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CANADIAN SUPPLEMENT TO THE SOLAS CONVENTION

1st EDITION
VERSION 1.0

Responsible Authority	**Approval**
The Design, Equipment and Boating Safety Branch is responsible for this document, including any change, correction, or update.	Design, Equipment and Boating Safety Marine Safety

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REVISIONS

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Revision No.	Date of Issue	Affected Pages	Author(s)	Brief Description of Change
0.1	**June 27, 2012**	**All**	**AMSR, AMSE, AMSP, AMSA**	**For internal comment.**
0.5	**July 7, 2012**	**All**	**Edited by AMSR**	**Version 0.5 of the Canadian Supplement is produced exclusively for pilot testing.**
1.0	**October, 2012**		**Edited by AMSR, AMSP, AMSE and AMSA**	**Further clarifications identified during the pilot.** **New Document structure: a new appendix for regulations with construction/equipment requirements but that are not part of the Supplement in order to provide additional clarity. Moved Chapters IV and V of SOLAS, COLREGS, to this section.** **Fixed page numbering.**

TABLE OF CONTENTS

PART I: INTRODUCTION

1 THE CANADIAN SUPPLEMENT

1.1.1.1 The first edition of The Canadian Supplement to the SOLAS Convention is published in support of the regulatory regime documented in Appendix 1 to the policy Acceptance of an Alternative Regulatory Regime for Inspection, Construction and Safety Equipment. Vessels applying the regulatory regime documented in the above-mentioned policy must comply with the provisions in this supplement.

1.1.1.2 The *Canadian Supplement to the SOLAS Convention* outlines a set of mandatory Canadian-specific requirements related to SOLAS and associated Codes, Recommendations, Guidelines and Interpretations published in IMO Circulars and Resolutions referenced in this document and the policy. For example, Offshore Supply Vessels are to comply with the OSV Code. As described in the policy, any regulations, Codes, Recommendations, Guidelines, etc, which are not specifically excluded must be applied to the vessel in question.

1.1.1.3 This document is intended for use by Recognized Organizations, Authorized Representatives, vessel owners and operators, shipyards, and designers. This document is on the construction, equipment and inspection requirements of SOLAS. Accordingly, this Supplement may not be complete and does not cover all regulations; however, additional requirements are incorporated by reference where applicable. This document may change based on on-going regulatory review work.

1.1.1.4 The Annex provided in this document provides information about regulations that are not replaced by the Supplement, but which affect construction and should be brought to the attention of the above-mentioned persons.

2 APPLICATION

2.1.1.1 This *Canadian Supplement to the SOLAS Convention* applies to new passenger vessels of more than 24 metres and cargo vessels of more than 500 gross tonnage and to existing passenger vessels of more than 24 meters and cargo vessels of more than 500 gross tonnage transferring to the Canadian Registry.

2.1.1.2 Requests to apply these instruments to smaller vessels will be considered on a case-by-case basis.[1]

3 DEFINITIONS

3.1.1.1 The following definitions are applicable to this Supplement:

a) **"Act"** means the Canada Shipping Act, 2001.

b) **"Cargo vessel"** means a vessel that is not a passenger vessel.

c) **"IMO"** means the International Maritime Organization.

d) **"Length"** has the same meaning as in section 6 of the Vessel Registration and Tonnage Regulations.

e) **"Load Lines Convention"** means the International Convention on Load Lines, 1966, as modified by the Protocol of 1988.

f) **"Minister"** means the Minister of Transport.

g) **"Near coastal voyage, Class 1"** has the same meaning as in section 1 of the Vessel Certificates Regulations.

h) **"Near coastal voyage, Class 2"** has the same meaning as in section 1 of the Vessel Certificates Regulations.

i) **"Near coastal voyage, Class 2, limited"** means a voyage:

i. that is not a sheltered waters voyage,

ii. during which the vessel engaged on the voyage is always within 5 nautical miles from shore in waters contiguous to Canada, the United States (except Hawaii) or Saint Pierre and Miquelon,

iii. during which the maximum distance from the port of call is not more than 7.5 nautical miles, if the voyage starts and ends at the same port of call, and

iv. during which the maximum distance between all ports of call is not more than 15 nautical miles, if the voyage starts and ends at different ports of call (*voyage limité à proximité du littoral, classe 2*).

j) **"Passenger vessel"** means a vessel that carries more than 12 passengers.

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[1] "Scope" from Tier I Policy: Acceptance of an Alternative Regulatory Regime for Inspection, Construction and Safety Equipment.

k) **"Sheltered waters voyage"** has the same meaning as in section 1 of the Vessel Certificates Regulations.

l) **"SOLAS"** means the International Convention for the Safety of Life at Sea, 1974, and the Protocol of 1988 relating to the Convention. (SOLAS).

m) **"Unlimited voyage"** has the same meaning as in section 1 of the Vessel Certificates Regulations.

4 INTERPRETATIONS

4.1.1.1 A vessel is constructed on:

a) The earliest of:

i. the day on which its keel is laid,

ii. the day on which construction identifiable with a specific vessel begins, and

iii. the day on which assembly of the vessel reaches the lesser of 50 tonnes and one per cent of the estimated mass of all structural material,; or

b) In the case of a vessel converted to a passenger vessel, the day on which the conversion begins.

4.1.1.2 Unless stated otherwise, any reference to a document is a reference to the document as amended from time to time.

4.1.1.3 For the purpose of interpreting IMO documents:

a) "Should" is to be read as "must", and

b) "Administration" is to be read as "Minister".

4.1.1.4 Footnotes in documents that are included or referenced by this *Canadian Supplement to the SOLAS Convention* are to be considered mandatory. Where a footnote in a referenced document includes a reference to another document, this reference is also mandatory, including guidelines, recommendations, requirements and similar matters.

PART II: SOLAS CHAPTER I General Provisions

1 PART A

1.1 Regulation 1

1.1.1.1 Except where specific allowances are provided in this Supplement, or through application to the Marine Technical Review Board, the provisions of the SOLAS Convention apply to all vessels using this Supplement.

1.2 Regulation 3

1.2.1.1 Except where specific allowances are provided in this Supplement, or through application to the Marine Technical Review Board, the provisions of the SOLAS Convention apply to vessels less than 500 gross tonnage using this Supplement.

2 PART B

2.1.1.1 The inspection and certification provisions of Part B are applicable to all vessels using this Supplement, regardless of size, except vessels on exclusively domestic voyages may be issued domestic certificates rather than the certificates identified in Regulation 12.

PART III: SOLAS CHAPTER II-1 Construction – Structure, subdivision and stability, machinery and electrical installations

1 GENERAL

1.1 REFERENCE TO OTHER IMO INSTRUMENTS OR SOLAS CHAPTERS

1.1.1 Load Lines Convention

1.1.1.1 For the purpose of the *Canadian Supplement to the SOLAS Convention*, references to the International Convention on Load Lines made in SOLAS Chapter II-1 shall be interpreted as a reference to the appropriate part of the *Load Line Regulations*, SOR/2007-99.

1.1.2 SOLAS Chapter II-2

1.1.2.1 Any reference to SOLAS Chapter II-2 shall be interpreted as a reference to Chapter II-2 plus this Supplement.

2 REGULATIONS

2.1 Regulation 3-8 *Towing and mooring equipment*

2.1.1 Anchoring Equipment

2.1.1.1 All vessels shall carry a complete set of anchors and chains as per the rules of a Recognized Organization.

2.2 Regulations 6 to 8

2.2.1 Passenger Vessels

2.2.1.1 Non-Safety Convention passenger vessels may comply with the requirements set out in TP 10943: Passenger Vessel Operations and Damaged Stability Standards (Non-convention vessels) (2007) instead of complying with regulations 6, 7 and 8.

2.2.2 Cargo Vessels

2.2.2.1 Regulations 6, 7 and 8 do not apply to cargo vessels navigating solely in the Great Lakes of North America and the St. Lawrence River as far east as a straight line drawn from Cap des Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63rd meridian.

2.3 Regulation 8-1 *System capabilities after a flooding casualty on passenger vessels*

2.3.1 Application

2.3.1.1 Regulation 8-1 does not apply to vessels engaged on a domestic voyage that does not exceed Near Coastal 2 voyage.

