIREMENTS

Sheep

Number that may be carried

1.—(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 regulation 19 applies shall be determined by calculating the number permitted by paragraph 3 and applying the following—

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

(2) For lines of horned sheep, an additional 10% 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.

(3) The maximum number of sheep shall be obtained by—

- (a) determining the average mass of sheep to be carried, in a manner acceptable to a veterinary officer of the Ministry of Agriculture, 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 under paragraphs 17 and 18, by the minimum permissible floor area per sheep.

Table 1

<i>Average mass of sheep determined in accordance with sub-paragraph 4 (kg)</i>	<i>Minimum permissible floor area per sheep (m²)</i>
20 or less	0.24
40	0.29
60	0.34
80	0.44
100	0.54
120 or more	0.64

(4) The shipper shall be required to make available a record of the aggregating totals of the mass and number of sheep to the surveyor and veterinary officer.

(5) The maximum number of sheep that may be carried on a ship engaged in the carriage of livestock within Fiji and to which regulation 18 applies shall be determined from the loading densities provided in the Protection of Animals Act (Cap.169).

Design of pens and passageways

2.—(1) Subject to sub-paragraph (2), the construction of pens for sheep and of adjacent passageways must comply with the details specified in Table 2.

Table 2

<i>Detail of design</i>	<i>Dimension</i>
Maximum distance between rails aligned fore and aft	4.5 m
Minimum distance between rails aligned fore and aft	2.0 m
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 m ²
Minimum clear height within pen	1.4 m
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 mm	900 mm
Maximum clear vertical distance between rails	210 mm

<i>Detail of design</i>	<i>Dimension</i>
Maximum clear vertical distance below bottom edge of lowest rail of pen installed at deck level	160 mm
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 sub-paragraph (2)	50 mm
Minimum width of adjacent passageway clear of receptacles and any other obstructions	550 mm

(2) In respect of the side of a pen in a structure above the weather deck, if that side forms part of the boundary of the 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 mm; and
- (ii) the maximum clear vertical space between rails must be 200 mm except that the maximum clear vertical space between the upper most rail and the next lower rail may be 250 mm.

(3) The clear floor area within a pen referred to in Table 2 shall be 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

3.—(1) Subject to sub-paragraph 6, 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.

(2) A rail, the centre of which is at a height of more than 900 millimetres above the pen floor, shall not be considered to be load bearing for the purposes of sub-paragraph (1).

Formula 1

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

where F = load per metre length of boundary;

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.

(3) Rails and stanchions forming a boundary of a sheep pen other than a fore and aft boundary referred to in sub-paragraph (1), must be of substantially the same scantlings as required for the fore and aft boundaries.

(4) Subject to sub-paragraph (6), 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

$$F = 2500 [1 + 1/d((0.094 - 0.00035L)y + (7.4 - 0.016L))] \text{ N/m}^2$$

F = floor load/m²; and

where—

d = draught of the ship corresponding to the anticipated lightest loaded waterline, in metres;

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

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

(5) A floor support of a sheep pen that also forms a boundary of a lower pen must comply with sub-paragraphs (1), (3) and (4).

(6) In respect of a livestock pen structure above the uppermost continuous deck, the requirements of sub-paragraphs (1), (3) and (4) 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.

(7) 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 sub-paragraphs (1), (4) and (6), as appropriate.

Table 3

<i>Material</i>	<i>Maximum permissible tensile stress</i>	<i>Maximum permissible shear stress</i>
Steel	0.75 x minimum yield stress	50% of maximum permissible tensile stress
Aluminium	0.75 x 0.2 % proof stress	50% of maximum permissible tensile stress
Other	As determined by the Chief Executive Officer or authorised person	

Arrangement of pens

4.—(1) A passageway must be provided on at least one longitudinal side of each sheep pen.

(2) Closing sheep access to a pen shall be by way of a gate or portable rails capable of—

(a) maintaining continuity of strength and the alignment of the adjoining boundary; and

(b) being secured against accidental lifting or removal.

(3) A pen floor shall be required to be so constructed as to be watertight within the pen boundaries and have a surface that provides a satisfactory non-slip foothold for the sheep.

