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[1]**Notices from the Danish Maritime Authority B**
XX [September] 2004

Technical Regulation on the construction and equipment etc. of ships

Introduction

This book consists of a short Technical Regulation and a number of annexes in the form of chapters.

The Regulation contains the legal basis, application, penalties, entry into force and a contents list for the individual chapters. The chapters have been issued as separate volumes, and one chapter may have been divided into several such volumes. The front page of each volume contains the number, date, subject and table of contents of the chapter.

When future amendments are made to the chapters, the volume that is amended will be replaced. The chapter will be enacted by the issuing of a new technical regulation.

Unless otherwise specified in each individual chapter, existing ships shall only comply with the structural requirements in force when the ship was constructed. However, derogations from this may be specified in regulations issued at a later date. Volumes that have been replaced should not therefore be discarded.

After the technical regulation, an overview is given of the dates the chapters were issued starting from the first issue in 1991.

Amended chapters

Chapter B II-1A. General provisions and construction

The mandatory requirements concerning access to spaces within the cargo area on oil tankers and bulk ships have been amended by

[1] Safety and Environmental Legislation Division, File No.: 199947854

MSC 78. As a result of this amendment, the regulations in SOLAS II-1/3-6 have only changed slightly, but the technical provisions forming an annex thereto have changed significantly.
The most recent amendments enter into force on 1 January 2006, but may be applied immediately in place of the current requirements, which enter into force on 1 July 2004 and must be fulfilled from 1 January 2005. It is important that it is clear to users which are shipping companies and shipyards that these most recent amendments from MSC 78 can and should be used in connection with construction and internal fitting on oil tankers and bulk ships as early as 1 January 2005. The rules contain a requirement for the necessary means for accessing these spaces to be described in a separate manual, which shall be kept on board for close inspection.

Chapter B II-1B (1). Subdivision and stability

Provisions are inserted resulting in the Stockholm Agreement's special requirements for stability for ro-ro passenger ships becoming effective for both national and international voyages within the EU. This will be put into effect by means of insertions and a supplement to Chapter II-1. At the same time, the separate regulation on the Stockholm Agreement is rescinded. [Text of Directive 2003/25/EC is awaiting adoption in COSS. Not required to be notified.]

Chapter B II-3. Accommodation spaces

A new Regulation 30 is inserted concerning persons with reduced mobility. This new regulation has been inserted on the basis of the European Parliament and Council Directive amending Council Directive 98/18/EC on safety rules and standards for passenger ships. The wording of this regulation is identical to the corresponding new regulation for passenger ships in national service.

Chapter B III Life-saving appliances and arrangements

A revised text is inserted concerning ship drills and maintenance and weekly and monthly checks. The text concerning periodic checks of launching equipment and launching arrangements has also been revised. At the same time, a revised text has been inserted concerning the requirement for immersion suits and thermal protectors on all cargo vessels. The amendments fulfil the request in MSC Circular 1093 to put these amendments into effect as quickly as possible.

Chapter B II-5A (1-3) The Load Line Convention, 1966, as amended by the Protocol of 1988, 3 January 1994

The annexes to the current International Load Line Convention are fully revised, expanded and updated. The chapters have been completely retranslated and revised. The articles of the Convention have not been amended.

Chapter XXI MARPOL, Annex 1

Amendment adopted by Resolution MEPC 111(50). Regulation 13G has been amended and a new Regulation 13H has been added with effect from 5 April 2005. This amendment to Regulation 13G and the addition of Regulation 13H to Annex 1 to the MARPOL Convention concerns amended dates for requirements pertaining to double hulls and the prevention of oil pollution from oil tankers loaded with heavy oil.

Annex 1 C MARPOL certificates

Amendments are made to form B of the supplement to the IOPP certificate with regard to the amendments to Regulations 13G and 13H.

Technical Regulation on the construction and equipment etc. of ships.[1)))]

The following is laid down pursuant to Section 1(2), Sections 3-5, Section 17(5) and Section 32 of the Act on safety at sea, cf. Consolidated Act No. 627 of 26 July 2002, and Decree No 607 of 25 June 2001 on the entry into force for Greenland of the Act on safety at sea and following consultation with Greenland's Home Rule and authorisation from the Danish Minister for Economic and Business Affairs:

Section 1. This Technical Regulation shall apply to passenger ships in international service, irrespective of size, and to cargo ships with a length of 15 metres and above or with a scantling number of 100 or above, irrespective of whether they are engaged on domestic or international voyages, and recreational craft with a hull length of 24 m and above, unless otherwise stated in the individual chapters.

Subsection 2. Detailed regulations regarding the construction and equipment etc. of ships are printed in separate volumes as annexes to this Technical Regulation.

Subsection 3. The chapters and annexes are:

B I		General provisions, issued 1 September 2003.
B II-1	A	General provisions and construction, issued 1 [September 2004.]
B II-1	B(1)	Subdivision and stability, issued [1 September 2004.]
B II-1	B(2)	Subdivision and stability, issued 1 July 2001.
B II-1	C	Machinery, issued 1 September 2003.
B II-1	D and E	Electrical installations. Additional requirements concerning periodically unmanned machinery spaces, issued 1 July 2001.

1) The Regulation has been notified in draft form in accordance with European Parliament and Council Directive 98/34/EC (the Information Procedure Directive), as amended by Directive 98/48/EC.

B II-1 N(1) Refrigeration systems, issued 1 July 2001.

B II-2	A and B	Construction – Fire protection, fire detection and fire extinction, General provisions, Prevention of fire and explosion, issued 1. July 2002.
B II-2	C	Construction – Fire protection, fire detection and fire extinction, Prevention of the start and spread of fire, issued 1. July 2002.
B II-2	D and E	Construction – Fire protection, fire detection and fire extinction, Means of escape, operational requirements, issued 1 July 2002.
B II-2	F and G	Construction – Fire protection, fire detection and fire extinction, Alternative design and arrangements, issued 1. July 2002.
B II-2	N(1)	Construction – Fire protection, fire detection and fire extinction, CO_2 fire extinguishers, issued 1 July 2002.
B II-2	N(2)	Construction – Fire protection, fire detection and fire extinction, Fire extinguishing systems with mixed atmospheric gases, issued 1 July 2002.
B II-2	N(3)	Construction – Fire protection, fire detection and fire extinction, Periodic surveys etc. of fire extinguishers, issued 1 July 2002.
B II-3		Accommodation etc., issued [1 September 2004.]
B II-4	A	Working spaces – arrangement and equipment, issued 1 January 2001. (previously designated B II-4).
B II-4	B	Gas welding, issued 1 July 2001.
B II-4	C	Installation and use of equipment for arc welding and allied processes, issued 1 July 2002.
B II-5	A(1)	The Load Line Convention, 1966, as amended by the Protocol of 1988, issued [1 September 2004.]
B II-5	A(2)	The Load Line Convention, 1966, as amended by the Protocol of 1988, issued [1 September 2004.]
B II-5	A(3)	The Load Line Convention, 1966, as amended by the Protocol of 1988, issued [1 September 2004.]

B II-5	N	Load lines, issued 1 July 2001.
B III	A	Life-saving appliances and arrangements. General, issued 1 July 2001.
B III	B	Life-saving appliances and arrangements. Requirements for ships and life-saving appliances, issued [1 September 2004.]
B IV		Radiocommunications GMDSS, issued 1 September 2003.
B V		Safety of navigation , issued 1 September 2003.
B VI		Carriage of cargoes, issued 1 September 2003.
B VII		Carriage of dangerous goods, issued 1 September 2003.
B VIII		Nuclear ships, issued 7 January 1991.
B IX		Safe operation of ships, issued 1 July 2002.
B X		High-speed craft, issued 1 July 2002.
B XI-1		Special measures to enhance maritime safety, issued 7 July 2004.
B XI-2		Special measures to enhance maritime security, issued 7 July 2001.
B XII		Additional safety measures for bulk carriers, issued 1 September 2003.

(B XIII-XX reserved)

B XXI (1)	Prevention of oil pollution from ships, issued [1 September 2004.]
B XXI (2)	Prevention of oil pollution from ships, issued 1 July 2001.
B XXII	Control of pollution by noxious liquid substances in bulk, issued 1 July 2001.
B XXIII	Prevention of pollution by harmful substances carried by sea in packaged form, issued 1 January 2002.

B XXIV	Treatment and storage of sewage, issued 7 July 2004. (previously designated BXX)
B XXV	Prevention of pollution by garbage from ships, issued 1 July 2003. (previously designated B XXIV)
Appendix 1 A	SOLAS certificates etc., issued 1 July 2002.
Appendix 1 B	Load line certificates, issued 1 July 2002.
Appendix 1 C	MARPOL certificates etc., issued [1 September 2004.]
Annex 2	National certificates etc., issued 1 July 2002.

Section 2. The provisions in Chapters I, II-1 (A-E), II-2 and III-XII are essentially based on the International Convention for the Safety of Life at Sea (SOLAS) 1974, with later amendments and associated protocols.

Subsection 2. Chapter II-5 A is formulated on the basis of the International Convention on Load Lines of 5 April 1966 (ILLC 66) and associated protocol of 1988 together with Annex B to this protocol, adopted by Resolution MSC. 143(77). Chapter II-5 N contains regulations which fulfil or expand on the Convention and the Protocol of 1988 and regulations for ships less than 24 metres in length.

Subsection 3. The provisions of Chapter II-3 on accommodation etc. parts I and II are based on the international Accommodation of Crews Convention, ILO Convention No 92 of 18 June 1949 and No 133 of 30 October 1970.

Subsection 4. The provisions of Chapters XXI, XXII and XXV have been drawn up on the basis of the International Convention for the Prevention of Pollution from Ships, MARPOL 73/78, Annexes I, II and V, as amended.

Subsection 5. The provisions of Chapter XXIV have been drawn up on the basis of Regulation 7 of the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area and Annex IV to the MARPOL Convention.

Subsection 6. The provisions of Chapter XXIII have been drawn up on the basis of Annex III, Prevention of pollution by harmful substances carried by sea in packaged form, to the International Convention for the Prevention of Pollution from Ships – the MARPOL Convention 1973. The detailed regulations concerning compliance with the technical regulations are contained in the International Dangerous Goods Code (IMDG Code).

Subsection 7. Danish regulations, complying with or extending the provisions of the SOLAS, ILLC 66 and MARPOL Conventions are printed in italics.

Section 3. A copy of this Technical Regulation shall be found on board passenger ships engaged on international voyages and cargo ships of 15 metres in length and above or with a scantling number of 100 or above. This does not rule out the use of electronic medium provided that the Technical Regulation can be read on board.

Penalties, measures and entry into force etc.

Section 4. Contravention of this Technical Regulation shall be punished with a fine or imprisonment of up to one year.

Subsection 2. The penalty may increase to imprisonment for up to 2 years if

1) the contravention has caused harm to life or health or brought about the risk thereof,
2) a ban or order has previously been issued regarding the same or equivalent circumstances, or
3) the contravention resulted in, or was intended to result in, financial gain for the person concerned or for others.

Subsection 3. It shall be deemed particularly aggravating circumstances if young people under the age of 18 have suffered harm to life or health or there has been the risk thereof, cf. subsection 2, point 1.

Subsection 4. If the profits gained through the contravention are not confiscated, particular consideration shall be given when meting out the fine, including supplementary fines, to the size of the financial gain or intended financial gain.

Subsection 5. Criminal liability may be incurred by companies etc. (legal entities) in accordance with the rules of Chapter 5 of the Penal Code.

Section 5. If the circumstance is covered by the Decree concerning the entry into force for Greenland of the Act on safety at sea, measures may be prescribed pursuant to the Criminal Code for Greenland.

Subsection 2. The circumstances referred to in Section 4(2) and (3) shall be regarded as aggravating circumstances.

Subsection 3. If the profits gained through the contravention are not confiscated, cf. Section 116(1) of the Penal Code, particular consideration shall be given to the size of the financial gain or intended financial gain when meting out the fine, including supplementary fines.

Subsection 4. If a contravention is committed by a company etc. (legal entities), liability to pay a fine may be incurred by the legal entity as such. If the contravention is committed by the State, Greenland's Home Rule, a municipality, a municipal cooperative covered under Section 64

of the Landsting Act on municipal councils and local authorities etc. or a local authority, liability to pay a fine may be incurred by the relevant public authority as such.

Subsection 5. If the relevant party is not resident in Greenland, or their connection to the Greenlandic society is otherwise so remote that the prerequisites for measures to be taken do not exist, proceedings may be instigated or referred for instigation in Denmark.

Section 6. This Regulation shall enter into force on [1. xxxxxxxxx 2004.]

Subsection 2.

1) However, Chapters B II-5 and B III will not come into effect until 1 January 2005, and
2) Chapter B XXI (1) will not enter into force until 1 April 2005, and
3) Chapter B II-1 A will not enter into force until 1 January 2006.

Subsection 3. The structural requirements in the previous provisions shall continue to apply to existing vessels, unless otherwise provided in this technical regulation.

The Danish Maritime Authority, xxx [September] 2004

Anne Skov Strüver

/Sven Kildevang Jensen

Legislation Office, File No 199947854

Notices from the Danish Maritime Authority B.
Updates of the chapter book editions of 21/10/1991.

Date of signature	21/10/91	21/1/93	15/7/93	6/12/93	19/9/94	28/11/95	29/5/96	10/12/96
B I	7/1/91	15/11/91			3/1/94			
B II-1 A	7/1/91				3/1/94			
B II-1 B1	7/1/91	15/11/91			3/1/94			
B II-1 B2	7/1/91	15/11/91						
B II-1 C	7/1/91				3/1/94			
B II-1 D and E	7/1/91	15/11/91			3/1/94			
B II-1 N (1)								
B II-2A1	7/1/91	15/11/91			1/8/94			1/1/97
B II-2A2	7/1/91	15/11/91			1/8/94			
B II-2 B	7/1/91	15/11/91			1/8/94			1/1/97
B II-2 C	7/1/91	15/11/91						
B II-2 D	7/1/91	15/11/91	15/3/93		1/8/94			
B II-2 A and B								
B II-2 C								
B II-2 D and E								
B II-2 F and G								
B II-2 N(1)								
B II-2 N(2)								
B II-2 N(3)								
B II-3	7/1/91							
B II-4 A								
B-II-4 B								
B II-4 C								
B II-5 A1					3/1/94			
B II-5 A2					3/1/94			
B II-5 A3					3/1/94			
B II-5 N	7/1/91							
B III A	7/1/91							
B III B	7/1/91							
B IV GMDS		15/11/91			1/8/94	1/1/96		
B V	7/1/91	15/11/91				1/1/96		1/1/97
B VI	7/1/91			7/10/93			1/7/96	
B VII	7/1/91	15/11/91					1/7/96	
B VIII	7/1/91							
B IX								
B X						1/1/96		
B XI-1								
B XI-2								
B XII								
B XX (**now B XXIV**)	7/1/91							
B XX (empty)								
B XXI 1	7/1/91		21/1/93		3/1/94	1/1/96		
B XXI 2	7/1/91		21/1/93					
B XXII	7/1/91				3/1/94	1/1/96		
B XXIII					3/1/94	1/1/96		

B XXIV (now **B XXV**)	7/1/91		15/3/93			1/1/96		5)
Annex 1								
Annex 1 A								
Annex 1 B								
Annex 1 C								
Annex 2								

Date of signature	26/6/97	16/6/98	7/5/99	11/12/00	19/7/01	12/12/01	19/4/02	26/6/02	20/8/03
B I		1/7/98	1/7/99		1/7/01		1/7/02		1/9/03
B II-1 A	1/7/97	1/7/98	1/7/99		1/7/01		1/7/02		1/9/03
B II-1 B1	1/7/97	1/7/98	1/7/99		1/7/01				1/9/03
B II-1 B2	1/7/97	1/7/98	1/7/99		1/7/01				
B II-1 C		1/7/98	1/7/99		1/7/01				1/9/03
B II-1 D and E		1/7/98	1/7/99		1/7/01				
B II-1 N (1)					1/7/01				
B II-2A1		1/7/98	1/7/99						
B II-2A2		1/7/98	1/7/99						
B II-2 B		1/7/98	1/7/99						
B II-2 C		1/7/98	1/7/99						
B II-2 D		1/7/98	1/7/99						
B II-2 A and B							1/7/02		
B II-2 C							1/7/02		
B II-2 D and E							1/7/02		
B II-2 F and G							1/7/02		1/9/03
B II-2 N(1)							1/7/02		
B II-2 N(2)							1/7/02		
B II-2 N(3)							1/7/02		
B II-3					1/7/01				1/9/03
B II-4 A				1/1/01					
B-II-4 B					1/7/01				
B II-4 C							1/7/02		
B II-5 A1							1/7/02		
B II-5 A2							1/7/02		
B II-5 A3							1/7/02		
B II-5 N		1/7/98	1/7/99		1/7/01				
B III A	1/7/97	1/7/98			1/7/01				
B III B	1/7/97	1/7/98		1/1/01	1/7/01				1/9/03
B IV GMDS	1/7/97			1/1/01			1/7/02		1/9/03
B V	1/7/97	1/7/98	1/7/99	1/1/01			1/7/02		1/9/03
B VI	1/7/97	1/7/98			1/7/01				1/9/03
B VII		1/7/98	1/7/99	1/1/01					1/9/03
B VIII									
B IX	1/7/97			1/1/01			1/7/02		
B X					1/7/01		1/7/02		
B XI-1									1/9/03
B XI-2									1/9/03
B XII			1/7/99		1/7/01				1/9/03
B XX (now XXIV)					1/7/01				5)
B XX (empty)									
B XXI 1		1/7/98			1/7/01			1/9/02	
B XXI 2		1/7/98			1/7/01				
B XXII					1/7/01				
B XXIII					1/7/01	1/1/02			
B XXIV (now XXV)	1/7/97				1/7/01			5)	1/9/03
Annex 1					1/7/01				
Annex 1 A							1/7/02		
Annex 1 B							1/7/02		
Annex 1 C									1/9/03

Annex 2					1/7/01					
Date of signature		**7/6/04**	**xx/9/04**							

B I										
B II-1 A		xx/9/04								
B II-1 B1		xx/9/04								
B II-1 B2										
B II-1 C										
B II-1 D and E										
B II-1 N (1)										
B II-2A1										
B II-2A2										
B II-2 B										
B II-2 C										
B II-2 D										
B II-2 A and B										
B II-2 C										
B II-2 D and E										
B II-2 F and G										
B II-2 N(1)										
B II-2 N(2)										
B II-2 N(3)										
B II-3		xx/9/04								
B II-4 A										
B-II-4 B										
B II-4 C										
B II-5 A1		xx/9/04								
B II-5 A2		xx/9/04								
B II-5 A3		xx/9/04								
B II-5 N										
B III A										
B III B		xx/9/04								
B IV GMDS										
B V										
B VI										
B VII										
B VIII										
B IX										
B X										
B XI-1	7/6/04									
B XI-2	7/6/04									
B XII										
B XX (now XXIV)										
B XX (empty)										
B XXI 1		xx/9/04								
B XXI 2										
B XXII										
B XXIII										
B XXIV (now B XXV)	7/6/04									
Annex 1										
Annex 1 A										
Annex 1 B										
Annex 1 C		xx/9/04								
Annex 2										

Chapter books being withdrawn:

Date of signature	B II-1 E and F	B II-4	B III C1	B III C2	B IV	B XI
21/10/91	7/1/91	7/1/91			7/1/91	
21/1/93						
15/7/93						
6/12/93		2)	3)	3)	1)	
19/9/94						
28/11/95						
29/5/96						
10/12/96						
26/6/97						
16/6/98	1)	2)	3)	3)	1)	
7/5/99						
11/12/00						
19/7/01						4)
12/12/01						
19/4/02						

Notes to the tables:

1) Chapter B II-1 E has been included at the back of Chapter II-1 D, 1/7/98, and Chapter B II-1 F has been omitted. Chapter B IV Radio telegraphy and radio telephony has been omitted.