2.4 Regulation 18 *Assigning, marking and recording of subdivision load lines for passenger ships*

2.4.1 Interpretation

2.4.1.1 The St. Lawrence River west of the eastern end of the Ile d'Orléans is deemed to be fresh water.

2.4.1.2 The Passenger Ship Safety Certificate on non-convention vessels shall be accepted as the Inspection Certificate.

2.4.1.3 Vessels engaged exclusively on fresh-water voyages OR vessels holding a Great Lakes and Inland Waters of Canada Load Line Certificate:

a) References to "salt water" in Regulation 18. 5 and 18.7 shall be read as "fresh water".

2.4.1.4 The Authorized Representative of a vessel that is not required to hold a Load Lines Certificate under the Load Line Regulations, SOR/2007-99 shall ensure:

a) The vessel has a letter stating the subdivision draught at which the ship is permitted to operate, and

b) The letter is posted in the wheel house, under glass, adjacent to the Inspection Certificate.

2.4.1.5 Vessels that are not required to comply with Load Line Regulations, SOR/2007-99 shall comply with the conditions of assignment set out in the Schedule 1 of the Regulations or with Conditions of Assignment set out in Chapter II of Annex I to the Load Lines Convention.

2.5 Regulations 19 to 25 Part B-4 *Stability management*

2.5.1 Recording of information

2.5.1.1 For vessels that are not required to keep an official log book in compliance with section 339 of the Marine Personnel Regulations, SOR/2007-115, the master shall record the information required under regulations 21 to 24 as per the requirements of an official log book approved by the Minister.

2.6 Regulations 26 to 39 Part C *Machinery installations*

2.6.1 Operation in slush ice conditions

2.6.1.1 Vessels engaged on a voyage within Eastern Canadian waters and operating in slush ice conditions that are not built to Classification Society Rules for navigation in ice shall ensure the sea inlets are designed and constructed to prevent slush and/or spray ice from blocking the seawater cooling intakes and related air vents.

2.6.1.2 For Guidance, see MSC/Circ.504 *Guidance on design and construction of sea inlets under slush ice conditions* , or other appropriate guidelines providing an equivalent safety level.

2.7 Regulation 40 *General*

2.7.1 Approvals

2.7.1.1 Electrical equipment which includes, appliances, accessories and fittings shall be approved by a recognized classification society or product certification body as meeting the rule or code under which it is designed; and shall bear the identification mark of the testing laboratory or product certification body that verifies that the equipment meets the rule or code.

2.7.1.2 Where special marine type equipment is required and there is no standard for it, it shall be of a type that is acceptable to the Recognized Organization.

2.7.1.3 A “product certification body” means a body that is accredited by the Standards Council of Canada, or by any other national accreditation organization that is a member of the International Accreditation Forum Multilateral Recognition Arrangement, to give third-party written assurance that a product meets the specified requirements for the product, including granting of initial certification and maintenance of the certification

2.7.2 Institute of Electrical and Electronic Engineers

2.7.2.1 For the purpose of the following footnote to regulation 40.2:

"Refer to the recommendations published by the International Electrotechnical commission and, in particular, publication IEC 60092 – *Electrical installations in ships*."

2.7.2.2 This footnote may be interpreted as the Institute of Electrical and Electronic Engineers standard 45 titled Recommended Practice for Electrical Installations on Shipboard with respect to a vessel engaged on a domestic voyage.

2.7.3 Heater requirements

2.7.3.1 Heaters in ventilating trunks and re-heat units:

(a) must be an enclosed type. The heater enclosure must be protected against corrosion.

(b) Each heater must have a thermal cutout of the manually-reset type that prevents overheating of the element and must have a thermal regulating switch.

(c) The external temperature of a heater enclosure must not exceed:

(i) 100°C in case of heaters that are surface or recess mounted in bulkheads, decks or ceiling, or that are installed behind bulkhead lining or ceiling, or

(ii) 125°C in case of heaters that are not recess mounted, surface mounted or installed behind bulkhead lining or ceiling

(d) If a heater is mounted on or next to a deck or bulkhead, the heater must not cause the temperature of the nearest deck or bulkhead to be over 55 degrees C.

(e) Heating elements must be interlocked with the fan motor supplying air to the unit so that it can only be energized when the fan is running.

(f) For test purposes, an ambient temperature of 25 degrees C must be used.

2.7.4 Electrical Receptacles in washrooms

2.7.4.1 Electrical receptacles installed within 1.5 m of sinks (bathrooms, washrooms or wash basins complete with drainpipe), bathtubs or shower stalls shall be protected by an isolating transformer or a ground fault circuit interrupter of the Class A type (on a grounded distribution systems only) except where the receptacle is:

a) Intended for a stationary appliance designated for the location; and

b) Located behind the stationary appliance such that it is inaccessible for use with general-purpose portable appliances.

2.8 Regulation 42 *Emergency source of electrical power in passenger ships*

2.8.1 Application

2.8.1.1 Vessels may comply with the requirements stated in TP 127: Ships Electrical Standards (2008) with respect to vessels engaged on a domestic voyage instead of complying with regulation 42.

2.9 Regulation 43 *Emergency source of electrical power in cargo ships*

2.9.1 Application

2.9.1.1 Vessels may comply with the requirements stated in TP 127: Ships Electrical Standards (2008) with respect to vessels engaged on a domestic voyage instead of complying with regulation 43.

PART IV: SOLAS CHAPTER II-2 Construction – Fire protection, fire detection and fire extinction

1 GENERAL

1.1 Definitions

1.1.1 The following definitions are applicable to this chapter:

a) **"Equipment"** includes appliances.

b) **"FSS Code"** means the International Code for Fire Safety Systems, published by the IMO.

c) **"FTP Code"** means the International Code for Application of Fire Test Procedures, 2010, published by the IMO.

2 FTP CODE AND FSS CODE

2.1 Material, Equipment, and System Approval

2.1.1.1 All material, equipment and system required approval shall be approved in accordance with TP 14612: Procedures for Approval of Life-Saving Appliances and Fire Safety Systems, Equipment and Products.

2.1.1.2 If materials must be approved by the Minister as meeting requirements set out in the FTP Code:

a) The Minister's approval is not required when section 6 of the FTP Code applies, and

b) The FTP Code applies in respect of the Minister's approvals of the materials, except that the Code is to be read without reference to the words "In general".

2.2 Clarification: FTP Code

2.2.1.1 For the purpose of this document, the following modifications to the FTP code are applicable:

a) "May" is to be read as "must" in section 3.4 of Part 3 of Annex 1 to the FTP Code,

b) Section 3.5.2.1 of Part 3 of Annex 1 to the FTP Code is to be read as "Thermal radiation through windows must be tested and evaluated in accordance with appendix 3 to this part if escape routes pass near the windows", and

c) The hose-stream test procedure set out in section 5 of appendix 2 to Part 3 of Annex 1 to the FTP Code is mandatory if escape routes pass near the windows.

2.2.1.2 For "A" class divisions" the insulation on the decks and bulkheads is to be held in place in accordance with the certificate of approval and manufacturer's instructions by closely spaced studs and clips, or by other means, that will hold the insulation in place taking into account the vibration and motion of the vessel and the normal wear.

3 REGULATIONS

3.1 Regulation 4 - *Probability of Ignition*

3.1.1 Oil Fuel Tanks

3.1.1.1 For the purposes of regulation 4.2.2.3.5.1, if sounding pipes are used they must terminate on an open deck, if feasible.

3.1.2 Prevention of Overpressure

3.1.2.1 For the purposes of regulation 4.2.2.4, the air pipes on any oil tank or part of the oil fuel system must be flame-screened and terminate on an open deck, if feasible.

3.1.3 Ventilation Systems in Cargo Pump-rooms

3.1.3.1 The mechanical ventilation system required by regulation 4.5.4.1 must:

a) Permit the extraction of air from the cargo pump room bilges immediately above the transverse floor plates or bottom longitudinals,

b) Have an emergency intake that is:

i. Situated in the ventilation ducts at a height of at least 2 m above the lower platform of the cargo pump room, and

ii. Fitted with a fire damper that is capable of being opened and closed from the weather deck or the lower platform of the cargo pump-room.

c) Provide a means of ensuring a free flow of gases through the lower platform of the cargo pump-room to the ventilation duct intakes.

3.2 Regulation 5 - *Fire Growth Potential*

3.2.1 Closing Appliances and Stopping Devices of Ventilation

3.2.1.1 In addition to the requirements of regulation 5.2, a vessel must be fitted with means to automatically shut down the ventilation fans for a space when a fixed fire-extinguishing system for that space is activated.

3.2.1.2 In addition to the requirements of regulation 5.2.2.3, a vessel must be fitted with means of control if the vessel is provided with any other equipment, such as hydraulic power systems, that could create a fire or any other danger in the space.