(4) If sheep are to be moved between decks, a ramp must be provided that—

- (a) has a minimum clear width of 550 millimetres;
- (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;
- (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.

(5) If a lower tiered pen on a deck has a water or food receptacle adjacent to a passageway, the upper tiered pen shall be required to 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.

* Sub-paragraph (6) is intended to prevent the fouling of food and water of livestock lower tiers.

(6) 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.

(7) 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 paragraph 1 for each pen and that is waterproof and extends not less than 450 millimetres beyond the deck area occupied by the pens.

(8) 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.

(9) Walkways referred to in sub-paragraph (3) must be so constructed as to not interfere with the safe use of any passageway beneath a walkway and must—

- (a) in a ship that is not an existing ship, have a minimum clear height of 2.0 metres; and
- (b) in an existing ship, have a minimum clear height of 1.8 metres.

Cattle

Number that may be carried

5.—(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 sub-paragraph (2)

(2) The maximum number of cattle shall be obtained by —

- (a) determining the average mass of cattle to be carried, in a manner acceptable to a veterinary officer of the Ministry of Agriculture 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 square pens required by paragraphs 18 and 19, by the minimum permissible floor area per head.

Table 4

Average mass of cattle (kilograms)	Minimum permissible floor per head of cattle (square metres)		Average mass of cattle (kilograms)	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
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	1.478			

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

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

(5) A record of the aggregating totals of the mass and number of cattle must be available to a surveyor or veterinary officer of the Ministry of Agriculture during the loading of the ship.

Distribution of cattle

6.—(1) Distribution of cattle shall be—

- (a) such that the floor area per head is not less than the minimum permissible under Table 4; or
- (b) if a veterinary officer of the Ministry of Agriculture 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.

(2) If cattle are carried in stalls, mature bulls shall be required to be carried in a separate stall.

(3) The maximum number of cattle that may be carried on a ship engaged in the carriage of livestock within Fiji and to which regulation 18 applies shall be determined from the loading densities given in the Protection of Animals Act (Cap. 169).

Design of pens, stalls and passageways

7.—(1) Subject to sub-paragraph (2), the construction of pens for cattle and of adjacent passageways shall be required to comply with details specified in Table 5.

Table 5

<i>Detail of design</i>	<i>Dimension</i>
Maximum distance between rails aligned fore and aft	4.5 m
Minimum distance between rails aligned fore and aft	2.1 m
Minimum distance between rails aligned athwartships	2.3 m
Maximum clear floor area within pen	21.0 m ²
Maximum height of top edge of lowest rail above pen floor	600 mm
Minimum clear height within pen—	
(a) if a mechanical ventilation system is provided	1.8 m
(b) in any other case	2.3 m
Minimum width of adjacent passageway clear of receptacles and any other obstruction	1.0 m

(2) The height of the rails of a pen may be varied, with the approval of a surveyor and the agreement of a veterinary officer of the Ministry of Agriculture by 75 millimetres more or less than those specified in Table 5.

(3) Subject to sub-paragraph (4), 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.

(4) If 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.

(5) The clear floor area within a pen referred to in Table 5 shall be the area of the pen exclusive of any receptacle or other object or structure occupying any part of the area of the pen.

(6) If cattle are to be carried in stalls, the design and dimensions of the stalls must comply with paragraph 10(1).

Strength of pen and stall fittings

8.—(1) Subject to sub-paragraph (4), 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.

(2) A rail, the centre of which is at a height of more than 1.40 metres above the pen floor, shall not be considered to be load bearing for the purposes of paragraph 1(4).

Formula 3

$$F = 3336 B (0.574 + 0.0252 Z) \text{ N/m}^2 \text{ length}$$

where F = load per metre length of boundary;

B = maximum breadth of pen in metres;

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; and

N = Newton.

(3) Rails and stanchions forming a boundary of a cattle pen, other than a fore and aft boundary referred to in paragraph 8(1), 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.