2) Chapter B II-4 on noise has now been superseded by Technical Regulation No 5 of 3 July 1997 on noise in ships, published in Notices from the Danish Maritime Authority, booklet 5/97.

3) The content of Chapter III was revised on 1 July 1998 and has now been issued only in two chapter booklets. The previous chapter booklets III C 1 and C2, which contained functional requirements for life-saving appliances have been replaced by the International Life-Saving Appliances Code (LSA Code), Resolution MSC.48(66), cf. Chapter III, Regulation 4.

4) Chapter B XI on special measures to enhance maritime safety has now been superseded by Chapter B XI-1.

5) Chapter XX changed its number in 2003 to XXIV and Chapter XXIV became Chapter XXV.

Chapter B I
1 September 2003

Technical Regulation on the construction and equipment etc. of ships

C H A P T E R I

General provisions

Part A Application, definitions etc. page

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Regulation 2 Definitions 2
Regulation 3 Exceptions 2
Regulation 4 Exemptions 2
Regulation 5 Equivalents 2

Part B Survey and certificates

Regulation 6 Inspection and survey 2
Regulation 6-1 Special surveys and survey intervals 2
Regulation 7 Surveys of passenger ships 2
Regulation 8 Survey of life-saving appliances and other equipment of cargo ships *with a gross tonnage of 500 and upwards* 2
Regulation 8-1Survey of life-saving appliances and other equipment of cargo ships with less than 500 gross tonnage 2
Regulation 9 Surveys of radio installations of cargo ships *of 300 gross tonnage and above* 2
Regulation 9-1Surveys of radio installations of cargo ships of less than 300 gross tonnage 2
Regulation 10 Surveys of structure, machinery and equipment of cargo ships *with a gross tonnage of 500 and upwards* 2
Regulation 10-1 Surveys of structure, machinery and equipment of cargo ships with less than 500 gross tonnage 2
Regulation 11 Maintenance of conditions after survey 2
Regulation 12 Issue or endorsement of certificates 2

Regulation 12-1 Issue of certificates for cargo ships with a gross tonnage of less than 500 2
Regulation 13 Issue or endorsement of certificates by another Government 2
Regulation 14 Duration and validity of certificates 2
Regulation 14-1 Duration and validity of certificates in cargo ships with a gross tonnage of less than 500 2
Regulation 15 Form of certificates and records of equipment 2
Regulation 15-1 Form of certificates and records of equipment for cargo ships with a gross tonnage of less than 500 2
Regulation 16 Accessibility of certificates 2
Regulation 17 Acceptance of certificates 2
Regulation 18 Qualification of certificates 2
Regulation 19 Control 2
Regulation 20 Privileges 2

Part C Casualties

Regulation 21 Casualties 2

Part D Miscellaneous items

Regulation 22 Survey book 2
Regulation 23 General safety 2

C H A P T E R I

General provisions

Part A Application, definitions etc.

Regulation 1 Area of application

(a) Unless expressly provided otherwise, this *set of regulations* shall apply to *passenger ships, irrespective of size, engaged on international voyages and cargo ships with a length (L) of 15 m and above or with a scantling number of 100 or above, irrespective of whether they are engaged on domestic or* international voyages, *cf. however the exemptions in Regulation 3.*

(b) Each separate chapter specifies which classes of ship are covered by the chapter in question and to what extent the provisions are applicable.

(c) Chapter I shall apply to new and existing ships (cf. definitions in Regulation 2(k) and (l)).

Regulation 2 Definitions

On application of these regulations, the following definitions shall apply, unless expressly provided otherwise:

(a) 'Regulations' means the regulations contained in the Annex to this Convention (*SOLAS 74*).

(b) 'Administration' means the government of the State whose flag the ship is entitled to fly. *In the case of Danish ships, the Administration is the Danish Maritime Authority, unless otherwise provided.*

(c) 'Approved' means approved by the Administration.

Detailed regulations for obtaining type approval, including both technical requirements and requirements relating to marking, testing procedures etc. are laid down by the Danish Maritime Authority for each separate type of equipment. General rules in this regard are published in Notices from the Danish Maritime Authority.

The Danish Maritime Authority shall accept calculations and tests that have been carried out by approved testing bodies, including testing bodies in other EU Member States as well as in

countries signatory to the EEA Agreement, which provide appropriate and satisfactory guarantees of the technical, professional and independent nature of the tests.

Equipment that has been deemed to be compliant and is wheelmarked in accordance with Council Directive 96/98/EC of 20 December 1996 on marine equipment[2] as amended, which entered into force on 1 January 1999, shall be approved.

(d) 'International voyage' means a voyage from a country to which the present Convention *(SOLAS 74)* applies to a port outside such country, or conversely. *Voyages between Denmark and the Faeroes and between Denmark and Greenland as well as voyages between the Faeroes and Greenland or between two foreign ports are regarded as international voyages.*

(e) 'A passenger' is every person other than:

(i) the master and the members of the crew or other persons employed or engaged in any capacity on board a ship on the business of that ship; and

(ii) a child under one year of age.

(f) 'A passenger ship' is a ship which carries more than twelve passengers.

(g) 'A cargo ship' is any ship which is not a passenger ship *or fishing vessel*.

(h) 'A tanker' is a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of an inflammable nature.

(i) 'A fishing vessel' is a vessel used for catching fish, whales, seals, walrus or other living resources of the sea, *or which has a port identification number*.

(j) 'a nuclear ship' is a ship provided with a nuclear power plant.

(k) 'New ship' means a *passenger* ship, *irrespective of size and a cargo ship with 500 tonnes gross tonnage or above* the keel of which was laid or which was at a similar stage of construction on or after 25 May 1980 *and a cargo ship with less than 500 tonnes gross tonnage the keel of which was laid on or after 1 January 2002*.

(l) 'Existing ship' means a ship which is not a new ship.

(m) 'A mile' is 1852 metres or 6080 feet.

(n) 'Anniversary date' means the day and month of each year corresponding to the expiry date of the relevant certificate.

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[2] See Technical Regulation on marine equipment, which transposes Council Directive 96/98/EC.

'Age of a ship' means the elapsed period of time determined from the year of build as indicated on the ship's registry papers.

(o) 'Organisation' means the International Maritime Organisation (IMO).

(p) 'Parties' means countries which have acceded to SOLAS 74 and associated Protocol of 1978.

(q) 'Classification society' means an organisation recognised by the Danish Maritime Authority in accordance with the provisions in Regulation XI/1.

(r) 'Length L1' is the length measured from the foreside of the intersection of the plating with the topside of the deck at the stem to the after side of the intersection of the plating with the deck at the stern. On open ships, the length is measured on the topside of the gunwale.

(s) 'Scantling number' is the length L1 multiplied by the maximum breadth B of the ship as stated in the ship's tonnage certificate[3].

(t) 'Gross tonnage' is the gross tonnage (GT) measured in accordance with provisions in force concerning tonnage measurement of ships; in the case of ships with a length of 24 metres and above, in accordance with the International Convention of Tonnage Measurement of Ships, 1969. In the case of ships built before 18 July 1994 which were measured in accordance with tonnage measurement rules in force before the International Convention on Tonnage Measurement of Ships, 1969, entered into force, and where this tonnage is indicated in the international tonnage certificate (1969), this gross tonnage shall be used in connection with these provisions. In the case of ships less than 24 metres in length which are only measured in accordance with the tonnage measurement rules (1947) previously in force, the gross registered tonnage (GRT) shall be used.

(u) 'Recreational craft' means a vessel which, irrespective of the means of propulsion, is used for sport or recreational purposes, and which is not used for commercial purposes, cf. the Danish Maritime Authority's most recent Technical Regulation on recreational craft.[4]

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[3] Cf. Order No 845 of 1 December 1998 on measuring small ships.

[4] See Technical Regulation on recreational craft, which transposes Council Directive 94/25/EC of 16 June 1994 on the mutual recognition of the laws, regulations and administrative provisions of the Member States relating to recreational craft, as amended.

(v) *'Port area' means an area which, according to the Administration's definition, is not a sea area and extends to the outermost permanent harbour works forming an integral part of the harbour system, or to the limits defined by natural geographical features protecting an estuary or similar sheltered area. In Denmark and Greenland, port areas are generally enclosed by jetties.*

(x) *'Length (L)' shall be taken as 96% of the total length on a waterline at 85% of the least moulded depth measured from the keel line, or as the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In vessels designed with a rake of keel, the waterline on which this length is measured shall be parallel to the designed waterline.*

(y) *'Hull length' is the length overall measured in accordance with the Danish Maritime Authority's most recent Technical Regulation on recreational craft as per the relevant harmonised standard. External rudders, external driving gears and outboard motors, boat platforms, bowsprits, fender beams etc. are not included in the measurement.*

Regulation 3 Exceptions

(a) Unless expressly provided otherwise, these regulations *(cf. Regulation 2 (a)*) shall not apply to:

(i) Ships of war and troopships.

(ii) Cargo ships *with a length (L) less than 15 metres and a scantling number of less than 100*.

(iii) Ships not propelled by mechanical means.

(iv) Wooden ships of primitive build.

(v) Recreational craft, *the keel of which was laid before 1 January 2004, and recreational craft with a hull length of less than 24 metres the keel of which was laid on or after 1 January 2004*, not engaged in trade.

(vi) Fishing vessels.

(b) Except as expressly provided in Chapter V, nothing herein shall apply to ships solely navigating the Great Lakes of North America and the River St Lawrence 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.

Regulation 4 Exemptions[5]

(a) A ship which is not normally engaged on international voyages but which, in exceptional circumstances, is required to undertake a single international voyage may be exempted by the Administration from any of the requirements of the present regulations provided that it complies with safety requirements which are adequate in the opinion of the Administration for the voyage which is to be undertaken by the ship.

(b) The Administration may exempt a ship which embodies features of a novel kind from the provisions in Chapters II-1, II-2, III and IV the application of which may seriously impede research into the development of such features and their incorporation in ships engaged on international voyages. Any such ship shall, however, comply with the safety requirements which in the opinion of that Administration are adequate for the service for which it is intended and are such as to ensure the overall safety of the ship, and which are acceptable to the Governments of the States to be visited by the ship. The Administration which allows any such exemption shall communicate to the Organisation particulars of same and the reasons therefore which the Organisation shall circulate to the Contracting Governments for their information.

(c) The Danish Maritime Authority may, in exceptional circumstances, permit a ship to undertake single voyages, irrespective of whether the licence for the carriage of passengers referred to in Regulation 12 or the trading permit referred to in Regulations 12 and 12-1 have been issued. The same shall apply if the validity of a national certificate issued by the Danish Maritime Authority, or on its behalf, has expired, or if a prescribed survey has not been carried out.

(d) The Danish Maritime Authority may exempt individual ships, completely or in part, from undergoing the surveys that are not laid down in the international conventions applying to Denmark This is conditional upon it being established that the use of materials, designs, arrangements, methods of working or control systems other than those prescribed provides a level of safety that is at least as effective as if the survey in question was carried out. The Danish Maritime Authority may authorise individual persons or classification societies to carry out a survey on the Authority's behalf.

(e) Other than the exemptions relating to Chapters V, VI, VII and VIII and for cargo ships with 300 tonnes gross tonnage and

[5] Refer to: SLS.14/Circ. 115, as amended, on the issue of exemption certificates under the 1974 SOLAS Convention and amendments thereto.

above with regard to Chapter IV, information concerning exemptions for cargo ships with less than 500 tonnes gross tonnage shall not be sent to the Organisation, but this shall be indicated on the safety certificate for cargo ships and entered into the survey book required under Regulation 22.

Regulation 5 Equivalents

(a) If these regulations require that a particular accessory, material, device or apparatus, or type thereof, be fitted or present on board a ship, or that certain measures be taken, the Administration may permit another accessory, material, device or apparatus, or type thereof, or a different measure to be taken on the ship if, by the testing thereof or via another method, it feels that it has been substantiated that such an accessory, material, device or apparatus, or type thereof, or measure is at least as effective as that required in accordance with the regulations.

(b) Any Administration which so allows, in substitution, a fitting, material, appliance or apparatus, or type thereof, or provision, shall communicate to the Organisation particulars thereof together with a report on any trials made and the Organisation shall circulate such particulars to the other Contracting Governments for the information of their officers.

(c) *With the exception of equivalents relating to Chapters V, VI, VII and VIII and to cargo ships with 300 tonnes gross tonnage and above with regard to Chapter IV, subparagraph (b) of this Regulation shall not apply to cargo ships with less than 500 tonnes gross tonnage.*

Part B Survey and certificates[6]

In addition to the inspections and surveys in this Chapter, which refer to the SOLAS 74 Convention, as amended, this set of regulations also contains requirements concerning inspections and surveys and the issuing of certificates in Chapter II-3 on accommodation etc. with reference to ILO Convention No 92 and 133, in Chapter II-5 with reference to the International Convention on Load Lines, 1966 and national regulations and in Chapters XXI–XXV with reference to MARPOL 73/78, as amended. For the high speed craft referred to in Chapter X, requirements concerning surveys, certificates and permits are found in the High Speed Craft Code. Finally, Regulation II-2/19.4 contains requirements concerning the issue of an approval document for ships carrying dangerous goods, and ships transporting grain, cf. Regulation VI/9.1, shall be in possession of an approval document for the transport of grain.

Regulation 6 Inspection and survey

(a) The inspection and survey of ships, so far as regards the enforcement of the provisions of the present regulations and the granting of exemptions therefrom, shall be carried out by officers of the Administration. The Administration may, however, entrust the inspections and surveys either to surveyors nominated for the purpose or to organisations recognised by it.

(b) An Administration nominating surveyors or recognising organisations to conduct inspections and surveys as set forth in sub-paragraph (a) shall, as a minimum, empower any nominated surveyor or recognised organisation:

(i) to require repairs to a vessel; and

(ii) to carry out inspections and surveys if requested by the appropriate authorities of a port State.

The Administration shall notify the Organisation of the specific responsibilities and conditions of the authority delegated to nominated surveyors or recognised organisations. *With the exception of Chapters V, VI, VII and VIII as well as Chapter IV with regard to cargo ships of less than 300 gross tonnage, this shall not apply to matters relating to cargo ships with less than 500 gross tonnage.*

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[6] Refer to: Resolution A.883(21), Global and uniform implementation of the harmonised system of survey and certification (HSSC), and to Resolution A.746(18), Survey guidelines under the harmonised system of survey and certification.

c) When a nominated surveyor or recognised organisation determines that the condition of the vessel or its equipment does not correspond substantially with the particulars of the certificate or is such that the vessel is not fit to proceed to sea without danger to the vessel or persons on board, such surveyor or organisation shall immediately ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken the relevant certificate should be withdrawn and the Administration shall be notified immediately; and, if the vessel is in the port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or a recognised organisation has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organisation any necessary assistance to carry out their obligations under this legislation. When applicable, the Government of the port State concerned shall ensure that the vessel shall not sail until it can proceed to sea, or leave port for the purpose of proceeding to the appropriate repair yard, without danger to the vessel or persons on board.

(d) In every case, the Administration shall fully guarantee the completeness and efficiency of the inspection and survey, and shall undertake to ensure the necessary arrangements to satisfy this obligation.

(e) Every ship shall, before being put into service, either as a newly constructed ship or as a ship purchased from abroad, be approved by the Danish Maritime Authority following a prior initial inspection. The Danish Maritime Authority may lay down detailed guidelines in respect of ships purchased from abroad.

(f) No passenger ship may be put into service without the permit for sailing with passengers referred to in subsection 12(a)(i), sail outside the area of operation stated in the permit nor set sail with more passengers on board than stated therein.

(g) Ships may not set sail if the validity of a certificate issued by the Danish Maritime Authority, or on its behalf, has expired, or if a prescribed survey has not been carried out.

Regulation 6-1 Special surveys and survey intervals

(a) The Danish Maritime Authority may at any time order a ship to undergo an extraordinary survey, and similarly, under exceptional circumstances, it may set survey intervals which differ from those contained Regulations 8-1, 9-1 and 10-1 of this Chapter.

(b) *In the case of a ship that has been taken out of service, the Danish Maritime Authority may permit prescribed periodical surveys to be wholly or partially omitted, provided the ship remains out of service.*

(c) *An additional survey, either a main survey or a partial survey, according to the circumstances, shall be performed following repair work carried out as a consequence of the investigations prescribed in Regulation 11, or whenever major repairs, alterations, modifications or renewals are made.*

Regulation 7 Surveys of passenger ships[7]

(a) A passenger ship shall be subjected to the surveys specified below:

(i) An initial survey before the ship is put into service.

(ii) A renewal survey once every 12 months, except in cases where Regulation 14(b), (e), (f) and (g) applies.

(iii) Additional surveys, as the occasion arises.

(b) The surveys referred to above shall be carried out as follows:

(i) The initial survey shall include a complete inspection of the ship's structure, machinery and equipment, including the outside of the ship's bottom. This survey shall be such as to ensure that the arrangements, material and scantlings of the structure, boilers and other pressure vessels and their appurtenances, main and auxiliary machinery, electrical installations, radio installations, including those used in life-saving appliances, fire protection, fire safety systems and appliances, life-saving appliances and arrangements, shipborne navigational equipment, nautical publications, means of embarkation for pilots and other equipment fully comply with the requirements of the present regulations, and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration for ships of the service for which it is intended. The survey shall also be such as to ensure that the workmanship of all parts of the ship and its equipment is in all respects satisfactory, and that the ship is provided with the lights, shapes, means of making sound signals and distress signals as required by the provisions of

[7] Refer to: Resolution A.794(19), Surveys and inspections of ro-ro passenger ships and MSC/Circ. 956, Guidelines for unscheduled inspections of ro-ro passenger ships by flag States.

the present regulations and the International Regulations for Preventing Collisions at Sea in force.