3.2.2 Insulating Materials

3.2.2.1 In addition to the restriction in regulation 5.3.1.1 on the use of combustible insulating materials, organic foam must not be used in the mail rooms or baggage rooms of a passenger vessel.

3.2.2.2 If organic foam is used in a cargo space or a refrigerated compartment of a service space:

a) The exposed surfaces of the foam must be:

i. sealed with an intumescent coating that is approved by the Minister as meeting the flame-spread, smoke and toxicity requirements set out in Annex 1 to the FTP Code, and

ii. covered with a steel-sheet protective facing.

b) In the case of organic foam used in a refrigerated cargo space or a refrigerated compartment of a service space on a vessel of steel construction, the boundaries to the space must be of steel construction, and

c) In the case of organic foam used in a refrigerated service space on a vessel of aluminum construction, the boundaries to the space must be of steel or aluminum construction.

3.2.3 Trunks and Ducts of Ventilation Systems

3.2.3.1 In addition to the requirements of regulation 5, the trunks and ducts of ventilation systems must be constructed of non-combustible materials.

3.2.3.2 If a trunk or duct serves spaces on both sides of a deck or bulkhead of "A" class divisions, fire dampers must be fitted so as to prevent the spread of fire and smoke between compartments. Manual fire dampers must be operable from both sides of the deck or bulkhead.

3.2.3.3 If a trunk or duct has a free cross-sectional area that exceeds 0.02 m^2 and passes through a deck or bulkhead of "A" class divisions, the trunk or duct must be fitted with a fail-safe automatic-closing fire damper.

3.2.3.4 If a trunk serves compartments situated on only one side of a deck or bulkhead of "A" class divisions, the opening in the deck or bulkhead must be lined with a steel sheet sleeve unless the ducts passing through the deck or bulkhead are of steel in the vicinity of the passage and the portion of the trunk in that vicinity:

a) Has sleeves that are at least 3 mm thick and 900 mm long and is provided with fire insulation that has at least the same fire integrity as the deck or bulkhead, if the free cross-sectional area of the ducts is more than 0.02 m^2, or

b) Is fitted with automatic fire dampers that can be operated manually, if the free cross-sectional area of the ducts is more than 0.085 m^2.

3.2.3.5 A sleeve referred to in paragraph 3.2.3.4 that passes through a bulkhead must be of the same length on either side of the bulkhead.

3.2.3.6 Paragraph 3.2.3.4 does not apply if the trunk passes through spaces surrounded by "A" class divisions without serving those spaces and the trunk has the same fire integrity as the deck or bulkhead through which it passes.

3.2.4 Low Flame-Spread Characteristics of Exposed Surfaces

3.2.4.1 The requirements of regulation 5.2.3.4 apply to plastic piping in accommodation and service spaces and control stations and must be approved by the Minister as meeting the flame-spread requirements set out in Annex 1 to the FTP Code.

3.3 Regulation 6 - *Smoke Generation Potential and Toxicity*

3.3.1 Plastic Piping

3.3.1.1 In addition to the requirements of regulation 6, the plastic piping in accommodation and service spaces and control stations must be approved by the Minister as meeting the smoke and toxicity requirements set out in Annex 1 to the FTP Code.

3.3.1.2 Paragraph 3.3.3.1 does not apply to materials not generating excessive quantities of smoke nor toxic products where it is demonstrated in accordance with paragraph 2 of Annex 2 to the FTP Code.

3.4 Regulation 7 - *Detection and Alarm*

3.4.1 Smoke Detectors

3.4.1.1 In addition to the requirements of regulation 7.5, a smoke detector must be installed in every cabin and every service space, regardless of the method of fire protection chosen.

3.4.2 Protection of Cargo Spaces in Passenger Vessels

3.4.2.1 For the purposes of regulation 7.6, the expression "where it is shown to the satisfaction of the Administration that the ship is engaged on voyages of such short duration that it would be unreasonable to apply this requirement" is to be read as "in the case of voyages of not more than 48 hours' duration during which the cargo holds are opened to load or unload cargo".

3.4.3 Fire Patrols in Passenger Vessels

3.4.3.1 Regulation 7.8.1 applies in respect of a vessel that is not a Safety Convention vessel only if it:

a) Is carrying more than 25 berthed passengers or more than 50 passengers, or

b) Is carrying more than 100 unberthed passengers and is on a voyage during which it is more than 15 nautical miles from the point of departure or 5 nautical miles from shore.

3.4.3.2 The fire patrols required by regulation 7.8.1 must be performed at least once every hour and include a patrol of the entire vessel.

3.4.4 Passenger Vessels at Dock

3.4.4.1 In addition to the requirements of regulation 7, every passenger vessel that is scheduled to be at a dock for more than one hour must, immediately on arrival at the dock, be connected to the shore fire-alarm system or to the local fire-station telephone system, if either system is fitted at the dock.

3.5 Regulation 9 - *Containment of Fire*

3.5.1 Protection of Stairways and Lift Trunks in Accommodation Spaces, Service Spaces and Control Stations

3.5.1.1 The class divisions requirements of regulation 9.2.3.4 for stairways and lift trunks that penetrate more than a single deck apply to any area, such as a landing or corridor, between the stairways or lift trunks, if feasible.

3.5.1.2 To provide a much safer means of escape and access for fire parties the stair tower arrangement as per figure 1 of regulation 9.2.3.4.1 in the appendix of MSC/Circ.1120 should be provided unless it is not feasible. If multiple stairways are arranged to connect several decks using the arrangement shown in figure 2.1 and 2.2 in the appendix of MSC/Circ.1120 the occupants must leave the protected enclosure at every other level and could be exposed to heat and smoke while transiting the intervening deck areas. (See also Regulation 13).

3.5.2 Openings in Decks and Bulkheads in Passenger Vessels

3.5.2.1 In addition to the requirements of regulation 9.4.1.1.2, the following requirements must be met:

a) Every door in an "A" class division must:

i. overlap the door frame at the top and sides and allow for a gap, between the edges of the door and the door frame, that is the minimum needed to open and close the door. Except as provided in iii, the gap at the bottom of the door should be the minimum needed to open and close the door and in no case more than 12 mm,

ii. be reasonably gastight if the door is fitted between a machinery space and an accommodation space, and

iii. when fitted on a stairway enclosure, a main vertical zone or an escape route, have a gap at the bottom that is the minimum needed to open and close the door, in order to reasonably prevent the ingress of smoke

b) Grilles or louvres must not be fitted in a door in an "A" class division.

3.5.2.2 The hose port requirements of regulation 9.4.1.1.7 apply in respect of every hose port fitted in a door in an "A" class division.

3.5.2.3 If a ventilation duct passes through a main horizontal zone division on a passenger vessel, a fail-safe automatic-closing fire damper must be fitted in accordance with regulation 9.4.1.1.8, and the duct between the division and the damper must meet the requirements of that regulation.

3.5.2.4 In addition to the requirements of regulations 9.4.1.1 and 9.4.1.2, every door in an "A" or "B" class division must be fitted with a thin metal identification plate that:

a) Has clearly stamped on it the door manufacturer's name, the "A" or "B" class rating, the type approval certificate number and the number of the drawing to which the door has been manufactured, and

b) Is screwed or riveted to either of the vertical edges of the door panel.

3.5.3 Doors in Fire-resisting Divisions in Cargo Vessels

3.5.3.1 In addition to the requirements of regulation 9.4.2.1, the following requirements must be met:

a) Every door in an "A" class division must:

i. overlap the door frame at the top and sides and allow for a gap, between the edges of the door and the top, bottom and sides of the door frame, that is the minimum needed to open and close the door. Except as provided in iii, the gap at the bottom of the door should be the minimum needed to open and close the door and in no case more than 12 mm

ii. be reasonably gastight if the door is fitted between a machinery space and an accommodation space, and

iii. when fitted on a stairway enclosure, have a gap at the bottom that is the minimum needed to open and close the door, in order to reasonably prevent the ingress of smoke.

b) Grilles or louvers must not be fitted in a door in an "A" class division, and

c) Every door in an "A" or "B" class division must be fitted with a thin metal identification plate that:

i. has clearly stamped on it the door manufacturer's name, the "A" or "B" class rating, the type approval certificate number and the number of the drawing to which the door has been manufactured, and

ii. is screwed or riveted to either of the vertical edges of the door panel.

3.5.3.2 For the purposes of regulation 9.4.2.2, if hold-back arrangements fitted with remote-release devices of the fail-safe type are utilized:

a) The arrangements must be capable of being operated at the door and from the wheelhouse, and

b) A fire door open-close indicator panel must be provided in the wheelhouse.