(4) Subject to sub-paragraph (6), 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

$$F = 5000 [1 + 1/d ((0.094 - 0.00035 L) y + (7.4 - 0.016L))] \text{ N/m}^2$$

where F = floor load per square metre;

d = draught of the ship corresponding to the anticipated lightest loaded waterline, in metres;

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

L = length between perpendiculars of the ship, in metres; and

N = Newton.

(5) A floor support of a cattle pen that also forms a boundary of a pen on a lower deck must comply with sub-paragraphs (1), (3) and (4).

(6) In respect of a livestock pen structure above the uppermost continuous deck, the requirements of sub-paragraphs (1) and (4) 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.

(7) 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 sub-paragraphs (1), (3) and (4), as appropriate.

Table 6

<i>Material</i>	<i>Maximum permissible tensile stress</i>	<i>Maximum permissible shear stress</i>
Steel	0.75 x minimum yield stress	50 % of maximum permissible tensile stress
Aluminium	0.75 x 0.2 % proof stress	50 % of maximum permissible tensile stress
Other	As determined by the Chief Executive Officer	

(8) If cattle are to be carried in stalls, the stalls must be constructed in accordance with paragraph 10(1).

Arrangement of pens and stalls

9.—(1) A passageway must be provided—

- (a) if cattle are carried in pens, on at least one longitudinal side of each cattle pen; and
- (b) if cattle are carried in stalls, at the head of each stall.

(2) Cattle stalls shall be required to be arranged so that access is provided to the rear of each stall.

(3) 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.

(4) A pen floor or stall floor must have a surface that provides a satisfactory non-slip foothold for the cattle.

(5) If cattle are to be moved between decks, a ramp with the following requirements must be provided—

- (a) minimum clear width of 750 millimetres;

- (b) sides that—
 - (i) are free from protrusions;
 - (ii) extend to a height of not less than 1.40 metres perpendicular to the ramp floor; and
 - (iii) panelled or sheathed to a height of not less than 1.20 metres perpendicular to the ramp floor;
 - (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.
- (6) 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 paragraph 1(3) for each pen or stall;
 - (b) that is waterproof; and
 - (c) that extends not less than 450 millimetres beyond the deck area occupied by the pens or stalls.
- (7) 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.

Horses

General requirements

10.—(1) The minimum space required for each horse carried in a pen or stall are specified in Table 7.

- (2) Before horses are carried their shoes shall be required to be removed.

Design of stalls, pens and passageways

11.—(1) The construction of stalls for horses and of adjacent passageways must comply with the details specified in Table 7.

(2) 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 veterinary officer of the Ministry of Agriculture, be varied by 75 millimetres either way.

(3) The construction of pens for the carriage of horses must be in accordance with the construction of pens for cattle contained in paragraphs 5, 6, 7, 8 and 9.

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

Table 7

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

Strength of stall and pen fittings

12.—(1) 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.

(2) Pipe complying with Australian Standard 1074 or an equivalent standard shall be approved for the purposes of sub-paragraph (3).

(3) A pen for the carriage of horses must be constructed in accordance with paragraphs 7(3) to 8(5) inclusive.

Arrangement of stalls and pens

13.—(1) 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.

(2) The means of closing a horse 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.

(3) 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;
 - (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.
- (4) Standings are floor cushioning materials such as rubber strips or fibre matting.
- (5) If horses are to be moved between decks, a ramp with the following requirements must be provided—
- (a) minimum clear width of 750 millimetres;
 - (b) panelled or sheathed sides that are free from protrusions and that extend to a height of not less than 2 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;
 - (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.
- (6) 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 paragraphs 2, 3 and 4 for each stall or pen;
 - (b) that is waterproof; and
 - (c) that extends not less than 450 millimetres beyond any part of a stall or pen referred to in sub-paragraph (10).
- (7) A stall or pen on an exposed deck must—
- (a) in the case of an outermost stall or pen, be fitted with protective sheathing on its outboard side; and
 - (b) 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.
- (8) Sheathing provided in accordance with sub-paragraph (7) must effectively screen the stall or pen and its feeding and watering arrangements from sea spray, but must not exclude natural ventilation.

(9) Sheathing specified in sub-paragraphs (7) and (8) may be portable if it is capable of being fitted from outside a stall or pen.