(ii) The renewal survey shall include an inspection of the structure, boilers and other pressure vessels, machinery and equipment, including the outside of the ship's bottom. This survey shall be such as to ensure that the ship, as regards the structure, boilers and other pressure vessels and their appurtenances, main and auxiliary machinery, electrical installations, radio installations, including those used in life-saving appliances, fire protection, fire safety systems and appliances, life-saving appliances and arrangements, shipborne navigational equipment, nautical publications, means of embarkation for pilots and other equipment is in satisfactory condition and fit for the service for which it is intended, and that it complies with the requirements of the present regulations, and of the laws, decrees, orders and administrative regulations promulgated as a result thereof by the Administration. The lights, shapes and means of making sound signals and the distress signals carried by the ship shall also be subject to the above-mentioned survey for the purpose of ensuring that they comply with the requirements of the present regulations and of the International Regulations for Preventing Collisions at Sea in force.

(iii) An additional survey, either a main survey or a partial survey, according to the circumstances, shall be performed following repair work carried out as a consequence of the investigations prescribed in Regulation 11, or whenever any important repairs or renewals are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory, and that the ship complies in all respects with the provisions of the present regulations and the International Regulations for Preventing Collisions at Sea in force, and of the laws, decrees, orders and regulations promulgated as a result thereof by the Administration.

(c) (i) The laws, decrees, orders and regulations referred to in paragraph (b) of this regulation shall be in all respects such as to ensure that, from the point of view of safety of life, the ship is fit for the service for which it is intended.

(ii) They shall among other things prescribe the requirements to be observed as to the initial and subsequent hydraulic or other acceptable alternative tests to which the main and auxiliary boilers, connections, steam pipes, high pressure receivers, and fuel tanks for internal combustion engines are

to be submitted including the test procedures to be followed and the intervals between two consecutive tests.

Regulation 8 Survey of life-saving appliances and other equipment of cargo ships *with a gross tonnage of 500 and upwards*

(a) Life-saving appliances and other equipment in cargo ships of 500 gross tonnage and upwards, as referred to in paragraph (b)(i), shall undergo the following surveys:

(i) An initial survey before the ship is put into service.

(ii) A renewal survey at intervals specified by the Administration, but not exceeding 5 years, except in cases where Regulation 14(b), (e), (f) and (g) is applicable.

(iii) A periodical survey within 3 months before or after the 2nd anniversary date or within three months before or after the 3rd anniversary date of the Cargo Ship Safety Equipment Certificate shall replace one of the annual surveys referred to in paragraph (a)(iv).

(iv) An annual survey within 3 months before or after each anniversary date of the Cargo Ship Safety Equipment Certificate.

(v) An additional survey, as prescribed for passenger ships in Regulation 7(b)(iii).

(b) The surveys referred to in (a) shall be carried out as follows:

(i) The initial survey shall include a complete inspection of fire safety systems and appliances, life-saving appliances and arrangements, with the exception of radio installations, shipborne navigational equipment, means of embarkation for pilots and other equipment covered by Chapters II-1, II-2, III and V to ensure that they comply with the requirements of the present regulations, is in satisfactory condition and fit for the service for which it is intended. Fire control plans, nautical publications, lights, shapes means of making sound signals and distress signal shall be subjected to an equivalent survey to that referred to above for the purpose of ensuring that they comply with the requirements of the present regulations and of the International Regulations for Preventing Collisions at Sea in force, where applicable[8];

(ii) Renewal and periodical surveys shall comprise an inspection of the equipment referred to in paragraph (b)(i) for the

[8] Refer to: SLS.14/Circ.1, Record of approved cargo ship safety equipment.

purpose of ensuring that it complies with the requirements of the present regulations and of the International Regulations for Preventing Collisions at Sea in force, is in satisfactory condition and fit for the service for which it is intended;

(iii) The annual survey shall comprise a general inspection of the equipment referred to in paragraph (b)(i) for the purpose of ensuring that it has been maintained in accordance with Regulation 11(a), and that it is still adequate for the service for which the ship is intended.

(c) The periodical and annual surveys referred to in (a)(iii) and (a)(iv) shall be endorsed on the Cargo Ship Safety Equipment Certificate.

Regulation 8-1 Survey of life-saving appliances and other equipment of cargo ships with less than 500 gross tonnage

(a) Life-saving appliances and other equipment in cargo ships of 250 gross tonnage and upwards, but less than 500, as referred to in paragraph (c)(i), shall undergo the following surveys:

(i) An initial survey before the ship is put into service.

(ii) A renewal survey at intervals not exceeding 5 years.

(iii) An intermediate survey within 3 months after the 2nd anniversary date and within 3 months before the 3rd anniversary date of the Cargo Ship Safety Equipment Certificate. (Not less than 27 and not more than 33 months after the initial survey of last renewal survey).

(b) In cargo ships with a length (L) of 15 m or above or with a scantling number of 100 or above, but with a gross tonnage below 250, life-saving appliances and other equipment as referred to in paragraph (c)(i) shall be subjected to the following surveys:

(i) An initial survey before the ship is put into service.

(ii) A renewal survey at intervals not exceeding 5 years.

(c) The surveys referred to in (a) and (b) shall be carried out as follows:

(i) The initial survey shall include a complete inspection of fire safety systems and appliances, life-saving appliances and arrangements, with the exception of radio installations, shipborne navigational equipment, means of embarkation for pilots and other equipment covered by Chapters II-1, II-2, III and V to ensure that they comply with the requirements of the present regulations, is in satisfactory condition and fit for the

service for which it is intended. Fire control plans, nautical publications, lights, shapes means of making sound signals and distress signal shall be subjected to an equivalent survey to that referred to above for the purpose of ensuring that they comply with the requirements of the present regulations and of the International Regulations for Preventing Collisions at Sea in force, where applicable.

(ii) Renewal and periodical surveys shall comprise an inspection of the equipment referred to in paragraph (c)(i) for the purpose of ensuring that it complies with the requirements of the present regulations[9] *and of the International Regulations for Preventing Collisions at Sea in force, is in satisfactory condition and fit for the service for which it is intended.*

(d) The intermediate surveys referred to in paragraph (a)(iii) shall be endorsed on the Cargo Ship Safety Certificate for cargo ships with less than 500 gross tonnage.

Regulation 9 Surveys of radio installations of cargo ships *of 300 gross tonnage and above*

(a) The radio installations in cargo ships, including those used in life-saving appliances, to which Chapters III and IV apply, shall be subjected to the following surveys:

(i) An initial survey before the ship is put into service.

(ii) A renewal survey at intervals specified by the Administration, but not exceeding 5 years, except in cases where Regulation 14(b), (e), (f) and (g) is applicable.

(iii) An periodic survey within 3 months before or after each anniversary date of the Cargo Ship Safety Radio Certificate.

(iv) An additional survey, as prescribed for passenger ships in Regulation 7(b)(iii).

(b) The surveys referred to in (a) shall be carried out as follows:

(i) The initial survey shall include a complete inspection of the cargo ship's radio installations, including those used in life-saving appliances, for the purpose of ensuring that they comply with the requirements of the present regulations;

[9] In the case of cargo ships constructed before 1 January 2002, the rules in force at the time of construction, as amended. For ships constructed after 1 June 1985 but before 1 January 2002, Notice C from the Danish Register of Ships, as amended.

(ii) The renewal and periodical surveys shall include an inspection of the cargo ship's radio installations, including those used in life-saving appliances, for the purpose of ensuring that they comply with the requirements of the present regulations.

(c) The periodical survey referred to in paragraph (a)(iii) shall be endorsed on the Cargo Ship Safety Radio Certificate.

Regulation 9-1 Surveys of radio installations of cargo ships of less than 300 gross tonnage

The annual surveys referred to in paragraph (a)(iii) shall not apply to ships engaged solely on domestic voyages.

(a) The radio installations in cargo ships, including those used in life-saving appliances, to which Chapters III and IV apply, shall be subjected to the following surveys:

(i) An initial survey before the ship is put into service.

(ii) A renewal survey at intervals not exceeding 5 years.

(iii) An annual survey within 3 months before or after each anniversary date of the Cargo Ship Safety Certificate.

(b) The surveys referred to in (a) shall be carried out as follows:

(i) The initial survey shall include a complete inspection of the cargo ship's radio installations, including those used in life-saving appliances, for the purpose of ensuring that they comply with the requirements of the present regulations;

(iii) The renewal and annual surveys shall include an inspection of the cargo ship's radio installations, including those used in life-saving appliances, for the purpose of ensuring that they comply with the requirements of the present regulations.

(c) The annual surveys referred to in paragraph (a)(iii) shall be endorsed on the Cargo Ship Safety Certificate for cargo ships with less than 500 gross tonnage.

Regulation 10 Surveys of structure, machinery and equipment of cargo ships *with a gross tonnage of 500 and upwards*

(a) The structure, machinery and equipment (other than items in respect of which Cargo Ship Safety Equipment Certificates or Cargo Ship Safety Radio Certificates are issued) as referred to in paragraph (b)(i) shall be subjected to surveys and inspections as follows:

(i) An initial survey, before the ship is put into service, including an inspection of the outside of the ship's bottom[10];

(ii) A renewal survey at intervals specified by the Administration, but not exceeding 5 years, except in cases where Regulation 14(b), (e), (f) and (g) is applicable.

(iii) An intermediate survey within 3 months before or after the 2nd anniversary date or within 3 months before or after the 3rd anniversary date of the Cargo Ship Safety Construction Certificate. The survey shall replace one of the annual surveys referred to in paragraph (a)(iv).

(iv) An annual survey within 3 months before or after each anniversary date of the Cargo Ship Safety Construction Certificate.

(v) At least two inspections of the outside of the ship's bottom during a 5 year period, with the exception of those cases where Regulation 14(e) or (f) is applicable. Where Regulation 14(e) or (f) is applicable, the 5-year period may be extended to coincide with the extended period of validity of the certificate. In no case must the interval between two such inspections exceed 36 months.

(vi) An additional survey, as prescribed for passenger ships in Regulation 7(b)(iii).

(b) The surveys and inspections referred to in paragraph (a) shall be carried out as follows:

(i) Initial surveys shall include a complete inspection of structure, machinery and equipment. This survey shall be such as to ensure that the arrangements, material, scantlings and workmanship of the structure, boilers and other pressure vessels and their appurtenances, main and auxiliary machinery, including steering gear and associated control systems, electrical installations and other equipment comply with the requirements of the present regulations, are in satisfactory condition and fit for the service for which the ship is intended, and that the necessary stability information is provided. Where cargo ships are concerned, a survey shall also include an inspection of the pump-rooms, cargo and bunker-piping systems, vent piping and associated safety devices;

[10] Refer to: PSLS.2/Circ.5, Circular concerning inspection of the outside of the ship's bottom.

(ii) Renewal surveys shall include inspection of structure, machinery and equipment as stated in paragraph (b)(i) for the purpose of ensuring that they comply with the requirements of the present regulations, are in satisfactory condition and fit for the service for which the ship is intended;

(iii) The intermediate survey shall include an inspection of structure, boilers and other pressure vessels, machinery and equipment, steering gear and associated control systems and electrical installations for the purpose of ensuring that they continue to be adequate for the service for which the ship is intended. Where cargo ships are concerned, the survey shall also include an inspection of the pump-rooms, cargo and bunker-piping systems, vent piping and associated safety devices and testing of the insulation resistance of the electrical equipment in dangerous zones;

(iv) The annual survey shall include a general inspection of the structure, machinery and equipment referred to in paragraph (b)(i) for the purpose of ensuring that it has been maintained in accordance with Regulation 11(a), and that it is still adequate for the service for which the ship is intended;

(v) Inspection of the outside of the ship's bottom and the survey of the associated items that are inspected at the same shall be carried out so as to ensure that they remain adequate for the service for which the ship is intended.

(c) The intermediate and annual surveys and the inspection of the outside of the ship's bottom, as referred to in paragraph (a)(iii), (a)(iv) and (a)(v) shall be endorsed on the Cargo Ship Safety Construction Certificate.

Regulation 10-1 Surveys of structure, machinery and equipment of cargo ships with less than 500 gross tonnage

(a) Cargo ships with a length (L) of 15 m or above or with a scantling number of 100 or above, but with a gross tonnage below 500, shall be subjected to the following surveys and inspections with regard to structure, machinery and equipment:

(i) An initial survey, before the ship is put into service, including an inspection of the outside of the ship's bottom.

(ii) A renewal survey at intervals not exceeding 5 years.

(iii) A minimum of two inspections of the outside of the ship's bottom during a 5 year period, with the exception of those cases where Regulation 14-1(d) is applicable. Where

Regulation 14-1(d) is applicable, the 5-year period may be extended to coincide with the extended period of validity of the certificate. In no case must the interval between two such inspections exceed 36 months.

(b) The surveys and inspections referred to in paragraph (a) shall be carried out as follows:

(i) The initial survey shall include a complete inspection of the ship's structure, machinery and equipment, including the outside of the ship's bottom. This survey shall be such as to ensure that the arrangements, material, scantlings and workmanship of the structure, boilers and other pressure vessels and their appurtenances, main and auxiliary machinery, including steering gear and associated control systems, electrical installations and other equipment comply with the requirements of the present regulations, are in satisfactory condition and fit for the service for which the ship is intended, and that the necessary stability information is provided. Where cargo ships are concerned, a survey shall also include an inspection of the pump-rooms, cargo and bunker-piping systems, vent piping and associated safety devices.

(ii) Renewal surveys shall include inspection of structure, including the outside of the ship's bottom, machinery and equipment as stated in paragraph (b)(i) for the purpose of ensuring that they comply with the requirements of the present regulations[11], are in satisfactory condition and fit for the service for which the ship is intended;

(iii) Inspection of the outside of the ship's bottom and the survey of the associated items that are inspected at the same shall be carried out so as to ensure that they remain adequate for the service for which the ship is intended. The survey shall also include an inspection of the rudder, propeller shafting and all sea connections under the deepest operating waterline.

(d) The said inspection of the outside of the ship's bottom shall be endorsed on the ship's safety certificate.

Regulation 11Maintenance of conditions after survey

[11] In the case of cargo ships constructed before 1 January 2002, the rules in force at the time of construction, as amended. For ships constructed after 1 June 1985 but before 1 January 2002, Notice C from the Danish Register of Ships, as amended.

(a) The condition of the ship and its equipment shall be maintained to conform with the provisions of the present regulations to ensure that the ship in all respects will remain fit to proceed to sea without danger to the vessel or persons on board.

(b) After any survey of the ship under regulations 7, 8, 9 or 7 has been completed, no change shall be made in the structural arrangement, machinery, equipment and other items covered by the survey, without the sanction of the Administration.

(c) Whenever an accident occurs to a vessel or a defect is discovered, either of which affects the safety of the vessel or the efficiency or completeness of its life-saving appliances or other equipment, the skipper or owner of the vessel shall report at the earliest opportunity to the Administration, the nominated surveyor or recognised organisation responsible for issuing the relevant certificate, who shall cause investigations to be initiated to determine whether a survey, as required by Regulations 7, 8, 9 or 10, is necessary. If the vessel is in a port of another Party, the skipper or owner shall also report immediately to the appropriate authorities of the port State and the nominated surveyor or recognised organisation shall ascertain that such a report has been made.

(d) When damage of any significance occurs to a ship or an accident occurs on board resulting in loss of life or significant personal injury, the ship owner shall, as soon as possible hereafter, inform the Danish Maritime Authority thereof, who shall then decide the scope of any survey.

Regulation 12Issue or endorsement of certificates[12]

Except for paragraph (a)(iv), which applies to cargo ships with a gross tonnage of 300 and above, this Regulation shall not apply to cargo ships with a gross tonnage of less than 500.

(a) (i) A certificate called a Passenger Ship Safety Certificate shall be issued after an initial survey or renewal survey to a passenger ship which complies with the requirements of Chapters II-1, II-2, III, IV and V and any other relevant requirements of the present Regulations.

After the said survey on a passenger ship, a further permit to carry passengers shall be issued. The permit shall contain details of the ship's area of operation, the maximum permitted number of passengers and the date by which the

[12] Refer to: Resolution A.791(19), Application of the International Convention on Tonnage Measurement of Ships, 1969, to existing ships.

next periodical survey must be carried out. The validity of the permit expires on the date the next renewal survey is due. The permit shall be issued in duplicate, one copy of which shall be placed in a location on board where passengers can easily see it. The other copy shall be kept with the ship's survey book.

(ii) A certificate called a Cargo Ship Safety Construction Certificate shall be issued after an initial survey or renewal survey to a cargo ship which complies with the requirements of Chapters II-1, II-2 (except for the requirements relating to fire safety systems, extinguishers and fire control plans) and any other relevant requirements of the present Regulations.

After an initial survey of a cargo ship, a further permit shall be issued for the ship to enter into service. The trading permit shall state the area in which the ship may operate and the terms on which the ship may be used. Furthermore, the maximum number of persons that the ship may carry with the life-saving appliances on board shall be stated.

(iii) A certificate called a Cargo Ship Safety Equipment Certificate[13] shall be issued after an initial survey or renewal survey to a cargo ship which complies with the requirements of Chapters II-1, II-2, III, and V and any other relevant requirements of the present Regulations.

(iv) A certificate called a Cargo Ship Safety Radio Certificate shall be issued after an initial survey or renewal survey to a cargo ship which complies with the requirements of Chapter IV and all other relevant requirements of the present Regulations.

(v) (1) A certificate called a Cargo Ship Safety Certificate may be issued after an initial survey or renewal survey to a cargo ship which complies with the relevant requirements in Chapters II-1, II-2, III, IV and V and any other relevant requirements of the present Regulations as an alternative to those specified in paragraph (a)(ii), (a)(iii) and (a)(iv).

(2) Where this Chapter refers to a Cargo Ships Safety Construction Certificate, a Cargo Ship Safety Equipment Certificate or a Cargo Ship Safety Radio Certificate, it shall also apply to the Cargo Ship Safety Certificate if used as an alternative to these certificates.

[13] Refer to: PSLS.2/Circ.1, Circular concerning issue of supplements and attachments.

(vi) The Passenger Ship Safety Certificate, Cargo Ship Safety Equipment Certificate, Cargo Ship Safety Radio Certificate referred to in subparagraphs (i), (iii), (iv) and (v) shall be supplemented by a record of equipment.

(vii) When an exemption is granted under and in accordance with the provisions of the present Regulations, a certificate called an Exemption Certificate shall be issued in addition to the certificates prescribed in this paragraph.

(viii) Certificates referred to in this Regulation shall be issued or endorsed by the Administration or by any person or organisation duly authorised by it. In every case, that Administration assumes full responsibility for the certificates.

b) A Contracting Government shall not issue certificates under, and in accordance with, the provisions of the International Convention for the Safety of Life at Sea, 1960, 1948 or 1929, after the date on which acceptance of the present Convention by the Government takes effect.