3.5.4 Protection of Openings in Cargo Pump-rooms

3.5.4.1 In addition to the requirements of regulation 9.5.2.6, a vessel that has cargo pump-rooms must not be fitted with windows in the boundaries of those rooms.

3.5.5 Ventilation Systems

3.5.5.1 An automatic fire damper required by regulation 9.7.2.1 to be fitted in a galley ventilation duct must be of a fail-safe design and be capable of being manually operated from both sides of the division through which the duct passes.

3.5.5.2 Despite regulation 9.7.2.1, the galley ventilation systems on all vessels must be separate from the ventilation systems serving other spaces.

3.5.5.3 The enclosures of stairways penetrating more than one deck must be fitted with ventilation systems that are separate from the ventilation systems serving other spaces.

3.5.6 Details of Ventilation Duct Penetrations

3.5.6.1 Despite regulation 9.7.3.1, ventilation ducts with a free cross-sectional area equal to, or less than, 0.02 m^2 that pass through "A" class bulkheads or decks must, instead of meeting the requirements of that regulation that apply to those ducts, meet the requirements of that regulation that apply to ducts with a free cross-sectional area exceeding 0.02 m^2 but not exceeding 0.075 m^2.

3.5.6.2 If a ventilation duct passes through a bulkhead, ceiling or lining of "B" class divisions:

a) If the duct is more than 0.075 m^2 in free cross-sectional area, it must, despite regulation 9.7.3.2:

i. be made of steel or other equivalent material that is at least 3 mm thick, or

ii. be lined with a steel sleeve at least 3 mm thick and at least 900 mm long divided equally on each side of the bulkhead, ceiling or lining.

b) If the duct is more than 0.02 m^2 and not more than 0.075 m^2 in free cross-sectional area, it must, despite regulation 9.7.3.2:

i. be made of steel or other equivalent material that is at least 1 mm thick, or

ii. be fitted with a steel sleeve at least 1 mm thick and at least 900 mm long divided equally on each side of the bulkhead, ceiling or lining.

c) If the duct is not more than 0.020 m^2 in free cross-sectional area, it must:

i. be made of steel or other equivalent material that is at least 1 mm thick, or

ii. be fitted with a steel sleeve at least 1 mm thick and at least 200 mm long divided equally on each side of the bulkhead, ceiling or lining.

d) The duct or, if a steel sleeve is fitted, the sleeve must be collared to the division with steel collars, and

e) If a steel sleeve is fitted, the gap between the sleeve and the duct must be fully packed with a non-combustible material and the sleeve's ends must be sealed with a fire-retardant flexible sealant.

3.5.6.3 If a ventilation duct passes through a "B-15" class division, the duct's sleeve or spigot must be:

a) Insulated on one side of the division for at least 380 mm from the division with mineral wool insulation of "A-15" standard that is approved by the Minister as meeting the fire test requirements for "A-15" class divisions set out in Annex 1 to the FTP Code, and

b) Securely attached.

3.6 Regulation 10 - *Fire Fighting*

3.6.1 Fire-extinguishing Systems and Equipment

3.6.1.1 The fire-extinguishing systems and equipment required by regulation 10 and for which that regulation requires compliance with the provisions of the FSS Code must be of a type approved by the Minister as meeting the applicable requirements of that Code.

3.6.1.2 Paragraph 3.6.1.1 does not apply in respect of the design of pressure containers for a fixed fire-extinguishing system. Every pressure container for a fixed fire-extinguishing system must bear a mark indicating that it:

a) Meets the applicable requirements for transport by road or ship that are set out in section 5.10 of the Transportation of Dangerous Goods Regulations,

b) Meets the applicable requirements for transport by road or ship that are set out in Title 49, subpart C of part 178 of the Code of Federal Regulations of the United States, or

c) Meets the applicable requirements for transportable pressure equipment that are set out in the Council of the European Union Directive 1999/36/EC and has undergone a conformity assessment procedure in accordance with that Directive by a notified body designated by a Member State of the European Union.

3.6.2 Water Supply Systems

3.6.2.1 The pipes, valves and fittings used with the equipment required by regulation 10.2:

a) Must be made of corrosion-resistant metal or galvanized steel, and

b) Must not be readily rendered ineffective at the anticipated low ambient temperatures or by heat from a fire.

3.6.3 Isolating Valves

3.6.3.1 If the fire main is an integral part of a fixed deck foam fire-extinguishing system with monitors, the isolating valves required by regulation 10.2.1.4.1 must be fitted immediately forward of each monitor.

3.6.3.2 In addition to the isolating valves required by regulation 10.2.1.4.1, valves must be fitted to sections of the fire main that:

a) Are subject to freezing,

b) Could be damaged because of a fire or explosion, or

c) Might not be required when any other part of the fire main is used.

3.6.3.3 The valves required by paragraph 3.6.3.2 must be:

a) Operable from positions that are easily accessible and protected from freezing, fire and explosions, and

b) Clearly marked.

3.6.3.4 Every valve fitted to fire piping must be designed to open with a counter-clockwise rotation of the valve's handle.

3.6.3.5 The requirements of regulation 10.2.1.4.4 apply in respect of combination carriers.

3.6.4 Number and Position of Hydrants

3.6.4.1 Despite regulation 10.2.1.5.1, on a cargo vessel of less than 500 gross tonnage or on a passenger vessel of less than 500 gross tonnage that is not a Safety Convention vessel, the number and position of hydrants must be such that one jet of water can reach any part of the vessel.

3.6.4.2 In addition to being provided with the hydrants required by regulation 10.2.1.5.1:

a) A passenger vessel on a near coastal voyage, Class 1 or an unlimited voyage and a vessel of 500 gross tonnage or more must be provided, in each machinery space of category A, with one hydrant on the port side and one hydrant on the starboard side, and

b) Any other vessel of less than 500 gross tonnage must be provided with one hydrant in each machinery space of category A.

3.6.4.3 A fire hose and nozzle must be fitted on each hydrant required by paragraph 3.6.4.2.

3.6.4.4 If the size or configuration of a machinery space of category A would render a hydrant required by paragraph 3.6.4.2 ineffective, the hydrant must be located near the main access to the space.

3.6.4.5 In addition to being provided with the hydrants required by regulation 10.2.1.5.1, a cargo vessel of 2 000 gross tonnage or more must:

a) Be provided with a hydrant in the shaft tunnel, if any, adjacent to the engine room watertight door, and

b) Meet the requirements of regulation 10.2.1.5.2.2.

3.6.4.6 Every fire hydrant must be installed so that:

a) A fire hose can be easily connected to it,

b) It is limited to any position from the horizontal to the vertical pointing downward, so that the fire hose will lead downward or horizontally in order to minimize the possibility of kinking, and

c) There is sufficient clearance below it to accommodate the radius of bend of the fire hose under pressure and to allow deployment of the hose in every direction.

3.6.5 International Shore Connection

3.6.5.1 The international shore connection required by regulation 10.2.1.7 must be stored on the vessel so as to be easily accessible. A notice in English

and French indicating the connection's location and the maximum working pressure of the piping system must be posted on the vessel.

3.6.6 Fire Pumps

3.6.6.1 In addition to the requirements of regulation 10.2.2, the following requirements must be met in respect of a vessel's fire pumps:

a) If the vessel is fitted with two or more power-driven fire pumps, a non-return valve must be fitted to the discharge line of each pump to prevent water from backing through the pump when it is not operating,

b) A power-driven fire pump must be self-priming and fitted with pressure gauges on their suction and discharge sides,

c) A manual fire pump must be operable without the need for manual priming and must be capable of delivering a jet of water of at least 12 m,

d) A fire pump's sea connection must have arrangements to prevent blockage of the connection's inlet by ice and slush, and

e) A fire pump must not have a rotor-impeller that can be damaged by heat from the pump or by the pump running dry.

3.6.6.2 If a bilge pump is to be used as a fire pump as permitted by regulation 10.2.2.1, the bilge pumping system and the fire pumping system must be capable of simultaneous operation.

3.6.6.3 One of the fire pumps required by regulation 10.2.2.2 may be manually operated on a vessel that is not a Safety Convention vessel, is of less than 1 000 gross tonnage and, in the case of a passenger vessel, is engaged on a sheltered waters voyage or a near coastal voyage, Class 2. If one of those pumps is manually operated and is located outside the space where the other fire pump required by that regulation and its source of power are located, the manually operated fire pump may also be used for the emergency fire pump if one is required by regulation 10.2.2.3.1.2.