(10) 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.

(11) 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.

(12) If chain cross ties are provided for the purposes of sub-paragraph (11), the master must ensure that a suitable set of bolt cutters is carried and is kept readily available.

Goats

14.—(1) Subject to sub-paragraphs (2) and (3), the carriage of goats must be in accordance with the requirements for sheep under paragraph 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 containment of goats in the pen, and food and water receptacles must be located inside the pen.

(4) For the purposes of this paragraph, wire mesh is considered to be an effective means of containment.

Pigs

15.—(1) Subject to sub-paragraph (2), the carriage of pigs must be in accordance with the requirements for sheep under paragraph 1.

(2) For the carriage of pigs on a ship engaged in the carriage of export livestock paragraph (1) shall refer to Table 8 instead of Table 1.

Table 8

<i>Average mass of pigs determined in accordance with paragraph 1(3)</i>	<i>Minimum permissible floor area per pig (m²)</i>
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 Fiji and to which regulation 18 applies shall be determined from the loading densities given in the Protection of Animals Act (Cap. 169).

Other species of livestock

16.—(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;
- (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 Schedule to ensure safety of the ship and of persons in the vicinity of the livestock.

(2) The arrangements provided under sub-paragraph (1) must be approved by a surveyor, acting with the advice of a veterinary officer of the Ministry of Agriculture, if necessary, prior to loading of the livestock.

Provision of spare pens and stalls

17.—(1) If sheep, goats or pigs are carried, spare pens must be provided capable of carrying 0.25 % 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

<i>Number of cattle carried on deck</i>	<i>Capacity of spare pens</i>
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

Stalls

18.—(1) If horses are carried, a spare stall must be provided—

- (a) 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
- (b) in each unit of portable equipment in which the horses are carried.

(2) A spare stall provided in accordance with sub-paragraph (1) must be so located as to be readily accessible for the transfer of a horse.

(3) If livestock other than sheep, cattle, horses, goats or pigs are carried, appropriate spare pens or stalls must be provided to the satisfaction of a veterinary officer of the Ministry of Agriculture.

(4) Spare pens or stalls provided in accordance with paragraph 17 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.

Carriage of livestock in portable equipment

19.—(1) For the purposes of paragraph 19, 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 veterinary officer of the Ministry of Agriculture.

(3) The number of livestock that may be carried in portable equipment shall be determined in accordance with the relevant provisions of paragraphs 1 to 16.

(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;

(b) be secured to prevent movement; and

(c) be adequately lit and ventilated.

(5) The arrangements provided under sub-paragraph (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 Maritime (Cargo Stowage and Securing) Regulations 2014.

Pens fitted to existing ships

20.—(1) Pens that are fitted to existing ships engaged only in the carriage of livestock within Fiji must generally be in accordance with the requirements of this Schedule.

(2) Pens that are not in accordance with this Schedule 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.

SCHEDULE 3

LIGHTING

1.—(1) In all parts of a ship where livestock are 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.

(2) To the lighting specified in sub-paragraph (1), 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 paragraph 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 paragraph 1(1);
- (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 paragraph 1, that lighting must be capable of being controlled from the navigating bridge.

4. Light fittings provided to comply with paragraphs 1 and 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 paragraph 2, or ships converted for the carriage of livestock for only one voyage after the coming into force of these Regulations, may be equipped with emergency hand lamps in place of the lighting system specified in paragraph 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;
- (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.

SCHEDULE 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 paragraph 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 paragraph 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 paragraph 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 paragraph 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 Schedule 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 this Schedule, must comply with the Maritime (Fiji Small Craft Code) Regulations 2014 and the Maritime (Fiji Maritime Code) Regulations 2014—

- (a) hydrants;
- (b) hoses;

- (c) hose connections;
- (d) hose nozzles;
- (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;
- (b) straw;
- (c) other fodder; or
- (d) other bedding,

of a flammable nature is used or carried.

SCHEDULE 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; and
- (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 paragraph 2(b).

SCHEDULE 6

MEANS 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 these Regulations, must be kept clear at all times during the voyage.

SCHEDULE 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.