Regulation 12-1 Issue of certificates for cargo ships with a gross tonnage of less than 500

(i) After an initial survey of a cargo ship, a permit shall be issued for the ship to enter into service. The trading permit shall state the area in which the ship may operate and the terms on which the ship may be used. Furthermore, the maximum number of persons that the ship may carry with the life-saving appliances on board shall be stated.

(ii) A national certificate called a National Cargo Ship Safety Certificate shall be issued after an initial survey or renewal survey to a cargo ship which complies with the requirements of Chapters II-1, II-2, III, IV and V and any other relevant requirements of the present Regulations. For existing cargo ships constructed before 1 January 2002 that comply with the regulations[14] and requirements pertaining to the ship in force, a Cargo Ship Safety Certificate shall be issued after a renewal survey. On cargo ships with a gross tonnage of 300 and above, the relevant requirements for radio installations shall be covered by the Cargo Ship Safety Radio Certificate

[14] In the case of cargo ships constructed before 1 January 2002, the rules in force at the time of construction, as amended. For ships constructed after 1 June 1985 but before 1 January 2002, Notice C from the Danish Register of Ships, as amended.

referred to in Regulation 12 (iv). On cargo ships classified by a classification society, the relevant requirements for hull structure, strength, anchor equipment, machinery, boiler plants, equipment and installations to be designated periodically unattended engine space and electrical installations shall be covered by the classification certificates for hull and machinery. The Cargo Ship Safety Certificate shall be supplemented by a Record of Equipment for the Cargo Ship Safety Certificate.

(iii) If a ship has been granted an exemption in accordance with these Regulations, this shall be noted on the Cargo Ship Safety Certificate and in the survey book required under Regulation 22.

(iv) Certificates referred to in this Regulation shall be issued or endorsed by the Administration or by any person or organisation duly authorised by it.

Regulation 13Issue or endorsement of certificates by another Government

This Regulation shall not apply to certificates issued in accordance with Regulation 12-1.

A Contracting Government may, at the request of the Administration, cause a ship to be surveyed and, if satisfied that the requirements of the present regulations are complied with, shall issue, or authorise the issue of, certificates to the ship and, where applicable, endorse, or authorise the endorsement of, certificates for the ship in accordance with the present Regulations. Any certificate so issued shall contain a statement to the effect that it has been issued at the request of the Government of the State whose flag the ship is or will be entitled to fly and it shall have the same force and receive the same recognition as a certificate issued under Regulation 12.

Regulation 14Duration and validity of certificates

This Regulation shall not apply to certificates issued in accordance with Regulation 12-1.

(a) A Passenger Ship Safety Certificate shall be issued for a period not exceeding 12 months. A Cargo Ship Safety Construction Certificate, Cargo Ship Safety Equipment Certificate and Cargo Ship Safety Radio Certificate shall be issued for a period laid down by the Administration, but not exceeding 5 years. Exemption Certificates shall not be valid for longer than the period of the certificates to which they refer.

A permit to carry passengers shall be valid until the date of the next renewal survey.

A trading permit shall be valid for as long as the conditions of the use of the ship and the survey intervals on the Cargo Ship Safety Certificate are complied with.

(b) (i) Notwithstanding the requirements of paragraph (a), when a renewal survey has been carried out within 3 months prior to the expiry of the existing certificate, the new certificate shall be valid from the day on which the main survey was carried out until:

(1) in the case of passenger ships: not more than 12 months from the expiry date of the existing certificate;

(2) in the case of cargo ships: not more than 5 years from the expiry date of the existing certificate;

(ii) When a renewal survey is carried out after the expiry date of the existing certificate, the new certificate shall be valid from the day on which the renewal survey was carried out until:

(1) in the case of passenger ships: not more than 12 months from the expiry date of the existing certificate;

(2) in the case of cargo ships: not more than 5 years from the expiry date of the existing certificate;

(iii) When a renewal survey is carried out more than 3 months before the expiry date of the existing certificate, the new certificate shall be valid from the day on which the renewal survey was carried out until:

(1) in the case of passenger ships: not more than 12 months from the day on which the renewal survey was carried out;

(2) in the case of cargo ships: not more than 5 years from the day on which the renewal survey was carried out.

(c) With the exception of Passenger Ship Safety Certificates, in the case of certificates issued for a period of less than 5 years, the Administration may extend the certificate's period of validity past the expiry date up to the maximum period laid down in paragraph (a), provided that surveys as referred to in Regulations 8, 9 and 10, which apply to certificates issued for a 5-year period, are carried out as prescribed.

(d) If a renewal survey is carried out and a new certificate cannot be issued or brought on board the ship before the expiry date of the existing certificate, the person or organisation so authorised by

the Administration may endorse the existing certificate and such a certificate shall be accepted as valid for an extended period, which must not exceed 5 months after the expiry date.

(e) If the ship at the time the certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the certificate, but such extension shall be granted only for the purpose of permitting the ship to complete its voyage to the port in which it is to be surveyed and then only in cases where it appears proper and reasonable to do so. No certificate may be extended for a longer period than 3 months, and a ship to which an extension is granted shall not, on its arrival at the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having obtained a new certificate. When a renewal survey is carried out, the new certificate shall be valid until:

(i) in the case of passenger ships: not more than 12 months from the expiry date of the existing certificate before the extension was granted;

(ii) in the case of cargo ships: not more than 5 years from the expiry date of the existing certificate before the extension was granted.

(f) A certificate, issued to a ship engaged on short voyages, which has not been extended in accordance with the foregoing provisions of this Regulation, may be extended by the Administration for a period of grace up to one month from the date of expiry stated on it. When a renewal survey is carried out, the new certificate shall be valid until:

(i) in the case of passenger ships: not more than 12 months from the expiry date of the existing certificate before the extension was granted;

(ii) in the case of cargo ships: not more than 5 years from the expiry date of the existing certificate before the extension was granted.

(g) In special cases, as determined by the Administration, a new certificate need not be dated from the expiry date of the existing certificate, as required in paragraph (b)(ii), (e) or (f). In these special cases, the new certificate shall be valid until:

(i) in the case of passenger ships: not more than 12 months from the day on which the renewal survey is carried out;

(ii) in the case of cargo ships: not more than 5 years from the day on which the renewal survey is carried out.

(h) If an annual, intermediate or periodical survey is carried out before the period stated in the relevant regulations, the following shall apply:

(i) the anniversary date stated on the relevant certificate shall be changed by endorsement to a date not more than 3 months later than the date on which the survey was carried out.

(ii) the subsequent annual, intermediate or periodical survey required by the relevant regulations shall be carried out at intervals prescribed in these Regulations, using the new anniversary date.

(iii) the expiry date can remain unchanged, provided that one or more annual, intermediate or periodical surveys, according to circumstances, are carried out such that the maximum interval between the surveys as prescribed in the relevant regulations is not exceeded.

(i) A certificate issued pursuant to Regulation 12 or 13 shall cease to be valid in any of the following cases:

(i) if the relevant surveys and inspections are not carried out within the periods specified under Regulations 7(a), 8(a), 9(a) and 10(a);

(ii) if the certificate is not endorsed in accordance with the present Regulations.

(iii) upon transfer of the vessel to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the vessel is in compliance with the requirements of regulation 11(a) and (b). In the case of transfer between Parties, if requested within three months after the transfer has taken place, the Government of the State whose flag the vessel was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificates carried by the vessel before the transfer and, if available, copies of the relevant survey reports.

Regulation 14-1 Duration and validity of certificates in cargo ships with a gross tonnage of less than 500

This Regulation shall only apply to certificates issued in accordance with Regulation 12-1.

(a) A national trading permit shall be valid for as long as the conditions of the use of the ship and the survey intervals on the national Cargo Ship Safety Certificate are complied with.

(b) *A national Cargo Ship Safety Certificate shall be issued for a period not exceeding 5 years.*

(c) *(i)* *When a renewal survey has been carried out within 3 months before the expiry date of the existing certificate, the new certificate shall be valid from the day on which the renewal survey was completed and for not more than 5 years from the expiry date of the existing certificate.*

(ii) *When a renewal survey has been carried out after the expiry date of the existing certificate, the new certificate shall be valid from the day on which the renewal survey was completed and for not more than 5 years from the expiry date of the existing certificate.*

(iii) *When a renewal survey is carried out more than 3 months before the expiry date of the existing certificate, the new certificate shall be valid for not more than 5 years from the day on which the renewal survey was completed.*

(d) *The Administration may extend the validity of the certificate beyond the date of expiry in accordance with the provisions of Regulation 14(c) to (h).*

(e) *A certificate issued pursuant to Regulation 12-1 shall cease to be valid in any of the following cases:*

(i) *if the relevant surveys and inspections are not carried out within the periods specified under Regulations 8-1(a) and (b), 9-1(a), and 10-1(a);*

(ii) *upon transfer of the vessel to the flag of another State.*

Regulation 15Form of certificates and records of equipment

This Regulation shall not apply to certificates issued in accordance with Regulation 12-1.

The certificates and the records of equipment shall be drawn up in a form corresponding to the models given in the appendix[15] to this Convention (*SOLAS 74*). If the language used is neither English or French, the text shall contain a translation into one of these languages[16].

Regulation 15-1 Form of certificates and records of equipment for cargo ships with a gross tonnage of less than 500

This Regulation shall apply to certificates issued in accordance with Regulation 12-1.

The certificates and the records of equipment shall be drawn up in a form corresponding to the models given in the Appendix 2. The certificates shall be drawn up in English and may be provided with a Danish subtext.

Regulation 16Accessibility of certificates

Certificates issued under Regulations 12 or 13 *and Regulation 12-1* shall be readily available on board for examination at all times.

Regulation 17Acceptance of certificates

This Regulation shall not apply to certificates issued in accordance with Regulation 12-1.

Certificates issued under the authority of a Contracting Government shall be accepted by the other Contracting Governments for all purposes covered by the present Convention *(SOLAS 74)*. They shall be regarded by the other Contracting Governments as having the same force as certificates issued by them.

Regulation 18Qualification of certificates

(a) If in the course of a particular voyage a ship has on board a number of persons less than the total number stated in the

[15] Refer to Appendix 1.

[16] Refer to: Resolution A.561(14), Translation of the text of certificates.

Passenger Ship Safety Certificate and is in consequence, in accordance with the provisions of the present Regulations, free to carry a smaller number of lifeboats and other life-saving appliances than that stated in the certificate, an annex may be issued by the Government, person or organisation referred to in Regulations 12 or 13 of this Chapter.

(b) This annex shall state that in the circumstances there is no infringement of the provisions of the present Regulations. It shall be annexed to the certificate and shall be substituted for it in so far as the life-saving appliances are concerned. It shall be valid only for the particular voyage for which it is issued.

Regulation 19Control[17]

(a) Every ship when in a port of another Party is subject to control by officers duly authorised by such Government in so far as this control is directed towards verifying that the certificates issued under Regulation 12 or Regulation 13 of this Chapter are valid.

(b) Such certificates, if valid, shall be accepted unless there are clear grounds for believing that the condition of the ship or of its equipment does not correspond substantially with the particulars of any of the certificates or that the ship or its equipment does not comply with the provisions of Regulation 11(a) and (b).

(c) In the circumstances given in paragraph (b) or where a certificate has expired or ceased to be valid, the officer carrying out the control shall take steps to ensure that the ship shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the appropriate repair yard without danger to the ship or persons on board.

(d) In the event of this control giving rise to an intervention of any kind, the officer carrying out the control shall forthwith inform, in writing, the Consul or, in his absence, the nearest diplomatic representative of the State whose flag the ship is entitled to fly of all the circumstances in which intervention was deemed necessary. In addition, nominated surveyors or recognised organisations responsible for the issue of the certificates shall also be notified. The facts concerning the intervention shall be reported to the Organisation.

(e) The port State authority concerned shall notify all relevant information about the ship to the authorities of the next port of call, in addition to parties mentioned in paragraph (d), if it is

[17] Refer to: Resolution A 787 (19), Procedures for port State control, as amended by Resolution A.882(21).

unable to take action as specified in paragraphs (c) and (d) or if the ship has been allowed to proceed to the next port of call.

(f) When exercising control under this Regulation all possible efforts shall be made to avoid a ship being unduly detained or delayed. If a ship is thereby unduly detained or delayed it shall be entitled to compensation for any loss or damage suffered.

Regulation 20

Privileges The privileges of the present Convention *(SOLAS 74)* may not be claimed in favour if any ship unless it holds appropriate valid certificates.

Part C Casualties

Regulation 21 Casualties

(a) Each Administration undertakes to conduct an investigation of any casualty occurring to any of its ships subject to the provisions of the present Convention *(SOLAS 74)* when it judges that such an investigation may assist in determining what changes in the present Regulations might be desirable[18].

(b) Each Contracting Government undertakes to supply the Organisation with pertinent information concerning the findings of such investigations. No reports or recommendations of the Organisation based upon such information shall disclose the identity or nationality of the ships concerned or in any manner fix or imply responsibility upon any ship or person.

Part D Miscellaneous items

[18] Refer to the following resolutions adopted by the Organisation:
Resolution A.173(ES.IV): Participation in official inquiries into marine casualties.
Resolution A.203(VII): Recommendation on the conclusion of agreements and arrangements between States on the question of access and employment of foreign seaborne salvage equipment in territorial waters.
Resolution A.322(IX): The conduct of investigations into casualties.
Resolution A.440(XI): Exchange of information for investigations into marine casualties.
Resolution A.442(XI): Personnel and material resource needs of Administrations for the investigation of casualties and contraventions of conventions.
Resolution A.637(16): Co-operation in marine casualty investigations.
Resolution A.849(20): Code for the investigation of marine casualties and incidents.
Resolution A.884(21): Amendments to the code for the investigation of marine casualties and incidents.

Refer also to:
MSC/Circ. 539/Add.2: Reports on casualty statistics concerning fishing vessels and fishermen at sea.
MSC/Circ. 827: Reports on marine casualties and incidents. Harmonised reporting procedures – Reports required under SOLAS regulation I/21 and MARPOL 73/78 articles 8 and 12.
Order No 31 of 14 January 2003 on investigation of casualties at sea.

Regulation 22*Survey book*

Any ship covered by these regulations shall be provided with a survey book. The survey book issued by the Danish Maritime Authority shall be kept in compliance with the instructions printed in the log book. A completed survey book shall be retained on board until it is attested by the Danish Maritime Authority in the new survey book that all necessary information has been transferred from the completed book to the new one[19].

Regulation 23*General safety*

Adequate measures shall be taken to safeguard against accidents during normal operation of the ship so that while working or residing on board or while embarking or disembarking, as far as possible, no one is put at risk of coming to harm, except as a result of a lack of due care and attention.

[19] Where electronic data processing is used for the registration of inspections, tests and drills, and where the requirement to record such information in the survey book may involve double registration, the Danish Maritime Authority shall accept a transcript of the said registrations provided that such transcripts are properly stored. The Danish Maritime Authority has issued a binder for storing annexes to the survey book, where the master can insert such transcripts and the ship surveyors of the Danish Maritime Authority can insert transcripts containing requirements made in connection with surveys while referring hereto in the survey book.

Chapter B II-1 A.
1 September 2004

Technical Regulation on the construction and equipment etc. of ships

C H A P T E R I I - 1

Construction – subdivision and stability, machinery and electrical installations

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C H A P T E R I I - 1

Construction – subdivision and stability, machinery and electrical installations

Part A General provisions

Regulation 1 Area of application

1.1 Unless expressly provided otherwise, this Chapter shall apply to *passenger ships, irrespective of size, and cargo* ships *with a gross tonnage of 500 or above*, the keels of which are laid or which are at a similar stage of construction on or after 1 July 1986 *and to cargo ships with a gross tonnage below 500, the keels of which are laid on or after 1 January 2002*.

1.2 For the purposes of this Chapter, the term "a similar stage of construction" means the stage at which:

.1 construction identifiable with a specific ship begins; and

.2 assembly of that ship has commenced comprising at least 50 tonnes or 1% of the estimated mass of all structural material, whichever is less.

1.3 For the purpose of this chapter:

.1 the expression "ships constructed" means ships the keels of which are laid down or which are at a similar stage of construction;

.2 the expression "all ships" means *passenger ships irrespective of size and cargo* ships *with a gross tonnage of 500 or above*, constructed before on or after 1 July 1986 *and cargo ships with a gross tonnage of less than 500 constructed on or after 1 January 2002*;

.3 a cargo ship, whenever built, which is converted to a passenger ship shall be treated as a passenger ship constructed on the date on which such a conversion commenced.

2 Unless expressly provided otherwise, for *passenger ships, irrespective of size and cargo* ships *with a gross tonnage of 500 and above* constructed before 1 July 1986, the Administration shall ensure that the requirements which are applicable under chapter II-1 of the International Convention for the Safety of Life

at Sea (SOLAS), 1974, as amended by Resolution MSC.1 (XLV), are complied with.

3.1 All ships which undergo repairs, alterations, modifications and outfitting related thereto shall continue to comply with at least the requirements previously applicable to these ships. Such ships if constructed before 1 July 1986 shall, as a rule, comply with the requirements for ships constructed on or after that date to at least the same extent[20] as they did before undergoing such repairs, alterations, modifications or outfitting. Repairs, alterations and modifications of a major character and outfitting related thereto shall meet the requirements for ships constructed on or after 1 July 1986 in so far as the Administration deems reasonable and practicable[21].

3.2 Notwithstanding the provisions of paragraph 3.1, passenger ships which undergo repairs, alterations and modifications in order to comply with the requirements of Regulation 8-1[22] shall not be regarded as having undergone repairs, alterations and modification of a major character.

4 The Administration of a State may, if it considers that the sheltered nature and conditions of the voyage are such as to render the application of any specific requirements of this Chapter unreasonable or unnecessary, exempt[23] from those requirements individual ships or classes of ships entitled to fly the flag of that State which, in the course of their voyage, do not proceed more than 20 miles from the nearest land.

5 In the case of passenger ships which are employed in special trades for the carriage of large numbers of special trade passengers, such as the pilgrim trade, the Administration, if satisfied that it is impracticable to enforce compliance with the requirements of this Chapter, may exempt such ships from those requirements, provided that they comply fully with the provisions of:

.1 the rules annexed to the Special Trade Passenger Ships Agreement, 1971; and

.2 the rules annexed to the Protocol on Space Requirements for Special Trade Passenger Ships, 1973.

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[20] Refer to: MSC/Circ.650, Interpretation of alterations and modifications of a major character.

[21] Refer to: MSC/Circ.609, Interpretation of Regulation II/1.3 of the 1974 SOLAS.

[22] The reference to Regulation 8-1 applies from 1 July 1997, otherwise refer to the 1992 amendments to SOLAS (Resolution MSC. 26(60)).