3.6.6.4 A power-driven fire pump that is not required by regulation 10.2.2.2.2 to be independently driven on a vessel of less than 1 000 gross tonnage must not be powered by a main engine unless the engine can be operated independently of the propeller shafting.

3.6.6.5 Despite regulation 10.2.2.2.2 and paragraph 3.6.6.3, if a cargo vessel to which that subsection applies is engaged on a sheltered waters voyage or a near coastal voyage, Class 2:

a) Only one independently driven fire pump is required to meet the requirements of that regulation and it must be power-driven, and

b) Regulation 10.2.2.3.1.2 does not apply.

3.6.6.6 For the purposes of regulation 10.2.2.4.2:

a) The expression "in any event be capable of delivering at least the two required jets of water" is to be read as "in normal operating conditions be capable of delivering at least the required jets of water", and

b) The expression "at least the two jets of water required in paragraph 2.1.5.1" is to be read as "at least the required jets of water".

3.6.6.7 The fire pumps on vessels of less than 500 gross tonnage, other than passenger vessels that are Safety Convention vessels, are not required to meet the minimum capacity requirement of 25 m3/h set out in regulation 10.2.2.4.2.

3.6.7 Fire Hoses and Nozzles

3.6.7.1 In addition to the requirements of regulation 10.2.3.1.1, the fire hoses in a machinery space of category A or for a space that contains flammable materials must be connected to the fire hydrants at all times. If there is more than one fire hose in a machinery space of category A, one of the fire hoses in that space must also be connected to a portable foam applicator.

3.6.7.2 In addition to the requirements of regulation 10.2.3.1.1, every fire hose must be:

a) Stowed in a space designed to permit deployment of the hose without it becoming entangled, and

b) Stored in a manner that protects the hose from the anticipated low ambient temperatures.

3.6.7.3 The nozzles, couplings and fittings for the fire hoses on a tanker must be made of brass, bronze or other equivalent non-sparking material.

3.6.7.4 For the purposes of regulation 10.2.3.2.1:

a) The design of the piping system must be taken into consideration in determining the number of fire hoses,

b) The minimum diameter of a fire hose must be 38 mm, and

c) Every fire hose must have the same diameter, but hoses in machinery spaces and other interior locations may have a smaller diameter than

hoses in other locations if the smaller diameter is for the purpose of convenient handling.

3.6.7.5 For the purposes of regulation 10.2.3.3.3, if paragraph 3.6.4.1 applies and the number and position of hydrants on the vessel is such that only one jet of water may reach any part of the vessel, the expression "from two jets" is to be read as "from one jet".

3.6.8 Portable Fire Extinguishers

3.6.8.1 For the purposes of regulation 10.3.2.1, on a passenger vessel:

a) Each main vertical zone below the bulkhead deck must be provided with the greater of:

i. two portable water fire extinguishers of at least 9 L capacity each or two portable fire extinguishers of equivalent fire-extinguishing capability, and

ii. two portable fire extinguishers of a type described in subparagraph (i) for each 15 m, or fraction of 15 m, in length of the zone.

b) Each main vertical zone on or above the bulkhead deck must be provided, on each side of the vessel, with one portable fire extinguisher of a type described in subparagraph (a)(i), and

c) Despite paragraph (b), if the vessel is of 500 gross tonnage or less and is engaged on a sheltered waters voyage or a near coastal voyage, Class 2, each main vertical zone on or above the bulkhead deck must be provided with one portable fire extinguisher of a type described in subparagraph (a)(i).

3.6.8.2 For the purposes of regulation 10.3.2.1, on a cargo vessel:

a) The area within the outside boundary of each accommodation space below the bulkhead deck must be provided with the greater of:

i. two portable water fire extinguishers of at least 9 L capacity each or two portable fire extinguishers of equivalent fire-extinguishing capability, and

ii. two portable fire extinguishers of a type described in subparagraph (i) for each 15 m, or fraction of 15 m, in length of the area, and

b) The area within the outside boundary of each accommodation space on or above the bulkhead deck must be provided with one portable fire extinguisher of a type described in subparagraph (a)(i) for each 15 m, or fraction of 15 m, in length of the area.

3.6.8.3 For the purposes of regulation 10.3.2.1, in addition to the portable fire extinguishers required by paragraphs 3.6.8.1and 3.6.8.2:

a) One portable water fire extinguisher of at least 9 L capacity or one portable fire extinguisher of equivalent fire-extinguishing capability must be provided next to the access to each store-room for each 232 m^2, or fraction of 232 m^2, of surface area of the store-room,

b) Each galley and each pantry that contains cooking facilities must be provided with one portable dry-chemical fire extinguisher of at least 4.5 kg capacity or one portable fire extinguisher of equivalent fire-extinguishing capability for each 232 m^2, or fraction of 232 m^2, of surface area of the galley or pantry, and

c) Each control station must be provided with one portable fire extinguisher of a type described in paragraph (b).

3.6.8.4 Every portable fire extinguisher must be fitted with a clamp bracket that:

a) Is designed to withstand the roll, pitch and vibration of the vessel, and

b) Holds the fire extinguisher securely in place but provides quick and positive release of the fire extinguisher for immediate use.

3.6.8.5 Every wheeled-type portable fire extinguisher must be fitted with a metal clip arrangement that:

c) Is designed to withstand the roll, pitch and vibration of the vessel, and

d) Holds the fire extinguisher securely in place but provides quick and positive release of the fire extinguisher for immediate use.

3.6.8.6 Regulation 10.3.3 does not apply in respect of a vessel that is not a Safety Convention vessel and is engaged on a sheltered waters voyage or a near coastal voyage, Class 2.

3.6.9 Types of Fixed Fire-extinguishing Systems

3.6.9.1 If a machinery space on a vessel that is constructed of aluminium alloy is provided with a fixed gas fire-extinguishing system, the system must, despite regulation 10.4.1.1.1, have a sufficient quantity of gas to provide two independent charges of gas.

3.6.10 Fire-extinguishing Arrangements in Machinery Spaces

3.6.10.1 Regulations 10.5.1.2.1, 10.5.2.2.1 and 10.5.3.2.1 do not apply in respect of a vessel that is not a Safety Convention vessel, is of less than 500 gross tonnage and is engaged on a sheltered waters voyage or a near coastal voyage, Class 2.

3.6.10.2 The requirement in regulation 10.5.2.2.2 with respect to foam fire extinguishers of at least 45 L capacity each or equivalent does not apply in respect of a vessel that is not a Safety Convention vessel, is of less than 500 gross tonnage and is engaged on a sheltered waters voyage or a near coastal voyage, Class 2.

3.6.10.3 Regulation 10.5.6 does not apply in respect of a vessel that is not a Safety Convention vessel and is engaged on a sheltered waters voyage or a near coastal voyage, Class 2.

3.6.11 Spaces Containing Flammable Liquids

3.6.11.1 For the purpose of regulation 10.6.3.2, the fire-extinguishing arrangements must include fixed gas fire-extinguishing systems, fixed foam fire-extinguishing systems and fixed pressure water-spraying fire-extinguishing systems that meet the requirements of the FSS Code for the system.

3.6.12 Fixed Gas Fire-extinguishing Systems for General Cargo

3.6.12.1 For the purpose of regulation 10.7.1.2, the expression "it is shown to the satisfaction of the Administration that a passenger ship is engaged on voyages of such short duration that it would be unreasonable to apply the requirements of paragraph 7.1.1" is to be read as "a passenger ship is engaged on voyages of not more than 48 hours' duration during which the cargo holds are opened to discharge or receive cargo".

3.6.13 Fire-fighters' Outfits

3.6.13.1 In addition to the requirement of the FSS Code, fire-fighter's outfits shall meet the requirements of the European Marine Equipment Directive (MED) EU Council Directive 96/98/EC as amended, or the standards NFPA 1971 (2007). The self-contained breathing apparatus (SCBA) shall meet the MED, the NFPA 1981(2007) standard or the National Institute and Occupational Safety and Health (NIOSH) requirements, and be rated for use in fighting fires. Pressure containers shall meet the requirements of the *Transportations of Dangerous Goods Regulations*.

3.6.13.2 Regulations 10.10.2.1 and 10.10.2.2 do not apply in respect of a vessel that is not a Safety Convention vessel, is of less than 500 gross tonnage and, if the vessel is not a cargo vessel, is engaged on a sheltered waters voyage or a near coastal voyage, Class 2.