[23] Refer to: MSC/Circ.606, Port State concurrence with SOLAS exemptions.

Regulation 2 Definitions

For the purpose of this Chapter, unless expressly provided otherwise:

1.1 'Subdivision load line' is a waterline used in determining the subdivision of the ship.

1.2 'Deepest subdivision load line' is the waterline which corresponds to the greatest draught permitted by the subdivision requirements which are applicable.

2 'Length of the ship' is the length measured between perpendiculars taken at the extremities of the deepest subdivision load line.

3 'Breadth of the ship' is the extreme width from outside of frame to outside of frame at or below the deepest subdivision load line.

4 'Draught' is the vertical distance from the moulded base line amidships to the subdivision load line in question.

5 'Bulkhead deck' is the uppermost deck up to which the transverse watertight bulkheads are carried.

6 'Margin line' is a line drawn at least 76 mm below the upper surface of the bulkhead deck at side.

7 'Permeability of a space' is the percentage of that space which can be occupied by water. The volume of a space which extends above the margin line shall be measured only to the height of that line.

8 'Machinery space' is to be taken as extending from the moulded base line to the margin line and between the extreme main transverse watertight bulkheads, bounding the spaces containing the main and auxiliary propulsion machinery, boilers serving the needs of propulsion, and all permanent coal bunkers. In the case of unusual arrangements, the Administration may define the limits of the machinery space.

9 'Passenger spaces' are those spaces which are provided for the use of passengers, excluding baggage, store, provision and mail rooms. For the purposes of Regulations 5 and 6, spaces provided below the margin line for the accommodation and use of the crew shall be regarded as passenger spaces.

10 In all cases volumes and areas shall be calculated to moulded lines.

11 'Weathertight' means that in any sea conditions water will not penetrate into the ship.

12 ‘Oil tanker’ is an oil tanker as defined in Regulation 1 of Annex 1 to the 1978 Protocol to the International Convention for the Prevention of Pollution from Ships, 1973.

13 ‘Ro-ro passenger ship’ is a passenger ship with a ro-ro cargo space or a special category space as defined in Regulation II-2/3.

Regulation 3 Definitions relating to parts C, D and E

For the purpose of parts C, D and E, unless expressly provided otherwise:

1 ‘Steering gear control system’ is the equipment by which orders are transmitted from the navigating bridge to the steering gear power units. Steering gear control systems comprise transmitters, receivers, hydraulic control pumps and their associated motors, motor controllers, piping and cables.

2 ‘Main steering gear’ is the machinery, rudder actuators, steering gear power units, if any, and ancillary equipment and the means of applying torque to the rudder stock (e.g. tiller or quadrant) necessary for effecting movement of the rudder for the purpose of steering the ship under normal service conditions.

3 ‘Steering gear power unit’ means in the case of:

.1 electric steering gear, an electric motor and its associated electrical equipment;

.2 electro-hydraulic steering gear, an electric motor and its associated electrical equipment and connected pump;

.3 other hydraulic steering gear, a driving engine and connected pump.

4 ‘Auxiliary steering gear’ is the equipment other than any part of the main steering gear necessary to steer the ship in the event of failure of the main steering gear but not including the tiller, quadrant or components serving the same purpose.

5 ‘Normal operational and habitable condition’ means a condition under which the ship as a whole, the machinery, services, means and aids ensuring propulsion, ability to steer, safe navigation, fire and flooding safety, internal and external communications and signals, means of escape and emergency boat winches, as well as the designed comfortable conditions of habitability are in proper working order and functioning normally.

6 ‘Emergency condition’ is a condition under which any services needed for normal operational and habitable conditions are not in working order due to failure of the main source of electrical power.

7 ‘Main source of electrical power’ is a source intended to supply electrical power to the main switchboard for distribution to all services necessary for maintaining the ship in normal operational and habitable condition.

8 ‘Dead ship condition’ is the condition under which the main propulsion plant, boilers and auxiliaries are not in operation due to the absence of power.

9 ‘Main generating station’ is the space in which the main source of electrical power is situated.

10 ‘Main switchboard’ is a switchboard directly supplied by the main source of electrical power and is intended to distribute electrical energy to the ship’s services.

11 “Emergency switchboard’ is a switchboard which in the event of failure of the main electrical power supply system is directly supplied by the emergency source of electrical power or the transitional source of emergency power and is intended to distribute electrical energy to the emergency services.

12 ‘Emergency source of electrical power’ is a source of electrical power, intended to supply the emergency switchboard in the event of failure of the supply from the main source of electrical power.

13 ‘Power actuating system’ is the hydraulic equipment provided for supplying power to turn the rudder stock, comprising a steering gear power unit or units, together with the associated pipes and fittings, and a rudder actuator. The power actuating systems may share common mechanical components, i.e. tiller, quadrant and rudder stock, or components serving the same purpose.

14 ‘Maximum ahead service speed’ is the greatest speed which the ship is designed to maintain in service at sea at the deepest seagoing draught.

15 ‘Maximum astern speed’ is the speed which it is estimated the ship can attain at the designed maximum astern power at the deepest seagoing draught.

16 ‘Machinery spaces’ are all machinery spaces of Category A and all other spaces containing propelling machinery, boilers, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilising, ventilation and air conditioning machinery, and similar spaces, and trunks to such spaces.

17 ‘Machinery spaces of Category A’ are those spaces and trunks to such spaces which contain:

.1 internal combustion machinery used for main propulsion; or

.2 Internal combustion machinery used for purposes other than main propulsion where such machinery has in the aggregate a total power output of not less than 375 kW; or

.3 any oil-fired boiler or oil fuel unit.

18 ‘Control stations’ are those spaces in which the ship’s radio or main navigating equipment or the emergency source of power is located, or where the fire recording or fire control equipment is centralised.

19 ‘Chemical tanker’ is a cargo ship constructed or adapted and used for the carriage in bulk of any liquid product listed in either:

.1 Chapter 17 of the International Code for the Construction of Equipment of Ships Carrying Dangerous Chemicals in Bulk adopted by the Maritime Safety Committee by Resolution MSC.4(48), hereinafter referred to as ‘the International Bulk Chemical Code’, as may be amended by the Organisation; or

.2 the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk adopted by the Organisation by Resolution A.212(VII), hereinafter referred to as ‘the Bulk Chemical Code’, as has been or may be amended by the Organisation;

whichever is applicable.

20 ‘Gas carrier’ is a cargo ship constructed or adapted and used for the carriage in bulk of any liquefied gas or other products listed in either:

.1 Chapter 19 of the International Code for the Construction of Equipment of Ships Carrying Liquefied Gases in Bulk adopted by the Maritime Safety Committee by Resolution MSC.5(48), hereinafter referred to as ‘the International Gas Carrier Code’, as may be amended by the Organisation; or

.2 Chapter XIX of the Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk adopted by the Organisation by Resolution A.328 (IX), hereinafter referred to as ‘the Gas Carrier Code’, as has been or may be amended by the Organisation.

whichever is applicable.

21 ‘Deadweight’ is the difference in tonnes between the displacement of a ship in water of a specific gravity of 1.025 at

the load waterline corresponding to the assigned summer freeboard and the lightweight of the ship.

22 'Lightweight' is the displacement of a ship in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feedwater in tanks, consumable stores, and passengers and crew and their effects.

Part A-1 Construction of ships

Regulation 3-1 Structural, mechanical and electrical requirements for ships

In addition to the requirements contained elsewhere in the present regulations, ships shall be designed, constructed and maintained in compliance with the structural, mechanical and electrical requirements of a classification society which is recognised by the Administration in accordance with the provisions of Regulation XI/1 with regard to hull design, strength, *material dimensions, anchors, chains, anchor winches and towing ropes*, machinery, *all boiler arrangements, equipment and installations to achieve the designation of periodically unattended machinery space* and electrical installations, or comply with the national standards of the Administration which provide an equivalent level of safety.

Regulation 3-2 Corrosion prevention of seawater ballast tanks

1 This Regulation applies to oil tankers and bulk carriers *with a gross tonnage of 500 or above* constructed on or after 1 July 1998.

2 All ballast tanks designed for seawater shall have an effective corrosion protection system, for example, a hard protective coating or similar protection.

This coating shall preferably be light in colour. The plans for the selection, use and maintenance of the system shall be approved by the Administration on the basis of Guidelines adopted by the

Organisation[24]. Where appropriate, active anodes shall also be used.

Regulation 3-3 Safe access to tanker bows

This Regulation shall apply to tankers with a gross tonnage of 500 or above

1 For the purpose of this Regulation and Regulation 3-4, tankers include oil tankers, as defined in Regulation 2.12, chemical tankers, as defined in Regulation VII/8.2 and gas tankers, as defined in Regulation VII/11.2.

Deadweight is as defined in Regulation II-1/3.21

2 Every tanker constructed on or after 1 July 1998 shall be provided with the means to enable the crew to gain safe access to the bow even in severe weather conditions. For tankers constructed before 1 July 1998, such means of access shall be fitted at the first planned docking after 1 July 1998, but not later than 1 July 2001. Such means of access shall be approved by the Administration based on the guidelines developed by the Organisation[25].

Regulation 3-4 Emergency towing arrangements on tankers

1 Emergency towing arrangements shall be fitted at both ends on board every tanker of not less than 20,000 tonnes deadweight.

2 For tankers constructed on or after 1 July 2002:

.1 The arrangement shall, at all times, be capable for rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing ship. At least one of the emergency towing arrangements shall be pre-rigged ready for rapid deployment;

.2 Emergency towing arrangements at both ends shall be of adequate strength taking into account the size and deadweight of the ship and the expected forces during bad weather conditions. The design and construction and prototype testing of the emergency towing arrangements

[24] Refer to: Resolution A.798(19), Guidelines for the selection, application and maintenance of corrosion prevention system of dedicated seawater ballast tanks.

[25] Refer to: Resolution MSC.62(67), Guidelines for safe access to tanker bows.

shall be approved by the Administration, based on the Guidelines developed by the Organisation[26].

3 For tankers constructed before 1 July 2002, the design and construction of emergency towing arrangements shall be approved by the Administration, based on the Guidelines developed by the Organisation.[27]

Regulation 3-5 New installation *and repairs* of materials containing asbestos[28]

1 This Regulation shall apply to materials used for the structure, machinery, electrical installations and equipment covered by the *SOLAS* Convention.

2 For all ships, new installation *and repairs* of materials which contain asbestos shall be prohibited, except for the following *chrysotile and chrysotile-containing materials*[29]:

.1 vanes used in rotary vane compressors and rotary vane vacuum pumps. *This exception shall not apply to installations in Danish ships;*

.2 watertight joints and linings used for the circulation of fluids when, at high temperature (in excess of 350°C) or pressure (in excess of $7x10^6$ Pa), there is a risk of fire, corrosion or toxicity; and

.3 supple and flexible thermal insulation assemblies used for temperatures above 1000° C.

Regulation 3-6 Access to and within spaces in and in front of the cargo area of oil tankers and bulk carriers

1 Application

26, 8 Refer to: Resolution MSC.35(63), Guidelines on emergency towing arrangements for tankers, which may be amended by the Organisation, and Resolution MSC.132(75), adoption of amendments to the Guidelines on emergency towing arrangements for tankers.

28 Refer also to Notices A from the Danish Maritime Authority, Technical regulation on the working environment on ships, according to which it is prohibited to import or purchase ships containing asbestos.

29 Attention is drawn to Commission Directive 1999/77/EC relating to restrictions on the marketing and use of certain dangerous substances and preparations (asbestos), according to which the listed exceptions no longer apply after 1 January 2005 in EU Member States and in countries that are signatory to the EEA Agreement.

1.1 Except as provided for in paragraph 1.2, this Regulation applies to oil tankers of 500 gross tonnage and over and bulk carriers, as defined in Regulation IX/1, of 20,000 gross tonnage and over, constructed on or after 1 January 2006. *For oil tankers of 500 gross tonnage and over and bulk carriers, as defined in Regulation IX/1, of 20,000 and over constructed on or after 1 January 2005, but before 1 January 2006, the corresponding rules of the regulation dated 20 August 2003 and the chapter book dated 1 September 2003* [30] *shall apply.*

1.2 Oil tankers of 500 gross tonnage and over constructed on or after 1 October 1994 but before 1 January 2005 shall comply with the provisions of Regulation II-1/12-2 adopted by Resolution MSC.27(61).

2 Means of access to cargo and other spaces

2.1 Each space shall be provided with a permanent means of access to enable, throughout the life of a ship, overall and close-up inspections and thickness measurements of the ship's structures to be carried out by the Administration, the company, as defined in Regulation IX/1 and the ship's personnel and others as necessary. Such means of access shall comply with the requirements of paragraph 5 and with the technical provisions for means of access for inspections, adopted by the Maritime Safety Committee by Resolution [MSC.151(78)], as may be amended by the Organisation, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of Article VIII of the SOLAS Convention concerning the amendment procedures applicable to the Annex other than Chapter 1.

2.2 Where a permanent means of access may be susceptible to damage during normal cargo loading and unloading operations, or where it is impracticable to fit permanent means of access, the Administration may allow, in lieu thereof, the provision of movable or portable means of access, as specified in the technical provisions, provided that the means of attaching, rigging, suspending or supporting

[30] These most recent amendments enter into force on 1 January 2006, but may be applied immediately in place of the requirements currently in force that are to be met from 1 January 2005. Users who are shipping companies and shipyards are recommended to apply these most recent amendments from MSC 78 as far as possible in connection with construction and internal fittings on oil tankers and bulk ships from as early as 1 January 2005.

the portable means of access forms a permanent part of the ship's structure. All portable equipment shall be capable for being readily erected or deployed by ship's personnel.

2.3 The construction and materials of all means of access and their attachment to the ship's structure shall be to the satisfaction of the Administration. The means of access shall be subject to survey prior to, or in conjunction with, its use in carrying out surveys in accordance with Regulation I/10.

3 Safe access to cargo holds, cargo tanks, ballast tanks and other spaces

3.1 Safe access[31] to cargo holds, cofferdams, ballast tanks, cargo tanks and other spaces in the cargo area shall be direct from the open deck and such as to ensure their complete inspection. Safe access[32] to double bottom spaces may be from a pump-room, deep cofferdam, pipe tunnel, cargo hold, double hull space or similar compartment not intended for the carriage of oil or hazardous cargoes.

3.2 Tanks, and subdivisions of tanks, having a length of 35 m or more, shall be fitted with at least two access hatchways and ladders, as far apart as practicable. Tanks less than 35 m in length shall be served by at least one access hatchway and ladder. When a tank is subdivided by one or more swash bulkheads or similar obstructions which do not allow ready means of access to the other parts of the tank, at least two hatchways and ladders shall be fitted.

3.3 Each cargo hold shall be provided with at least two means of access as far apart as practicable. In general, these accesses should be arranged diagonally, for example one access near the forward bulkhead on the port side, the other one near the aft bulkhead on the starboard side.

4 Ship structure access manual

4.1 A ship's means of access to carry out overall and close-up inspections and thickness measurements shall be described in a Ship structure access manual approved by the Administration, an updated copy of which shall be kept on board. The Ship structure access manual shall include the following for each space:

.1 Plans showing the means of access to the space, with appropriate technical specifications and dimensions;

.2 Plans showing the means of access within each space to enable an overall inspection to be carried out, with appropriate technical specifications and dimensions. The plans shall indicate from where each area in the space can be inspected;

.3 Plans showing the means of access within each space to enable close-up inspection to be carried out, with

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[31] Refer to the Recommendations for entering enclosed spaces aboard ships, adopted by the Organisation by Resolution A.864(20).

[32] See note 12 above.

appropriate technical specifications and dimensions. The plans shall indicate the positions of critical structural areas, whether the means of access is permanent or portable and from where each area can be inspected;

.4 Instructions for inspecting and maintaining the structural strength of all means of access and means of attachment, taking into account any corrosive atmosphere that may be within the space;

.5 Instructions for safety guidance when rafting is used for close-up inspections and thickness measurements;

.6 Instructions for the rigging and use of any portable means of access in a safe manner;

.7 An inventory of all portable means of access; and

.8 Records of periodical inspections and maintenance of the ship's means of access.

4.2 For the purpose of this Regulation 'critical structural areas' are locations which have been identified from calculations to require monitoring or from the service history of similar or sister ships to be sensitive to cracking, buckling, deformation or corrosion which would impair the structural integrity of the ship.

5 General technical specifications

5.1 For access through horizontal openings, hatches or manholes, the dimensions shall be sufficient to allow a person wearing a self-contained air-breathing apparatus and protective equipment to ascend or descend any ladder without obstruction and also provide a clear opening to facilitate the hoisting of an injured person from the bottom of the space. The minimum clear opening shall not be less than 600 mm x 600 mm. When access to a cargo hold is arranged through the cargo hatch, the top of the ladder shall be placed as close as possible to the hatch coaming. Access hatch coamings having a height greater than 900 mm shall also have steps on the outside in conjunction with the ladder.

5.2 For access through vertical openings, or manholes, in swash bulkheads, floors, girders and web frames providing passage through the length and breadth of the space, the minimum opening shall be not less than 600 mm x 800 mm at a height of not more than 600 mm from the bottom shell plating unless gratings or other foot holds are provided.

5.3 For oil tankers of less than 5,000 tonnes deadweight, the Administration may approve, in special circumstances, smaller dimensions for the openings referred to in paragraphs 5.1 and 5.2 if the ability to traverse such openings or to remove an injured person can be proved to the satisfaction of the Administration.

Regulation 3-7 Guidelines for the construction and installation of suspended decks with associated safety devices in passenger ships

1.1 In passenger ships fitted with suspended decks for the carriage of private cars, the construction and installation of movable platforms with associated ramps shall be made in accordance with the regulations used by a classification society and the following provisions.

1.2 Ramps and suspended decks shall be made of incombustible materials, and any surface coating shall have low flame-spreading characteristics.

2 The suspended end of each ramp shall be provided with an automatic fall arresting system, which shall protect the ramp in case of wire breaks or failure of the main hydraulic system. Fall arresting systems may, however, be replaced by a double wire system or any other equivalent arrangement.

3 A safety factor of 6 shall be used in relation to the breaking load on the components used in the lifting system.

4 Automatic emergency stop valves shall be installed in connection with the hydraulic installation for the operation of ramps and platforms.

5.1 The suspended end of each ramp shall be provided with an automatic safety fender, which shall engage as soon as the ramps are raised above deck. The height of the safety fender shall be at least 200 mm.

5.2 The sides of the ramps and platforms facing away from house sides etc. shall be provided with a safety fender of at least 200 mm in height.

6.1 An illuminated warning notice shall be placed above each end of each ramp, containing the following text:

FÆRDSEL PÅ RAMPEN FORBUDT – FORBLIV I BILEN [WALKING ON THE RAMP IS PROHIBITED – REMAIN IN YOUR CAR]

6.2 The sign, which shall be visible to the drivers and passengers of vehicles parked on the ramp, shall be capable of being switched on and off manually, and be provided with automation to ensure that it is always switched on when the ramp is being operated. The sign shall be switched on before embarkation or disembarkation.