3.6.13.3 Regulation 10.10.2.3 applies only in respect of tankers of 500 gross tonnage or more.

3.6.14 Fire Axes

3.6.14.1 In addition to the requirements of regulation 10, a passenger vessel on a near coastal voyage, Class 1 or an unlimited voyage must be provided with the greater of:

a) Three fire axes, and

b) One fire axe for each 15 m, or fraction of 15 m, in length of the vessel.

3.6.14.2 In addition to the requirements of regulation 10, a passenger vessel on a sheltered waters voyage or a near coastal voyage, Class 2 must be provided with:

a) If the vessel is of 24 m or more in length but of less than 500 gross tonnage, two fire axes, and

b) If the vessel is of 500 gross tonnage or more, one fire axe for each 15 m, or fraction of 15 m, in length of the vessel.

3.6.14.3 In addition to the requirements of regulation 10, a cargo vessel must be provided with:

a) If the vessel is of 24 m or more in length but of less than 500 gross tonnage, two fire axes, and

b) If the vessel is of 500 gross tonnage or more, three fire axes.

3.7 Regulation 12 - *Notification of Crew and Passengers*

3.7.1 Public Address Systems

3.7.1.1 The public address system or other means of communication required by regulation 12.3 must be available on all vessels throughout the spaces referred to in that regulation, the muster stations, the embarkation stations and the machinery spaces.

3.8 Regulation 13 - *Means of Escape*

3.8.1 Passenger Vessels

3.8.1.1 The crew accommodation areas of every passenger vessel must meet the requirements of regulation 13.3.2.5.1.

3.8.1.2 Each escape hatch must be painted orange and be operable from both sides of the hatch.

3.8.2 Cargo Vessels

3.8.2.1 Every cargo vessel must meet the requirements of regulation 13.3.2.5.1, and the crew accommodation areas of the vessel must also meet those requirements.

3.8.2.2 Each escape hatch must be painted orange and be operable from both sides of the hatch.

3.8.2.3 Every cargo vessel must meet the requirements of regulation 13.3.2.6.2.

3.8.2.4 The means of escape required by regulation 13.3.3.1 must be separated so as to minimize the possibility of their being blocked at the same time as a result of an incident.

3.8.2.5 Each means of escape required by regulation 13.3.3.2 must give direct access to a means of escape on the deck above.

3.8.2.6 On a cargo vessel of 500 gross tonnage or more, if one of the means of escape required by regulation 13.3.3.2 or 13.3.3.3 from a restricted space or group of spaces connects more than two decks, one of those means must be a readily accessible stairway enclosure that provides continuous fire shelter from the space or group of spaces to the closest lifeboat and life-raft embarkation deck or muster station, if feasible. If the stairway enclosure is not feasible, details must be provided which demonstrate the route by which the crew can escape from any deck to the embarkation station without entering any space where the fire may be located, the details must clearly show that the route is protected from the fire by A class bulkheads for its whole length.

3.8.2.7 Above the lowest open deck, if the two means of escape required by regulation 13.3.3.3 are widely separated doors to the open deck, a stairway enclosure that provides continuous fire shelter is not required.

3.8.2.8 Despite regulation 13.3.3.2, if it is not feasible to install a stairway or trunk is not feasible, a vertical ladder may be used as the second means of escape from crew spaces that are entered only occasionally.

3.8.2.9 Despite regulation 13.3.3.3, if installing a stairway is not feasible, a vertical ladder may be used as one of the means of escape from crew spaces that are entered only occasionally.

3.8.3 Emergency Escape Breathing Devices

3.8.3.1 Regulation 13.4.3 does not apply in respect of a vessel that is not a Safety Convention vessel, is of 500 gross tonnage or less and is engaged on a sheltered waters voyage or a near coastal voyage, Class 2.

3.8.3.2 The emergency escape breathing devices (EEBD) required by regulation 13.4.3 and for which that regulation requires compliance with the FSS Code must be of a type approved by the Minister as meeting the applicable requirements of that Code.

3.8.3.3 In addition to the requirement of the FSS Code, EEBD shall meet the requirements of European Marine Equipment Directive (MED) EU Council Directive 96/98/EC as amended, or the National Institute and Occupational Safety and Health (NIOSH) requirements. Pressure containers shall meet the requirements of the *Transportations of Dangerous Goods Regulations*.

3.8.4 Additional Requirements for Ro-Ro Passenger Vessels

3.8.4.1 Any words included in the symbols required by regulation 13.7.1.1 to mark the escape routes must be printed in English and French.

3.8.5 Instruction for Safe Escape

3.8.5.1 Every vessel must display “mimic” plans in accordance with regulation 13.7.2.2 and must also display those plans in every space occupied by the crew.

3.8.5.2 Any words on the “mimic” plans must be printed in English and French.

3.9 Regulation 15 - *Instructions, On-Board Training and Drills*

3.9.1 Training Manuals

3.9.1.1 If a vessel is fitted with a fixed gas fire-extinguishing system, the instructions on fire-fighting activities and fire-fighting procedures required by regulation 15.2.3.4.2 must include instructions on the use of fire-fighters’ outfits, including breathing apparatus, and the protected space re-entry procedure recommended by the manufacturer of the system.

3.9.2 Fire Control Plans

3.9.2.1 The plans and booklets required by regulation 15.2.4 must be:

a) In the working language of the vessel, and

b) In English or French, or in both languages, according to the needs of the shore-side fire-fighting personnel.

3.9.3 Fire Drills

3.9.3.1 Regulations 15.2.1, 15.2.2 and 15.3.1 do not apply in respect of vessels to which the Fire and Boat Drills Regulations apply.

3.10 Regulation 17 - *Alternative Design and Arrangements*

3.10.1.1 An engineering analysis submitted under regulation 17.3 must be written in English or French.

3.11 Regulation 18 - *Helicopter Facilities*

3.11.1 Helicopter Refueling and Hangar Facilities

3.11.1.1 The “NO SMOKING” signs required by regulation 18.7.10 must be in English and French as well as in the working language of the vessel.

3.11.2 Operations Manual

3.11.2.1 The operations manual required by regulation 18.8.1 must be in the working language of the vessel.

3.12 Regulation 20 - *Protection of Vehicle, Special Category and Ro-Ro Spaces*

3.12.1 Structural Protection

3.12.1.1 The requirements of regulation 20.5 apply in respect of all passenger vessels.

3.12.2 Fire Extinction

3.12.2.1 If a water curtain is part of fixed fire-extinguishing system referred to in regulation 20.6.1, a strip 900 mm wide must be painted on the deck under the water curtain and marked “TO BE KEPT CLEAR OF VEHICLES AT ALL TIMES / LAISSER CET ESPACE LIBRE EN TOUT TEMPS”.

3.12.2.2 Each portable fire extinguisher required by regulation 20.6.2.1 must be a portable dry-chemical fire extinguisher of at least 4.5 kg capacity or a portable fire extinguisher of equivalent fire-extinguishing capability.

3.12.2.3 In the case of a vessel that is not a Safety Convention vessel and that is engaged on a sheltered waters voyage or a near coastal voyage, Class 2, the reference in regulation 20.6.2.2.1 to the word “three” is to be read as a reference to the word “one”.

PART V: SOLAS CHAPTER III LIFE-SAVING APPLIANCES AND ARRANGEMENTS

1 GENERAL

1.1 Reserved

2 LSA CODE RESOLUTION MSC.48(66) AND RESOLUTION MSC.81(70)

2.1 General

2.1.1 Approval of Life Saving Appliances

2.1.1.1 In addition to the requirements of Resolution MSC.48(66) and Resolution MSC.71(7) all appliances shall comply with the Canadian Modifications set out in TP 14475: Canadian Life Saving Appliance Standard,.

2.1.1.2 In addition to the requirements of Resolution MSC.48(66) and Resolution MSC.71(7) all appliances shall be approved in accordance with TP 14612: Procedures for Approval of Life-Saving Appliances and Fire Safety Systems, Equipment and Products.

3 REGULATIONS

3.1 Regulation 7 - *Personal life-saving appliances*

3.1.1 Regulation 7.3 - Immersion suits and anti-exposure suits

3.1.1.1 Immersion suits must be provided regardless of whether a vessel is constantly engaged on voyages in warm climates.

3.1.1.2 Immersion suits shall be approved as meeting the requirements of the Canadian General Standards Board Standard CAN/CGSB-65.16-2005 Marine Abandonment Immersion Suit Systems, as amended; or,

3.1.1.3 Immersion suits must meet section 2.3.2.2 of the LSA Code, which specifies a suit "made of material with inherent insulation." In addition, the suit must provide inherent buoyancy.