6.3 The sign shall not be switched off until the ramp has been secured in the horizontal position.

6.4 Furthermore, signs shall be erected at the control desk containing the following text:

"Before the ramps are operated, ensure that there is nobody on the ramps outside the vehicles."

7 It shall be possible to secure platforms and ramps in the stowed position, and the ramps in both the horizontal working position and in the stowed position. Platforms and ramps must not be permanently suspended from the lifting system.

8 The necessary guard rails and guards shall be designed and located according to the regulations. In principle, the guard rails shall comply with the requirements for guard rails or rails stipulated in the Load Line Convention. The guard rails are not required to be made with vertical posts.

9.1 Access doors to platforms and ramps shall be secured against opening when such platforms and ramps are in their highest position.

9.2 Where access doors to decks are located below ramps, these shall also be secured against opening when the ramps are being manoeuvred.

9.3 Ramps to platform decks must not block the approved escape routes.

10.1 Platforms and ramps shall be test-loaded in the presence of the Danish Maritime Authority or a recognised classification society in accordance with the provision on the testing and initial inspection of lifting appliances stipulated in the Technical

regulation on lifting appliances and loose gear on ships[33]*. Platforms shall be test-loaded with the loadings stipulated in the Technical regulation if one or both edges are suspended from stays or wires. If the platform rests on permanent brackets at both edges, test-loading shall not be carried out, but the entire load-bearing structure shall be inspected.*

10.2 *Ramps shall be statically test-loaded (supported at the movable end) with the test loadings stipulated in the Technical regulation on lifting appliances and loose gear.*

11 *Fall arrest systems shall not be tested with the ramp loaded, but a simulated release of the fall arrest shall be carried out with the ramp resting on trestles or similar apparatus. Where a double wire system has been installed instead of a fall arrest system, the ramps shall be test-loaded in the horizontal position with the loading referred to above.*

12 *When ramp and platform lifting devices are being used, a load test shall be carried out of each platform and ramp during movement from working position to rest position, or as close to this as possible, with the test loading prescribed (25% of the platform weight).*

13 *When the tests have been completed, the structure shall be thoroughly examined, and if any part of it shows deformation, cracking or any other damage of significance as far as safety is concerned the damage shall be remedied and a new test may be required by order of the Danish Maritime Authority in each individual case.*

14 *Periodic surveys.*

Periodic surveys shall be carried out in accordance with the provisions of the technical regulation on lifting appliances and loose gear on ships.

Functional tests and replacements shall be entered in the Register of ship's lifting appliances and loose gear.

[33] Refer to the Danish Maritime Authority's Technical regulation No 12 of 12 October 2000 on lifting appliances and loose gear etc. on ships.

ANNEX

Revised technical provisions for means of access for inspections and surveys[34]

1 Introduction

1.1 It has long been recognised that the only way of ensuring that the condition of ship's structure is maintained to conform with the applicable requirements is for all its components to be surveyed on a regular basis throughout their operational life. This will ensure that they are free from damage such as cracks, buckling or deformation due to corrosion, overloading or contact damage and that thickness diminution is within established limits. The provision of suitable means of access to the hull structure for the purpose of carrying out overall and close-up surveys and inspections is essential and such means should be considered and provided for at the ship design stage.

1.2 Ships should be designed and built with due consideration as to how they will be surveyed by flag State inspectors and classification society surveyors during their in-service life and how the crew will be able to monitor the condition of the ship. Without adequate access, the structural condition of the ship can deteriorate undetected and major structural failure can arise. A comprehensive approach to design and maintenance is required to cover the whole projected life of the ship.

1.3 In order to address this issue, the Organisation has developed these Technical provisions for means of access for inspections intended to facilitate close-up inspections and thickness measurements of the ship's structure referred to in SOLAS Regulation II-1/3-6 on Access to and within spaces in, and forward of, the cargo area of oil tankers and bulk carriers. This Regulation does not apply to combined chemical/oil tankers complying with the provision of the IBC Code and which are periodically engaged in the transport of oil cargoes.

1.4 Permanent means of access which are designed to be integral parts of the structure itself are preferred and Administrations may allow reasonable deviations to facilitate such designs.

2 Definitions

[34] The text reproduces the content of Resolution [MSC.151(78)], Adoption of technical provisions for means of access for inspections.

For the purpose of these Technical provisions, the following definitions apply in addition to those provided in the 1974 SOLAS Convention, as amended, and in Resolution A.744(18), as amended.

.1 'Rung' means the step of a vertical ladder or step on the vertical surface.

.2 'Tread' means the step of an inclined ladder or step for the vertical access opening.

.3 'Flight of an inclined ladder' means the actual stringer length of an inclined ladder. For vertical ladders, it is the distance between the platforms.

.4 'Stringer' means:

.1 the frame of a ladder, or

.2 the stiffened horizontal plating structure fitted on the side shell, transverse bulkheads and/or longitudinal bulkheads in the space. For the purpose of ballast tanks of less than 5 m width forming double side spaces, the horizontal plating structure is credited as a stringer and a longitudinal permanent means of access, if it provides a continuous passage of 600 mm or more in width past frames or stiffeners on the side shell or longitudinal bulkhead. Openings in stringer plating utilised as permanent means of access shall be arranged with guard rails or grid covers to provide safe passage on the stringer or safe access to each transverse web.

.5 'Vertical ladder' means a ladder of which the inclined angle is 70° and over up to 90°. A vertical ladder shall not be skewed by more than 2°.

.6 'Overhead obstructions' means the deck or stringer structure including stiffeners above the means of access.

.7 'Distance below deck head' means the distance below the plating.

.8 'Cross deck' means the transverse area of the main deck which is located inboard and between hatch coamings.

3 Technical provisions

3.1 Structural elements subject to the close-up inspections and thickness measurements of the ship's structure referred to in SOLAS Regulation II-1/3-6, except those in double bottom spaces, shall be provided with a permanent means of access to the extent specified in table 1 and table 2, as applicable. For oil tankers and wing ballast tanks of ore carriers, approved rafting may be used in combination with the specified permanent means of access, provided that the structure allows for its safe effective use.

3.2 Permanent means of access should as far as possible be integral to the structure of the ship, thus ensuring that they are robust and at the same time contributing to the overall strength of the structure of the ship.

3.3 Elevated passageways forming sections of a permanent means of access, where fitted, shall have a minimum clear width of 600 mm, except for going around vertical webs where the minimum clear width may be reduced to 450 mm, and have guard rails over the open side of their entire length. Sloping structures providing part of the access shall be of a non-skid construction. Guard rails shall be 1,000 mm in height and consist of a rail and an intermediate bar 500 mm in height and shall be of substantial construction. Stanchions shall be not more than 3 m apart.

3.4 Access to permanent means of access and vertical openings from the ship's bottom shall be provided by means of easily accessible passageways, ladders or treads. Treads shall be provided with lateral support for the foot. Where the rungs of ladders are fitted against a vertical surface, the distance from the centre of the rungs to the surface shall be at least 150 mm. Where vertical manholes are fitted higher than 600 mm above the walking level, access shall be facilitated by means of treads and hand grips with platform landings on both sides.

3.5 Permanent inclined ladders shall be inclined at an angle of less than 70°. There shall be no obstructions within 750 mm of the face of the inclined ladder, except that in way of an opening this clearance may be reduced to 600 mm. The flight of an inclined ladder must not exceed 6 m vertical height. Resting platforms of adequate dimensions shall be provided, normally at a maximum of 6 m vertical height. Ladders and handrails shall be constructed of steel or equivalent material of adequate strength and stiffness and securely attached to the structure by stays. The method of support and length of stay shall be such that vibration is reduced to a practical minimum. In cargo holds, ladders shall be designed

and arranged so that cargo handling difficulties are not increased and the risk of damage from cargo handling gear is minimised.

3.6 The width of inclined ladders between stringers shall not be less than 400 mm. The treads shall be equally spaced at a distance apart, measured vertically, of between 200 mm and 300 mm. When steel is used, the treads shall be formed of two square bars of not less than 22 mm by 22 mm in section, fitted to form a horizontal step with the edges pointing upwards. The treads shall be carried through the side stringers and attached thereto by double continuous welding. All inclined ladders shall be provided with handrails of substantial construction on both sides, fitted at a convenient distance above the treads.

3.7 For vertical or spiral ladders, the width and construction should be in accordance with international or national standards accepted by the Administration.

3.8 No free-standing portably ladder shall be more than 5 m long.

3.9 Movable means of access include, but are not limited to, such devices as:

.1 a hydraulic arm fitted with a stable base;

.2 a wire lift platform;

.3 staging;

.4 rafting;

.5 a robot arm or remotely operated vehicle

.6 portable ladders more than 5 m long shall only be utilised if fitted with a mechanical device to secure the upper end of the ladder.

.7 other means of access approved by and acceptable to the Administration.

Means for safe operation and rigging of such equipment to and from and within the spaces shall be clearly described in the Ship structure access manual.

3.10 For access through horizontal openings, hatches or manholes, the clear opening shall not be less than 600 mm x 600 mm. When access to a cargo hold is arranged through the cargo hatch, the top of the ladder shall be placed as close as possible to the hatch coaming. Access hatch coamings having a height greater than 900 mm shall also have steps on the outside in conjunction with the ladder.

3.11 For access through vertical openings or manholes in bulkheads, floors, girders and web frames providing passage through the

length and breadth of the space, the opening shall be not less than 600 mm x 800 mm at a height of not more than 600 mm from the passage unless gratings or other footholds are provided.

3.12 For oil tankers of less than 5,000 tonnes deadweight, the Administration may approve, in special circumstances, smaller dimensions for the openings referred to in paragraphs 3.10 and 3.11, if the ability to traverse such openings or to remove an injured person can be proved to the satisfaction of the Administration.

3.13 For bulk carriers, access ladders to cargo holds and other spaces shall be:

.1 Where the vertical distance between the upper surface or adjacent decks or between deck and the bottom of the cargo space is not more than 6 m, either a vertical ladder or an inclined ladder.

.2 Where the vertical distance between the upper surface of adjacent decks or between deck and the bottom of the cargo space is more than 6 m, an inclined ladder or series of inclined ladders at one end of the cargo hold, except the uppermost 2.5 m of a cargo space measured clear of overhead obstructions and the lowest 6 m may have vertical ladders, provided that the vertical extent of the inclined ladder or ladders connecting the vertical ladders is not less than 2.5 m.

The second means of access at the other end of the cargo hold may be formed of a series of staggered vertical ladders, which should comprise one or more platforms spaced not more than 6 m apart vertically and displaced to one side of the ladder. Adjacent sections of ladder should be laterally offset from each other by at least the width of the ladder. The uppermost entrance section of the ladder directly exposed to a cargo hold should be vertical for a distance of 2.5 m measured clear of overhead obstructions and connected to a ladder-linking platform.

.3 A vertical ladder may be used as a means of access to topside tanks, where the vertical distance is 6 m or less between the deck and the longitudinal means of access in the tank or the stringer or the bottom of the space immediately below the entrance. The uppermost entrance section from the deck of the vertical ladder of the tank should be vertical for a distance of 2.5 m measured clear of overhead obstructions and shall comprise a ladder-linking platform, unless landing on the longitudinal means of access, the stringer or the

bottom within the vertical distance, in which case it should be displaced to one side of the vertical ladder.

.4 Unless allowed in .3 above, an inclined ladder or combination of ladders should be used for access to a tank or a space where the vertical distance is greater than 6 m between the deck and a stringer immediately below the entrance, between stringers, or between the deck or a stringer and the bottom of the space immediately below the entrance.

.5 In case of .4 above, the uppermost entrance section from the deck of the ladder should be vertical for a distance of 2.5 m clear of overhead obstructions and connected to a landing platform and continued with an inclined ladder. The flights of inclined ladders should not be more than 9 m in actual length and the vertical height should not normally be more than 6 m. The lowermost section of the ladders may be vertical for a distance of not less than 2.5 m.

.6 In double-side skin spaces of less than 2.5 m width, the access to the space may be by means of vertical ladders that comprise one or more ladder-linking platforms spaced not more than 6 m apart vertically and displaced to one side of the ladder. Adjacent sections of ladder should be laterally offset from each other by at least the width of the ladder.

.7 A spiral ladder is considered acceptable as an alternative to inclined ladders. In this regard, the uppermost 2.5 m can continue to be comprised of the spiral ladder and need not change over to vertical ladders. The width and design of such spiral ladders should be in accordance with international and national standards recognised by the Administration.

3.14 The uppermost entrance section from deck of the vertical ladder providing access to a tank should be vertical for a distance of 2.5 m measured clear of overhead obstructions and comprise a ladder-linking platform, displaced to one side of a vertical ladder. The vertical ladder can be between 1.6 m and 3 m below the deck structure if it lands on a longitudinal means of access or athwartship permanent means of access fitted within that range.

Table 1 – Means of access on oil tankers

1 Water ballast tanks, except those specified in the right-hand column, and cargo oil tanks	**2 Water ballast wing tanks of less than 5 m width forming double side spaces and their bilge hopper sections**
Access to the underdeck and vertical structure	
1.1 For tanks of which the height is 6 m and over containing internal structures, such as transverse decks or athwartship web frames, permanent means of access shall be provided in accordance with .1 to .6: .1 continuous athwartship permanent access arranged at each transverse bulkhead on the stiffened surface, at a minimum of 1.6 m to a maximum of 3 m below the deck head; .2 at least on continuous longitudinal permanent means of access at each side of the tank. One of these accesses shall be at a minimum of 1.6 m to a maximum of 6 m below the deck head and the other shall be at a minimum of 1.6 m to a maximum of 3 m below the deck head; .3 access between the arrangements specified in .1 and .2 and from the main deck to either .1 or .2; .4 continuous longitudinal permanent means of access which are integrated in the	2.1 For double side spaces above the upper knuckle point of the bilge hopper sections, permanent means of access are to be provided in accordance with .1 and .2: .1 where the vertical distance between horizontal uppermost stringer and deck head is 6 m or more, one continuous longitudinal permanent means of access shall be provided for the full length of the tank with a means to allow passing through transverse webs installed at a minimum of 1.6 m to a maximum of 3 m below the deck head with a vertical access ladder at each end of the tank; and .2 continuous longitudinal permanent means of access, which are integrated in the structure, at a vertical distance not exceeding 6 m apart. Plated stringers shall, as far as possible, be in alignment with horizontal girders of transverse bulkheads. 2.2 For bilge hopper sections of which the vertical distance from

structural member on the stiffened surface of a longitudinal bulkhead, in alignment, where possible, with horizontal girders of transverse bulkheads are to be provided for access to the transverse webs unless permanent fittings are installed at the uppermost platform for use of alternative means, as defined in paragraph 3.9 of the Technical provisions, for inspection at intermediate heights; .5 for ships having cross-ties which are 6 m or more above tank bottom, a transverse permanent means of access on the cross-ties providing inspection of the tie flaring brackets at both sides of the tank, with access from one of the longitudinal permanent means of access in .4; .6 a combination of vertical ladders on transverse web frames and alternative means as defined in paragraph 3.9 may be used in small ships as an alternative to .4 for cargo oil tanks of which the height it less than 17 m. 1.2 For tanks of which the height it less than 6 m, alternative means as defined in paragraph 3.9 or portable means of access may be used in lieu of the permanent means of access.	the tank bottom to the upper knuckle point is 6 m and over, one longitudinal permanent means of access shall be provided for the full length of the tank. It shall be accessible by vertical permanent means of access at each end of the tank. .1 The longitudinal continuous permanent means of access may be installed at a minimum of 1.6 m to a maximum of 3 m from the top of the bilge hopper section. Where an extending platform is connected to a webframe, access via a vertical ladder is not required. .2 Alternatively, the continuous longitudinal permanent means of access may be installed at a minimum of 1.2 m below the top of the clear opening of the web ring allowing use of portable means of access to reach identified structural critical areas.

Fore peak tanks 1.3 For fore peak tanks with a depth of 6 m or more at the centre line of the collision bulkhead, a suitable means of access shall be provided for access to critical areas such as the underdeck structure, stringers, collision bulkhead and side shell structure. .1 Stringers of less than 6 m in vertical distance from the deck head or a stringer immediately above are considered to provide suitable access in combination with portable means of access. .2 In case the vertical distance between the deck head and stringers, or the lowest stringer and the tank bottom is 6 m or more, alternative means of access as defined in paragraph 3.9 shall be provided.	2.3 Where the vertical distance referred to in 2.2 is less than 6 m, alternative means as defined in paragraph 3.9 or portable means of access may be utilised in lieu of the permanent means of access. To facilitate the operation of the alternative means of access, in-line openings in horizontal stringers shall be provided. These openings should have an adequate diameter and suitable protective railings.

Table 2 – Means of access for bulk carriers[35]

Cargo tanks	2 Ballast tanks

[35] for ore carriers, permanent means of access shall be provided in accordance with the applicable sections of table 1 and table 2.

Access to underdeck structure	**Top side tanks**
1.1 Permanent means of access shall be fitted to provide access to the overhead structure at both sides of the cross deck and in the vicinity of the centreline. Each means of access shall be accessible from the cargo hold access or directly from the main deck and installed at a minimum of 1.6 m to a maximum of 3 m below the deck. 1.2 Athwartship permanent means of access fitted on the transverse bulkhead at a minimum of 1.6 m to a maximum of 3 m below the cross-deck head is accepted as equivalent to 1.1. 1.3 Access to the permanent means of access to the overhead structure of the cross deck may also be via the upper stool. 1.4 Ships having transverse bulkheads with full upper stools with access from the main deck which allows monitoring of all framing and plates from inside do not require permanent means of access of the cross deck. 1.5 Alternatively, movable means of access may be utilised for access to the overhead structure of the cross deck if its vertical distance is 17 m or less above the tank top.	2.1 For each top side tank of which the height is 6 m and over, one longitudinal continuous permanent means of access shall be provided along the side shell webs and installed at a minimum of 1.6 m to a maximum of 3 m below deck with a vertical access ladder in the vicinity of each access to that tank. 2.2 If no access holes are provided through the transverse webs within 600 mm of the tank base and the web frame rings have a web height greater than 1 m in way of side shell and sloping plating, then step rungs/grab rails shall be provided to allow safe access over each transverse web frame ring. 2.3 Three permanent means of access, fitted at the end bay and middle bay of each tank, shall be provided spanning from tank base up to the intersection of the sloping plat with the hatch side girder. The existing longitudinal structure may be used as part of this means of access. 2.4 For top side tanks of which the height is less than 6 m, alternative means of access or a portable means of access may be utilised in lieu of the permanent means of access.

Access to vertical structures 1.6 Permanent means of vertical access shall be provided in all cargo holds and built into the structure to allow for an inspection of a minimum of 35% of the total number of hold frames port and starboard equally distributed throughout the hold, including at each end of transverse bulkheads. But in no circumstance shall this arrangement be less than three permanent means of access. Devices shall be provided allowing baskets/boatswain's chairs to be immediately and securely fitted to the permanent means of access. Permanent means of vertical access fitted between two adjacent hold frames is counted as an access for the inspection of both hold frames. A portable means of access may be used to gain access to the sloping plating of lower hopper ballast tanks. 1.7 In addition, portable or movable means of access shall be utilised for access to the remaining hold frames up to their upper brackets and transverse bulkheads. 1.8 Portable means of access may be utilised for access to hold frames up to their upper bracket in place of the permanent means required in 1.6. These means of access shall be carried on board the ship and be readily available for use. 1.9 The width of vertical ladders for access to hold frames shall be at least 300 mm, measured between	**Bilge hopper tanks** 2.5 For each bilge hopper tank of which the height is 6 m and over, one longitudinal continuous permanent means of access shall be provided along the side shell webs and installed at a minimum of 1.2 below the top of the clear opening of the web ring with a vertical access ladder in the vicinity of each access to the tank. An access ladder between the longitudinal continuous permanent means of access and the bottom of the space shall be provided at each end of the tank. .2 Alternatively, the longitudinal continuous permanent means of access can be located through the upper web plating above the clear opening of the web ring, at a minimum of 1.6 m below the deck head, when this arrangement facilitates more suitable inspection of identified structurally critical areas. An enlarged longitudinal frame can be used for the purpose of the walkway. .3 For double-side skin bulk carriers, the longitudinal continuous permanent means of access may be installed within 6 m from the knuckle point of the bilge, if used in combination with alternative methods to gain access to the knuckle point.

stringers. 1.10 A single vertical ladder over 6 m in length is acceptable for the inspection of the hold side frames in a single skin construction. 1.11 For double skin construction, no vertical ladders for the inspection of the cargo hold surfaces are required. Inspection of this structure should be provided from within the double hull space.	2.6 If no access holes are provided through the transverse ring webs within 600 mm of the tank base and the web frame rings have a web height greater than 1 m in way of side shell and sloping plating, then step rungs/grab rails shall be provided to allow safe access over each transverse web frame ring. 2.7 For bilge hopper tanks of which the height is less than 6 m, alternative means of access or a portable means of access may be utilised in lieu of the permanent means of access. For such means of access, it shall be demonstrated that they can be deployed and made readily available in the areas where they are needed. **Double-skin side tanks** 2.8 Permanent means of access shall be provided in accordance with the applicable sections of table 1.

	Fore peak tanks 2.9 For fore peak tanks with a depth of 6 m or more at the centre line of the collision bulkhead, a suitable means of access shall be provided for access to critical areas such as the underdeck structure, stringers, collision bulkhead and side shell structure. 2.9.1 Stringers of less than 6 m in vertical distance from the deck head or a stringer immediately above are considered to provide suitable access in combination with portable means of access. 2.9.2 In case the vertical distance between the deck head and stringers, or the lowest stringer and the tank bottom is 6 m or more, alternative means of access as defined in paragraph 3.9 shall be provided.

* For ore carriers, permanent means of access shall be provided in accordance with the applicable sections of table 1 and table 2.

Chapter B II-3
1 September 2004

Technical Regulation on the construction and equipment etc. of ships

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Accommodation etc.

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C H A P T E R I I - 3

Accommodation, etc.[36)]

Part I Definitions, etc.

Regulation 1 Definitions

The following definitions shall apply in this chapter.

1 "New ship": A ship whose keel was laid or which was at a similar stage of construction on or after 1 January 2002.

2 "Existing ship": A ship that is not a new ship.

3 "Passenger ship": A ship carrying more than 12 passengers.

4 "Cargo ship": Any ship that is not a passenger ship or a fishing vessel.

5 "Officer": Any person, apart from the master of the ship, who is, according to legislation, collective agreement or custom, regarded as an officer.

6 "Accommodation": The sleeping quarters, dining rooms, toilets and bathrooms, infirmaries, recreation rooms and offices intended for the use of the crew and the passengers".

7 "Ship's crew or crew": Any person in service on board except for the master of the ship.

8 "Adult": A person above the age of 18.

9 "Sea-going ship": A ship whose area of service is not limited to port areas.

10 "Port area": An area that is not a sea area and that stretches to the most remote fixed installation parts forming an integrated part of the port or to boundaries defined by natural geographic characteristics protecting a mouth of a river or a similar shielded area.

11 "Gross tonnage": The gross tonnage (GT) measured in accordance with relevant provisions on the measuring of ships. For ships of a length of 24m and above, according to the

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[36)] *Parts I and II of this Chapter contain provisions that implement ILO Convention No. 92 of 18 June 1949 and Convention No. 133 of 30 October 1970, concerning Crew Accommodation on Board Ship.*

provisions of the International Convention of Tonnage Measurement of Ships, 1969.

Regulation 2 Application

1 The provisions of this Chapter shall apply to new cargo ships with a length (L)[37] of 15m or more or with a scantling number (see definition in Chapter B I) of 100 or more and to passenger ships engaged in international trade with a gross tonnage of 20 or more.

2 To the extent that is found reasonable in consideration of their arrangement, existing ships shall be made to comply with the provisions of this Chapter when they are subjected to major rebuilding or when changes are made to the structure of the ship involving considerable changes in the size of the ship's crew.

Regulation 3 Approval and Survey

1 For all new ships, drawings as well as information about the ship's area served, expected gross tonnage, the number of crewmembers and passengers, if any, and their distribution by category shall be forwarded to the Danish Maritime Authority for approval, etc. The drawings shall show the location, size and arrangement of the accommodation, the utilisation of the space, the placing of fittings and appurtenances as well as the arrangement of heating, ventilation, exits, etc.

2 Equivalent drawings and information shall be submitted to the Danish Maritime Authority before the accommodation in an existing ship undergoes alterations and modifications.

3 A complete survey of the accommodation, etc. shall be carried out before the ship is put into service.

4 Dependent on the circumstances, either a complete or a partial survey shall be carried out following major repairs, alterations or modifications involving considerable changes to the accommodation.

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[37] *"Length (L)" shall be calculated as 96% of the total length on a waterline at 85% of the least moulded depth measured from the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel, the waterline on which the length is measured shall be parallel to the designed waterline.*

5 The Danish Maritime Authority or an organisation authorised by the Danish Maritime Authority may, at any time, carry out an unannounced inspection of the accommodation on board.

Regulation 4 Exemptions and Equivalents

1 Taking into consideration the special circumstances that apply to the individual ship and following negotiations with the relevant ship-owner and crew organisations, the Danish Maritime Authority may allow deviations from the provisions of this Chapter concerning the accommodation for the crew in respect of the following:

.1 Ferries or similar ships constantly manned with a permanent crew.

.2 The accommodation, etc., intended for repair personnel or special personal when these persons are temporarily carried in addition to the ship's crew.

.3 Ships engaged on short voyages that allow the crewmembers to go home or make use of equivalent possibilities for part of the day.

.4 Ships for special purposes, such as cable-laying ships, factory ships, etc., with a need for considerable special personnel in addition to the ship's crew as such.

2 Furthermore, the Danish Maritime Authority may allow deviations from the provisions of regulations 5-11, 13-16, 18-22, 26 and 28 when conditions otherwise indicate this in consideration of the special circumstances of the individual ship.

3 In ships with a gross tonnage below 250, the Danish Maritime Authority may allow deviations from the provisions when conditions otherwise indicate this in consideration of the special circumstances of the individual ship.

4 In ships where it is, during the manning and without any differential treatment, necessary to take consideration of conditions of importance to crews with different specific religious and social customs and practices, the Danish Maritime Authority may, following negotiations with the ship-owner and crew organisations of the seamen in question and subject to agreement between the said two parties, allow deviations from the provisions of regulations 9.1.3, 9.3, 9.5 and 14.2 provided that such deviations do not mean that the facilities as a whole become less appropriate than they would have been had the provisions of the technical regulation been applied.

5 Equivalents

5.1 Any provision of Part II of this Chapter may be departed from if, following negotiations with the relevant ship-owner and crew organisations, the Danish Maritime Authority is satisfied that such deviations would result in such advantages that the conditions as a whole are not less favourable than they would have been had the provisions been applied in full.

Part II Crew Accommodation

Regulation 5 Location, Building and Arrangement

1.1 The location, access, construction and placing in relation to other rooms shall be such as to provide sufficient safety, protection against weather and sea, insulation from heat, cold and noise and air pollution from other rooms.

1.2 The accommodation shall be located as far as seems reasonable from rooms in which substantial noise occurs, such as rooms for propulsion machinery, auxiliary machinery, steering machinery and deck machinery, and from rooms in which strong heat or cold may occur; neither may they be located directly above the propeller.

1.3 There must be no direct access to sleeping quarters from the rooms mentioned in paragraph 1.2 or from cargo rooms, galleys, chain locker, lamp rooms, rooms for storage of paint, stores rooms, drying rooms, washrooms and toilets intended for more than two persons. Bulkheads dividing such rooms from sleeping quarters as well as external bulkheads to accommodation shall be made of steel or another material that has been approved and shall be watertight and gas-tight; furthermore, they shall be adequately insulated both against noise and heat and cold.

1.4 There must be no direct access to toilets and bathrooms from galleys or dining rooms.

2.1 The accommodation and corridors leading to the accommodation shall be insulated against heat transmission from machine casings, galleys and other rooms in which heat may arise as well as against heat transmission from steam and hot water pipes and against effects from rooms that are cooled.

2.2 Internal bulkheads shall be made of an approved, sound-insulating material that does not represent a risk in respect of vermin.

2.3 Sleeping quarters, dining rooms, recreation rooms and corridors in the crew accommodation shall be insulated to prevent condensation or overheating.

3 Main steam pipes and waste steam pipes for capstans and similar machinery may not be laid through the accommodation or through corridors leading to the accommodation.

4.1 The internal panelling or internal wall coverings shall be made of a material with a surface that is easy to keep clean.

4.2 Planed off and matched boards or any other kind of construction that may involve a risk of vermin may not be used.

5 Each accommodation section shall have at least two exits.

6.1 The ceilings and bulkheads in the accommodation shall be easy to keep clean and, if they have been painted, they shall be kept in light colours and shall be renewed or repaired when necessary. Pipes, cables and ducts shall be covered with lining sheets as far as possible.

6.2 In all rooms in the accommodation, the floor shall be made of an approved material and construction, and the surface shall be impervious to moisture and easy to keep clean.

7 The transition between the bulkhead/wall panelling and the floor shall not have cracks.

8 There shall be sufficient drainage. In corridors and large rooms[38], the drain shall have a size of approximately 25 cm^2 or more.

Regulation 6 Ventilation, Air-Conditioning and Mosquito Nets

1.1 The accommodation and corridors leading to other rooms in the accommodation as well as workrooms where the crew are to carry out work for long periods of time, e.g. radio rooms and engine control rooms, shall be ventilated so that a sufficient exchange of air is ensured under all circumstances when doors, port-holes, skylights, etc. are closed. The same applies to navigation rooms.

1.2 If the exchange of air takes place exclusively through natural ventilation, the inlet and outlet openings shall have a clear flow

[38]) *Rooms of 25m^2 or more*

area of at least 30 cm^2 for every person for whom the room is intended.

2.1 In ships with a gross tonnage of 200 or more, the ventilation shall be mechanical and the exchange of air shall comply with the following requirements:

.1 The ventilation of sleeping quarters, dining rooms, recreation rooms, offices, radio rooms, navigation rooms and equivalent workrooms shall take place through the blowing in of air equivalent to six air changes per hour.

.2 The outlet of air may take place via air gratings in the doors to corridors provided with a return air duct or directly to the open air.

.3 Recirculation of up to 50 per cent of the air supply may be permitted on the condition that toilets and bathrooms are provided with separate mechanical exhaustion. The supply of fresh air to sleeping quarters shall, however, be at least 30 cubic metres per hour for each person for whom the room is intended.

2.2 The inlet openings shall be placed appropriately relative to the arrangement of the rooms and may not give rise to annoying draughts over a berth.

3 In ships with a gross tonnage of 200 or more, toilet rooms and bathrooms shall be ventilated by a separate exhaustion system leading directly to the open air. The exhaustion system shall be designed for ten air changes per hour. The air supply to toilet rooms and bathrooms with access from adjoining sleeping quarters may take place through the door from here.

4 The galley shall be ventilated by a separate exhaustion system. Above the cooker, an exhaust hood with a vent pipe leading to the open air shall be fitted.

5 The ventilation system shall be constantly switched on during the operation of the ship. Maintenance of the mechanical ventilation shall be ensured by means of the necessary spare-parts[39)] or in another satisfactory way.

[39)] *The following spare-parts shall be considered necessary as a minimum:*

1. *One spare motor for each type of motor in the ventilation systems.*
2. *One set of extra bearings for each type of motor both in the ventilation and the air-conditioning systems.*
3. *One set of extra bearings for the ventilator, where this is driven by a belt drive from a motor.*
4. *100% supplement of air filters.*

6 In infirmaries and special changing rooms on board ships carrying hazardous substances, the ventilation shall be constructed so that air from the said rooms cannot penetrate into other parts of the accommodation. Doors to corridors leading to other parts of the accommodation may not be provided with ventilation openings and any ventilation ducts shall be provided with a non-return flap or other arrangements shall be made to ensure that the air does not penetrate into the rest of the accommodation.

7 Ships that are regularly engaged in trade between 30°N and 30°S shall be equipped with air-condition in sleeping quarters, living rooms, infirmary, dining rooms, recreation rooms, offices, radio rooms, navigation rooms, including the wheel house, as well as in engine control rooms.

8 The air-conditioning system may be a central system or consist of separate units and shall be designed so that, at 35°C and 70 per cent relative humidity outside, it can maintain 29°C and about 50 per cent relative humidity inside. No more than 50 per cent return air may be used.

9 Furthermore, the cooling machinery and air coolers of the system shall be designed so that, at 28°C and 80 per cent relative humidity outside, they can maintain 24°C and about 50 per cent relative humidity inside. It shall be possible to achieve such conditions with the quantities of fresh air mentioned in paragraph 2.1.

10 Ventilation and air-condition systems shall be provided with appropriate filters at air inlets, shall be designed for the special conditions characteristic of operation at sea and may not cause noise nuisance or vibrations.

11 Mosquito nets.

.1 In ships regularly calling at mosquito-plagued ports, measures shall be taken to protect the accommodation from the penetration of mosquitoes by placing suitable nets in front of port-holes, ventilators and doors to the open air.

.2 Ships provided with air-condition systems meeting the requirements of paragraphs 7-10 shall be exempted from meeting the requirement for mosquito nets.

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5. *One set of V-belts of each type.*
6. *One spares box containing special tools and small spare parts and O-rings.*

Regulation 7 Heating

1.1 A suitable heating system for the accommodation shall be fitted in all ships.

1.2 The heating system shall constantly be switched on during the operation of the ship when the circumstances necessitate its use. The capacity shall be sufficient to maintain a room temperature of at least 20° C in all circumstances.

2 In ships with a gross tonnage above 100, heating by means of open fire shall not be permitted.

3 Radiators and other heating systems shall be arranged and shielded so that they do not represent a danger or inconvenience.

4 Electric heaters and gas heaters shall be of an approved type.

Regulation 8 Lighting

1 The accommodation shall be properly lit.

2 Sleeping quarters, living rooms, dining rooms, recreation rooms and infirmary shall be lit by daylight. This shall, however, not apply to hobby rooms and similar rooms. The supply of daylight shall be sufficient to read ordinary newsprint in clear weather anywhere in the room where persons may normally be. In passenger ships, special arrangements may, however, be permitted.

3.1 In all ships, the accommodation shall be provided with electric lighting arranged so that it offers the greatest possible benefit to the persons in the room. In sleeping quarters, an electric reading lamp shall be fitted at the head of each berth.

3.2 If two electric sources of energy are not installed independent of each other, reserve lighting shall be available for use in case of emergency. Such emergency lighting may, for example, consist of permanently installed electric battery lamps that are recharged when the main current is on or a similar system. The lighting shall be sufficiently good for the route to exits to be easily seen.

4 The following guidelines are laid down as to the luminous power that shall be considered suitable for artificial lighting:

.1 Sleeping quarters and separate day rooms:

a)	General lighting	50 lux
b)	Lighting on tables where reading and writing take place	200 lux

.2 Dining rooms and recreation rooms:

a)	General lighting	50 lux
b)	Lighting on dining tables	150 lux
c)	Lighting on tables where reading, writing and games, etc. take place	200 lux

.3 Bathrooms and toilets:

a)	General lighting	50 lux
b)	At mirrors	200 lux

.4 Corridors and staircases:

a)	General lighting	50 lux

In other rooms that are not mentioned here and as an equivalent to the luminous power mentioned above, the luminous power recommended by the Danish Standards Association[40)] may be used.

5 The general lighting is measured at a horizontal plane 0.85 m above floor level.

Regulation 9 Sleeping Quarters: Location, Size, Arrangement, etc.

1.1 Sleeping quarters shall be located midship or aft, and no part of a sleeping quarter may be located below the highest load line mark or the highest load waterline on ships that are not provided with load line marks. Living rooms may, under no circumstances, be located in front of the collision bulkhead or below corridors in which work causing noise nuisance is regularly carried out.

1.2 In special cases, if the size, type or use of the ship makes the location of the sleeping quarters midship or aft inappropriate, permission may be given to place them further forward, but never in front of the collision bulkhead. In passenger ships, permission may be given to place sleeping quarters partly below the highest load line mark provided that satisfactory lighting and ventilation is allowed. In new ro-ro passenger ships, passenger cabins may not be placed below the ro-ro deck (the bulkhead

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[40)] *Reference is made to DS 700, Artificial lighting in work premises.*

deck). Further reference is made to the requirements for escape routes in Chapter II-2, regulation 13.

In ships with a gross tonnage below 250 built for special purposes, such as tow-boats, permission may be given to locate sleeping quarters partly below the deepest loaded waterline provided that satisfactory lighting and ventilation is allowed.

1.3 The floor areas in sleeping quarters shall have at least the following size:

Gross tonnage	Minimum floor area[2])				
	Cargo ships		Passenger ships		
	1 person	2 persons	1 person	2 persons	3 persons
20 – 499	3.00	4.00	3.00	4.00	6.00
500 – 999	3.50	4.50	3.00	4.00	6.00
1000 – 2999	3.75	5.50	3.75	5.00	7.00
3000 – 9999	4.25	6.50	3.75	6.00	9.00
10000 and more	4.75	7.50	3.75	6.00	9.00

1.4 Sleeping quarters for officers shall have a floor area of at least 6.50 m^2 in ships with a gross tonnage below 3000 and of 7.50 m^2 in ships with a gross tonnage of 3000 or more.