3.2 Regulation 8 - *Muster list and emergency instructions*

3.2.1 General

3.2.1.1 Regulation 8 does not apply in respect of vessels to which the *Fire and Boat Drills Regulations* apply.[2]

3.3 Regulation 19 - *Emergency training and drills*

3.3.1 General

3.3.1.1 Regulation 19.2, 19.3 and 19.5 do not apply in respect of vessels to which the *Fire and Boat Drills Regulations* apply.

3.4 Regulation 27 - *Information on passengers*

3.4.1 General

3.4.1.1 Regulation 27 does not apply in respect of vessels to which the *Fire and Boat Drills Regulations* apply.

3.5 Regulation 32 - *Personal life-saving appliances*

3.5.1 Regulation 32.3.2 - Immersion suits

3.5.1.1 Immersion suits must be provided regardless of whether a vessel is constantly engaged on voyages in warm climates.

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[2] Application of the *Fire and Boat Drills Regulations* is as follows:

2. (1) These Regulations apply in respect of self-propelled Canadian vessels that
(*a*) are Safety Convention vessels; or
(*b*) are required to hold an inspection certificate under section 10 of the *Vessel Certificates Regulations*.
(2) These Regulations do not apply in respect of
(*a*) fishing vessels of 150 gross tonnage or less;
(*b*) cable ferries; and
(*c*) vessels of 15 gross tonnage or less that carry 12 or fewer passengers.

PART VI: SOLAS CHAPTER XII
Additional safety measures for bulk carriers

1 GENERAL

1.1 Reserved

ANNEX 1: Other Regulations that include Construction or Equipment Requirements

1 GENERAL

1.1.1.1 The Canadian Supplement supersedes only those regulations identified in the Policy Acceptance of an Alternative Regulatory Regime for Inspection, Construction and Safety Equipment¸ approved by the Marine Safety and Security Executive on October 29, 2012. This Part includes Canadian additions to the SOLAS and ILO Conventions, and also provides a guide to other regulations maintained by the Administration that include requirements that should be considered at the design and construction phase of the vessel.

2 SOLAS CHAPTER IV: RADIOCOMMUNICATIONS

2.1 General

2.1.1.1 The specific changes to SOLAS Chapter IV are given in the following paragraphs.

2.1.2 Regulation 1 - *Application*

2.1.2.1 Despite regulation 1.2, Chapter IV applies to vessels navigating in the Great Lakes of North America.

2.1.3 Regulation 14 - *Performance Standards*

2.1.3.1 Radio equipment onboard a ship shall be of a type approved by a "competent authority" to the applicable IEC or ETSI standard for that equipment.

2.2 Additional Regulations

2.2.1 General

2.2.1.1 The following Regulations may also impact construction and design. The list below includes the relevant sections of Canadian Regulations, and the associated SOLAS regulation (in parentheses).

2.2.2 *Ship Station (Radio) Regulations, 1999* (SOR/2000-260)

a) Section 2 (Regulation 2 Terms and Definitions)

b) Section 8, 16, 18 (Regulation 7 Radio Equipment: General)

c) Section 7 (Regulation 9 Radio Equipment Sea Areas A1 and A2)

d) Section 15 (Regulation 11 Radio Equipment Sea Areas A1, A2, A3 and A4)

e) Section 19, 20 (Regulation 15 Maintenance Requirements)

2.2.3 *Ship Station (Radio) Technical Regulations, 1999* (SOR/2000-265)

a) Section 4, 26 (Regulation 15 Maintenance Requirements)

b) Section 13 (Regulation 13 Sources of Energy)

c) Section 41 (Regulation 17 Radio Records)

3 SOLAS CHAPTER V: SAFETY OF NAVIGATION

3.1.1 *Navigation Safety Regulations*

3.1.1.1 The *Navigation Safety Regulations* (SOR/2005-134) contain requirements related to Chapter V of SOLAS. The specific changes can be found in the following sections of the Regulations:

a) Section 2 (Regulation 1 Application)

b) Section 1 (Regulation 2 Definitions)

c) Section 11 (Regulation 18 Approval, surveys and performance standards of navigational systems and equipment and voyage data recorder)

d) Section 66, 64, 67, 68, 69, 70, 71, 75, 76 (Regulation 19 Carriage requirements for ship borne navigational systems and equipment)

e) Section 74 (Regulation 23 Pilot transfer arrangements)

3.1.2 *Voyage Data Recorder Regulations*

3.1.2.1 The *Voyage Data Recorder Regulations* (SOR/2001-203) contain requirements related to Regulation 20 - Voyage data recorders.

4 COLREG CONVENTION

4.1 General

4.1.1 *Collision Regulations* (C.R.C., 1416)

4.1.1.1 The *Collision Regulations* (C.R.C., 1416) contain the Canadian additions to the COLREG Convention (Convention on the International Regulations for Preventing Collisions at Sea). Canadian additions related to construction and equipment are with respect to the following sections of the COLREG Convention. The Collision Regulations specifically identify additions to the Convention, and the following sections of the Regulations include additional construction and/or equipment requirements:

a) Section 5 - Proof of Compliance - Lights, Shapes, Sound-Signalling Appliances and Radar Reflectors

b) SCHEDULE 1 – International Regulations for Preventing Collisions at Sea, 1972, with Canadian Modifications

c) PART A - General

   i. RULE 1 Application

d) PART C - LIGHTS AND SHAPES

   i. RULE 21: Definitions

   ii. RULE 22: Visibility of Lights

   iii. RULE 24: Towing and Pushing - Composite Unit

e) Part F - ADDITIONAL CANADIAN PROVISIONS

   i. RULE 42: Additional Requirements for Exploration or Exploitation Vessels.

   ii. RULE 45: Blue Flashing Light.

   iii. RULE 46: Alternate System of Navigation Lights

f) ANNEX I: POSITIONING AND TECHNICAL DETAILS OF LIGHTS AND SHAPES

g) ANNEX III: Technical Details of Sound Signal Appliances

5 MARPOL

5.1 Vessel Pollution and Dangerous Chemicals Regulations

5.1.1.1 The *Vessel Pollution and Dangerous Chemicals Regulations (SOR/2012-69)* put the MARPOL Convention into force. These regulations contain a significant number of operational requirements. The construction and equipment requirements over and above the Convention are as follows:

5.2 Annex 1 - Regulations for the prevention of pollution by oil

5.2.1.1 In addition to the controls on discharges of oil set out in Annex I to MARPOL, Canadian regulations require Canadian vessels operating in the Canadian waters of the Great Lakes and the St. Lawrence River west of Anticosti Island to be equipped with 5 parts per million oily bilge alarms. These alarms shall comply with TP 12301: Standard for 5 ppm Bilge Alarms for Canadian Inland Waters.

5.3 Annex IV - Regulations for the prevention of pollution by sewage from ships

5.3.1.1 Untreated sewage may not be discharged within inland waters. Canadian vessels shall be:

a) Fitted with a marine sanitation device that meets standards in MARPOL Annex IV: Regulations for the Prevention of Pollution by Sewage from Ships, and

b) In addition, where a Canadian vessel is operating frequently in a designated sewage area, the vessel shall be fitted with either:

   i. A marine sanitation device that produces an effluent with a fecal coliform count that is equal to or less than 14/100 ml, or

   ii. A holding tank that meets Canadian standards as defined in section 88 of the *Vessel Pollution and Dangerous Chemicals Regulations*, included here for reference:

Vessel Pollution and Dangerous Chemicals Regulations (SOR/2012-69)

88. For the purposes of subsection 86(1), a holding tank must:

(*a*) be constructed so that it does not compromise the integrity of the hull;

(*b*) be constructed of structurally sound material that prevents the tank contents from leaking;

(*c*) be constructed so that the potable water system and other systems cannot become contaminated;

(*d*) be resistant to corrosion by sewage;

(*e*) have an adequate volume for the amount of sewage that could be reasonably expected to be produced on a voyage in waters where the discharge of sewage is not authorized by section 96;

(*f*) be provided with a discharge connection and piping system for the removal of the tank contents at a reception facility;

(*g*) be designed so that the level of sewage in the tank can be determined without the tank being opened and without contacting or removing any of the tank contents, or be equipped with a device that allows the determination to be made;

(*h*) in the case of a vessel, other than a pleasure craft, that operates solely on the Great Lakes and their connecting waters, be equipped with an alarm that indicates when the tank is 75% full by volume; and

(*i*) be equipped with a ventilation device that

(i) has its outlet located on the exterior of the vessel and in a safe location away from ignition sources and areas usually occupied by people,

(ii) prevents the build-up within the tank of pressure that could cause damage to the tank,

(iii)is designed to minimize clogging by the contents of the tank or by climatic conditions such as snow or ice,

(iv)is constructed of material that cannot be corroded by sewage, and

(v) has a flame screen of non-corrosive material fitted to the vent outlet.”

6 MARITIME OCCUPATIONAL HEALTH AND SAFETY

6.1 General

6.1.1.1 Responsibility for Occupational Health and Safety is divided among several jurisdictions. For vessels trading within a single province (e.g., a ferry), adherence to that province's occupational health and safety regulations are required.

6.1.1.2 For vessels under federal jurisdiction (including interprovincial ferries, cargo ships trading between provinces, etc.), the *Maritime Occupational Health and Safety Regulations* (SOR/2010-120) apply. These Regulations are created under the *Canada Labour Code (R.S.C., 1985, c. L-2)*, not the *Canada Shipping Act, 2001*. An exemption process (equivalent to the Marine Technical Review Board) does not exist for the MOHS Regulations. These Regulations contain construction requirements, particularly related to accommodations.

6.2 Maritime Labour Convention, 2006

6.2.1 General

6.2.1.1 Vessels following the *Canadian Supplement to the SOLAS Convention* as part of their regulatory regime shall comply with the Maritime Labour Convention and its requirements, when it enters into force.

6.2.1.2 Vessels complying with the construction requirements of the MLC 2006 are considered to meet the construction requirements of the *Maritime Occupational Health and Safety Regulations (SOR/2010-120)* and the *Crew Accommodation Regulations (C.R.C., c. 1418)*, as long as the following additional requirements are met:

Maritime Occupational Health and Safety Regulations (SOR/2010-120)

24. (3) The deck covering in all crew accommodation must

(a) be kept free of grease, oil or any other slippery substance and any material or object that may create a hazard to an employee; and

(b) have sufficient drainage

Maritime Occupational Health and Safety Regulations (SOR/2010-120)

36. (3) The bedding set must, at a minimum, consist of the following items of appropriate size for the berth:

(a) one pillow;

(b) one pillow case;

(c) two flat bedsheets; and

(d) one blanket.

6.2.2 Ventilation by mechanical means

Maritime Occupational Health and Safety Regulations (SOR/2010-120)

56. (4) If an employer provides ventilation by mechanical means, the amount of air provided for a type of room set out in column 1 of the table to this subsection must be no less than that set out in column 2.

(5) If an employer provides for the ventilation of a galley or a canteen by mechanical means, the rate of change of air must be at least 9 l/s for each employee who is normally employed in the galley at any one time or for each employee who uses the canteen at any one time, as the case may be.

TABLE

MINIMUM VENTILATION REQUIREMENTS FOR CHANGE ROOMS, SANITARY FACILITIES AND SHOWER ROOMS

	Column 1	Column 2
Item	Type of Room	Ventilation Requirements in litres per second (l/s)
1.	Change Room	
	(*a*) for employees with clean work clothes	(*a*) 5 l/s per m^2 of floor area
	(*b*) for employees with wet or sweaty work clothes	(*b*) 10 l/s per m^2 of floor area; 3 l/s exhausted from each locker
	(*c*) for employees who work where work clothes pick up heavy odours	(*c*) 15 l/s per m^2 of floor area; 4 l/s exhausted from each locker
2.	Sanitary Facility	10 l/s per m^2 of floor area; at least 10 l/s per toilet compartment; minimum 90 l/s
3.	Shower Room	10 l/s per m^2 of floor area; at least 20 l/s per shower head; minimum 90 l/s

6.2.3 Noise level

Maritime Occupational Health and Safety Regulations (SOR/2010-120)

161. (2) Subject to subsection (3), if it is not reasonably practicable for an employer to maintain the level of sound in the work place at less than 85 dB, an employee must not be exposed in any 24-hour period

(a) to a level of sound set out in column 1 of the table to this section for a number of hours that is more than the number set out in column 2; or

(b) to any combination of the different levels of sound set out in column 1 of the table to this section, if the number of hours of exposure to each level of sound divided by the maximum number of hours of exposure for that level per 24-hour period set out in column 2 of the table to this section is more than one.

(3) An employee must not be exposed to a continuous level of sound in crew accommodation that is more than 75 dB.

TABLE

MAXIMUM EXPOSURE TO LEVELS OF SOUND IN THE WORK PLACE

Item	Column 1 Levels of Sound in dB	Column 2 Maximum Number of Hours of Exposure per Employee per 24-hour Period
1.	85 or more but not more than 90	8
2.	more than 90 but not more than 92	6
3.	more than 92 but not more than 95	4
4.	more than 95 but not more than 97	3
5.	more than 97 but not more than 100	2
6.	more than 100 but not more than 102	1.5
7.	more than 102 but not more than 105	1
8.	more than 105 but not more than 110	0.5
9.	more than 110 but not more than 115	0.25
10.	more than 115	0

6.2.4 Hazard Investigation

Maritime Occupational Health and Safety Regulations (SOR/2010-120)

162. (1) If it is not reasonably practicable for an employer to maintain the exposure of an employee to a level of sound at or below the levels referred to in the section above, the employer must:

(a) appoint a qualified person to carry out an investigation of the degree of exposure;

(b) notify the work place committee or the health and safety representative of the investigation and of the name of the person appointed to carry out the investigation; and

(c) provide every employee entering the work place with a hearing protector that

(d) meets the standards set out in CSA Standard CAN/CSA-Z94.2-02 (R2007), *Hearing Protection Devices, Performance, Selection, Care and Use*, and

(e) reduces the level of sound reaching the employee's ears to less than 85 dB.

(2) For the purposes of subsection (1), the measurement of the A-weighted sound pressure level in a work place must be performed instantaneously, in normal working conditions, using the slow response setting of a sound level meter.

(3) During the investigation referred to in subsection 1, the following matters must be considered:

(a) the sources of sound in the work place;

(b) the A-weighted sound pressure levels to which the employee is likely to be exposed and the duration of that exposure;

(c) the methods being used to reduce the exposure;

(d) whether the exposure of the employee is likely to be more than the limits prescribed by section 161; and

(e) whether the employee is likely to be exposed to a noise exposure level equal to or greater than 85 dBA.

(4) On completion of the investigation and after consultation with the work place committee or the health and safety representative, as the case may be, the person appointed to carry out the investigation must set out in a written report signed and dated by the person

(a) observations respecting the matters considered under subsection (3);

(b) recommendations respecting the measures that are to be taken in order to comply with section 161; and

(c) recommendations respecting the use of hearing protectors by employees who are exposed to a noise exposure level ($L_{ex,8}$) equal to or greater than 85 dBA and not greater than 87 dBA.

(5) The report must be kept by the employer at the work place where it applies for a period of 10 years after the day on which the report is submitted.

(6) If it is stated in the report that employees are likely to be exposed to a

noise exposure level ($L_{ex,8)}$ equal to or greater than 85 dBA, the employer must, without delay,

(a) post and keep posted a copy of the report in a conspicuous place in the work place where it applies; and

(b) provide the employees with written information describing the hazards associated with exposure to high levels of sound.

6.3 ILO Convention 152 - Occupational Safety and Health (Dock Work) Convention, 1979

6.3.1 General

6.3.1.1 Vessels following the *Canadian Supplement to the SOLAS Convention* as part of their regulatory regime shall comply with the requirements of the *Cargo, Fumigation and Tackle Regulations, Part 3, Division 1 – Cargo Gear (SOR/2007-128)*, applicable to lifting appliances that are part of the vessel's equipment.

7 REGULATIONS UNDER OTHER DEPARTMENTS

7.1.1 General

7.1.1.1 Other Federal Departments also have regulations which have an impact on the design and construction of ships. The following regulations apply to Canadian vessels, but do not fall under the jurisdiction of Transport Canada.

7.1.2 Potable Water Regulations for Common Carriers

7.1.2.1 Under the jurisdiction of the Minister of Health, the *Potable Water Regulations for Common Carriers (C.R.C., c. 1105)* contain specific requirements for carriage of potable water on Canadian passenger vessels, including restrictions on the location of potable water tanks. These regulations are under the authority of Health Canada.

7.1.3 Non-smokers' Health Regulations

7.1.3.1 Under the jurisdiction of the Minister of Labour, the *Non-smokers' Health Regulations (SOR/90-21)* contain specific requirements related to the designation of smoking areas.