1.5 The floor area taken up by fixed furniture such as berths, lockers, chests of drawers, tables and benches shall be included in the floor area mentioned above. Small[41)] or inappropriate areas that are not available for free movement and that cannot be used for the placement of fittings shall not be included.

2 In ships of 3000 tons or more, the chief engineer and the chief mate shall, in addition to their sleeping quarters, have an adjoining living room or day room.

3 In cargo ships, the number of persons in a sleeping cabin may not exceed two, and in passenger ships, three.

4 Each officer shall have his own sleeping cabin.

5 In ships with a gross tonnage of 500 or more, apart from passenger ships, each adult member of the crew shall have a separate sleeping cabin.

[41)] *Below about 0.6 x 0.6 m.*

6 All sleeping quarters shall be arranged and equipped so that they provide the crew with reasonable comfort and are easy to keep tidy.

7 The fittings shall consist of the following as a minimum:

.1 A wardrobe with a shelf and hanging rail for each person for which the room is intended. The wardrobe shall have a height of at least 1.50 m to the underside of the shelf, and the cross-sectional area shall be at least 0.193 m^2.

.2 A table and seats for the number of persons for which the room is intended.

.3 Drawers or the like with a capacity of at least 0.10 m^3 for every person for which the room is intended.

.4 A mirror, small locker for toiletries, a bookshelf and a suitable coat-hook arrangement.

At least one locker or drawer for each person shall be lockable with a separate key.

8 Port-holes in sleeping quarters shall be provided with curtains.

9 Each sleeping cabin shall be clearly marked inside with the number of persons for which it is intended and approved.

10 At the outside either on or next to the door, it shall be specified who the cabin is intended for.

11 Exits to the open deck shall be well protected and in ships with a gross tonnage of 100 or more, exits from sleeping quarters may not lead only to the open deck.

Regulations 10 Berths

1 Each crewmember shall have a separate berth.

2 The internal dimensions of a berth shall be at least 1.98 m x 0.80 m.

3 Berths may not be placed immediately next to each other.

4 More than two berths may not be placed on top of each other. The distance between the bottoms of the berths as well as between the bottom of the top berth and the underside of the ceiling panelling shall be at least 0.75 m. The bottom of the berth shall be at least 0.30 m above the floor.

5 As far as possible, berths may not be located along the side of the ship. If this is necessary in exceptional cases, only one single berth may be located there if a port-hole is found over the berth.

6 The berths shall be made of wood or another material that is hard, smooth, corrosion-free and which does represent a risk of vermin. If tubes are used, they shall be completely sealed so that they may not provide living space for vermin.

7 The berths shall be provided with spring mattresses or a spring bottom and mattresses of a generally recognised type. The mattresses may not contain material where vermin may live.

8 Top berths shall be provided with a base of wood or another suitable dust-tight material.

Regulation 11 Lockers for Work Clothes

1 In ships with a gross tonnage of 75 or more, one or more well-ventilated lockers of a suitable size and arrangement for work clothes, oil clothes, sea boots and the like shall be located.

Regulation 12 Dining Rooms

1 In ships with a gross tonnage of 500 or more, separate dining rooms shall be available for officers and deck and engine crew. In ships with a gross tonnage below 250, the galley may be used as a dining room for the crew.

2 In ships with a gross tonnage of 3000 or more, separate dining rooms shall also be available for the catering and serving staff if their number exceeds four.

3 The provisions of paragraphs 1 and 2 may be departed from if, during negotiations with the relevant ship-owner and crew organisations, it has been stated that other arrangements are preferable. An agreement has been reached with these organisations concerning a practice and equivalence arrangement for the use of a common dining room on board cargo ships[42)].

[42)] *If a common dining room (mess) for officers, deck and engine crew and catering and operating staff is provided in cargo ships with a gross tonnage of 500 or more, there shall also be at least one common duty mess, and in ships with a gross tonnage of 3000 or more there shall also be a smoking room. Until further notice, such arrangements for each ship or the first in a series of sister ships shall be sent for consultation to the Danish Seamen's Union (Sømændenes Forbund), SiD (Special-arbejderforbundet i Danmark) and the Danish Navigators' Union (Dansk Navigatørforening). Equivalent arrangements on passenger ships shall until further notice be sent for consultation to all relevant ship-owner and crew organisations.*

4 In ships where no separate dining room is required, a table and seats shall be located in the galley or in another suitable place where the crew may eat, and suitable storage arrangements shall be available for provisions and eating utensils.

5 Dining rooms shall be located conveniently relative to sleeping quarters and galleys.

6 The floor area in dining rooms shall be at least 1.0 m^2 for each person who is to use the room. When the floor area is calculated, the space taken up by dining tables, benches and chairs may be included.

7 Dining rooms shall be equipped with tables and approved fixed or loose seats in such a number that the crewmembers for whom the room is intended may eat their meals at the same time. In ships carrying special personnel for repairs and the like, it may be accepted that they do not eat at the same time as the crew. At least 0.6 m of table space shall be available at the tables for each seat.

8 The necessary lockers for storage of tableware shall be available, and outside the dining room or rooms, the necessary arrangements for the cleaning of the tableware shall be available.

9 The surfaces of tables and seats shall be easy to clean and resistant to cracks and damp.

10 In ships with a gross tonnage of 250 or more, there shall at all times be:

.1 Access to appropriately placed cooling equipment with a capacity corresponding to the number of persons using the dining room or rooms. The capacity shall be at least 10 l per person for up to ten persons, and 5 l per person for each additional person,

.2 facilities for getting hot drinks, and

.3 facilities for getting chilled drinking water.

11 The Danish Maritime Authority may allow such deviations from the provisions of paragraphs 4-7 on dining rooms as are necessary with regard to the particular conditions on board passenger ships.

Regulation 13 Recreation Rooms

1 In ships with a gross tonnage of 250 or more, one or more places shall be set up on open deck to which the crew have access in their spare-time. Such a space or spaces shall be of a suitable size in consideration of the size and arrangement of the crew and the ship, and in ships regularly sailing between 30° northern latitude and 30° southern latitude and in the Persian Gulf, the spaces shall be provided with awnings or other cover.

2 In ships with a gross tonnage of 250 or more, but below 8000, there shall be appropriately located and suitably equipped rooms intended for the crew to spend their spare-time in. The fittings in such rooms shall include a bookcase as well as furniture providing opportunity to read, write and play games.

3 In ships of a gross tonnage below 1000, such rooms may be dispensed with provided that the dining room or rooms are sized, furnished and arranged so that they are suitable for spending the spare-time. The total floor area shall be at least twice the required area of a dining room.

4 In ships with a gross tonnage of 1000 and more, it shall be examined whether there is a possibility of setting up a canteen when the recreation and dining rooms are planned.

5 In ships with a gross tonnage of 8000 or more, a smoking room or reading room shall be found; there shall also be a room for other recreation activities, including gymnastics and other physical activities. In one of the rooms, it shall be possible to watch films or television.

6 In ships with a gross tonnage of 8000 or more, a swimming pool shall be provided if the Danish Maritime Authority considers that it would be reasonable and possible.

Regulation 14 Toilets and Bathrooms

1 In all ships, toilet rooms and bathrooms shall be set up conveniently situated in relation to sleeping quarters and other parts of the accommodation.

2 In all ships with a gross tonnage of 250 or more, there shall for every six persons or fewer in each of the groups of officers and other crew be at least one toilet and one shower, disregarding persons who have their own bathroom adjoining their sleeping cabin with a wash basin, shower and toilet. If female staff are employed on board, they shall have separate toilet rooms and bathrooms.

3 Regardless of the stipulations of paragraph 2, at least the following number of separate toilets shall be available, including the separate toilets required in regulation 15:

.1 In ships with a gross tonnage of 500 or more, but below 800: three.

.2 In ships with a gross tonnage of 800 or more, but below 3000: four.

.3 In ships with a gross tonnage of 3000 or more: six.

4 In ships with a gross tonnage of 75 or more, the toilets shall be provided with adequate flushing facilities and drainage. Both flushing facilities and drainage shall be properly fitted out and ensured for all climatic conditions and always be ready for use during the operation of the ship. All toilet rooms shall be provided with a wash basin with running hot and cold freshwater.

5 All bathroom shall be provided with at least one shower for every six persons or fewer and one wash basin for every three persons or fewer for whom the room is intended. Wash basins shall be of a suitable size and made of stainless steel, porcelain or another approved material.

6 In ships with a gross tonnage of 5000 or more, all officers shall have separate bathrooms provided with toilet, shower and wash basin with running hot and cold freshwater adjoining their sleeping quarters.

7 In ships with a gross tonnage of 25000 or more, except for passenger ships, at least one bathroom shall be available to every two members of other crew. The bathroom shall be located either opposite the entrance to the rooms to which the bathroom belongs or in another convenient way.

8 There shall be an adequate supply of hot and cold freshwater in all bathrooms.

9 Toilet rooms and bathrooms shall otherwise meet the following requirements:

.1 The floor shall be made of an approved and durable material that is easy to clean, impervious to water, non-slip and

provided with the necessary drainage, though floor drainage shall not be required in separate toilet rooms.

.2 The bulkheads shall be tight and made of steel or another approved material and shall be impervious to water.

.3 The rooms shall be properly lit and heated. Bathrooms shall have separate heating if they are not surrounded by heated rooms on all sides or adequate heating is secured by other means.

.4 If intended for more than two persons, shared toilet rooms shall be separate from sleeping quarters and bathrooms. There must not be direct access from sleeping quarters to toilet rooms or bathrooms intended for more than two persons.

.5 Toilets shall be sufficiently screened from each other.

Regulation 15 Separate Toilets and Changing Rooms

1 In ships with a gross tonnage of 250 or more, a separate toilet with a wash basin with running hot and cold freshwater shall be situated conveniently close to the navigation bridge.

2 In ships with a gross tonnage of 1000 or more, a toilet with a wash basin with running hot and cold water shall be situated conveniently close to the engine room if one has not been installed close to the control centre of the engine room.

3 In ships with a gross tonnage of 1000 or more, except for ships where one-man or two-man bathrooms are provided for the crew in the engine section, changing rooms for the crew employed in the engine room shall be situated outside the engine room but with easy access and provided with wardrobes for every crewmember and with wash basins and showers with running hot and cold freshwater.

4 Changing rooms in ships carrying hazardous substances.

.1 In all ships approved to carry carcinogenic substances in bulk (e.g. crude oil, petrol, benzene, vinyl chloride, butadiene, etc.), separate bathing and changing facilities shall be set up where there is considered to be a risk of contamination of work clothes; see regulation 6 of the Danish Maritime Authority's Notices A, Chapter A II C. Carcinogenic substances and materials means substances and materials referred to in Notices from the Danish Maritime Authority A, Chapter A II C, Annex 1. Furthermore, it shall either be possible to collect work

clothes in containers for laundry ashore or facilities shall be available for laundering the clothes on board. If disposable clothes or equipment is used, closed, appropriate waste containers shall be available for this purpose.

.2 Separate bathing and changing facilities shall be divided into one changing room for work clothes and one for general clothes with bathing facilities between the two.

The changing room for work clothes may not be intended for use for purposes other than as a changing room by crew members who are contaminated. The changing room for general clothing may be not be intended for use for purposes other than as a changing room by crew members who are not contaminated.

.3 There must be access to separate bathing and changing facilities for contaminated work clothes directly from the open deck.

.4 A toilet with a wash basin must be located immediately adjacent to the changing room.

.5 Bathrooms shall be provided with showers and wash basins with hot and cold water and set up as specified in regulation 14.5.

.6 Bathrooms and changing rooms for work clothes may not be intended for use by others than those exposed to the contamination in question.

.7 Changing rooms shall be provided with lockers for everyone who is to use the rooms. The lockers shall be made of a suitable material that is easy to clean and they shall be provided with ventilation apertures at the top and at the bottom.

.8 When separate laundry facilities are set up for laundering the said work clothes (see 4.1), they shall be equipped with a washing machine and a drying machine or drying rooms of sufficient capacity. The laundry facilities for these work clothes shall not be used for other clothing.

.9 In existing ships approved to carry carcinogenic substances in bulk, the requirements for the special bathing and changing facilities should be met operationally. In most cases, by dividing the changing room into a clean and dirty section, e.g. by markings on the floor.

Regulation 16 Laundry Rooms, etc.

1 In ships with a gross tonnage of 250 or more, there shall be rooms for laundering clothes with a sufficient supply of hot and cold freshwater and with a possibility of drying and ironing clothes to the extent appropriate for the size of the crew and the normal duration of the voyage.

2 The equipment shall include:

.1 Washing machines.

.2 Drying machines or appropriately heated and ventilated drying rooms.

.3 Irons and ironing boards or the like.

3 Laundry and drying rooms shall be situated conveniently in relation to the accommodation.

Regulation 17 Headroom in Accommodation, etc.

In all rooms in the accommodation and corridors, the clear headroom measured from the top of the deck covering to the bottom edge of the deck beams or their covering (the ceiling) shall be at least 1.98 m. If there is, for design reasons, a wish to make the headroom smaller than stipulated above at specified points in the rooms or in individual rooms for special use (sauna or the like), the Danish Maritime Authority may permit this if it is assessed that it will not cause inconvenience.

Regulation 18 Corridors, Staircases and Doors

1 In general, the width of corridors used for access to accommodation may not be below 90 cm measured between the restricting bulkheads.

2 In general, stairs shall have a width of at least 80 cm measured between the restricting bulkheads and a suitable rise as well as be provided with handrails on at least one side.

3.1 Permission may be given to place fire alarm boxes, ventilation ducts, cable tracks and the like on the restricting bulkheads in corridors and on staircases when it is considered not to cause inconvenience during passage. However, the room for free passage may not be less than 60 cm at any point.

3.2 In short, enclosed corridors and associated staircases that are normally used by only one or two persons, permission may be given to reduce the width provided that it is not less than 60 cm.

4 In general[43], doors[44] that provide access to shared accommodation, stairs and the like shall have a width that is not less than 90 cm on passenger ships and 80 cm on cargo ships, measured as the internal dimension of the doorframe.

.1 In general, doors that provide access to cabins and the like shall ordinarily not have a width below 75 cm measured as the internal dimension of the doorframe.

.2 If the doors in question lead to one-man cabins or if they shall usually be used by only one person, a width of 70 cm may be used.

.3 In general, doors that provide access to toilets or bathing facilities shall not have a width below 60 cm.

5 On ships with a gross tonnage of less than 500 and ships for special purposes, the Danish Maritime Authority may permit deviations taking into account the spatial conditions on board. Door openings below 60 cm are however not normally permitted.

6 The height of the doorway shall be at least 1.88 m above the floor covering.

Regulation 19 Galleys and Provision Stores

1 In all ships, the cooker shall be located in a separate room, which may, however, also be used as a dining room for the crew in ships with a gross tonnage below 250.

2 The room shall have a suitable size and be well lit and ventilated. Above the cooker, a hood with a vent pipe leading to the open air shall be fitted.

3 The cooker shall be properly set up and secured. Any woodwork shall be protected against inflammability.

4 In the galley, freshwater shall be supplied by means of a pipe system. A tap for seawater shall not be located in this room.

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[43] *"In general" is interpreted in this context as meaning that there may be a negative deviation in the internal widths of the doorframe used of about 5% of the nominal width specified, with the exception of doors to infirmaries and doors for use by disabled persons on passenger ships.*

[44] *Reference is also made to the fact that from 1 July 2002 pursuant to Chapter B II-2, regulation 13, "Escape routes/exits", the IMO's "Fire Safety Systems Code" (FSS Code), Chapter 13 contains obligatory requirements for minimum sizes of common access routes and escape routes. This is obligatory for all passenger ships and cargo ships with a gross tonnage of 500 or more whose keel was laid on or after 1 July 2002.*

5 The galley room shall be provided with the necessary sinks with drainage, and there shall also be drainage in the floor. The bulkheads and the floor shall be made of a material that is impervious to water and easy to keep clean. Fittings, lockers, tables and drawers shall be made of materials that are easy to clean and hygienic. Ordinary, joined wood of dressed and matched boards may not be used.

6 Suitable facilities for the storage of provisions as well as refrigerating and freezing facilities for perishable foods shall be available.

Regulation 20 Potable Water System

1 Permanently installed potable water tanks shall have a cofferdam separating them from tanks that may be used for other liquids, oil or the like. However, cofferdams may be dispensed from as separation from tanks intended exclusively for seawater. In riveted ships, the side of the ship below the loaded waterline may not form boundaries on a potable water tank.

2 The potable water tanks shall have the necessary manholes, and they shall, as far as possible, be accessible for both external and internal inspection. If their construction and size does not allow access to the inside of the tanks, they shall be provided with a sufficient number of cleaning holes. Manholes and/or cleaning holes and their covers shall be designed so that the accumulation of impurities on top of the covers is avoided.

.1 Manhole covers and cleaning hole covers shall be fitted on frames that have a height of at least 50 mm and shall be marked "Potable Water Tank".

.2 All steel in potable water tanks shall be fully welded. All internal surfaces, including surfaces in small containers etc., shall have a suitable finish approved by the Danish Maritime Authority.

.3 Pipes forming a part of other pipe systems shall not be led through potable water tanks.

.4 It shall be possible to empty the tanks completely either by means of suction from the lowest point in the tank or through a bottom screw.

3 Air pipes and filling pipes for tanks shall be led to proper heights above deck, minimum 400 mm. The outlet of the air pipe shall be designed so that impurities may not enter the tanks by this means. Filling pipes shall be provided with covers that it may not be possible to mistake for covers for tanks for other purposes.

4 Potable water tanks shall be provided with a sounding pipe or another approved sounding device that shall be designed so that the water may not be polluted by this means. If sounding pipes for sounding rods/tapes have been fitted, the means of closing these shall be lockable, e.g. with a padlock, and they shall be labelled "Potable Water Tank".

5 For ventilation purposes, potable water tanks shall normally be provided with at least two air pipes that shall be provided with a fine-meshed net.

6 Pumps shall be of the membrane or centrifugal type or another suitable type that does not require lubrication of the parts that are in contact with the potable water.

7 The pipe system may not be connected to other pipe systems in the ship, and only materials and components suitable for the purpose (e.g. those that have received the Danish VA-approval by ETA-Danmark A/S for use with water and drainage)[45)] may be used. If the pipelines to the potable water system have been marked, such marking shall comply with the standardisation rules in force. Dead-end service pipes on main pipes shall be provided with a shut-off device at the main pipe.

Pipes that may be exposed to frost shall be sufficiently insulated. Pipes for potable water shall not be led through tanks intended for other liquids with the exception of tanks for seawater.

8 If freshwater generators, distillation apparatuses and the like are installed, the sea suction from the freshwater generator shall be placed clear of all drains from the ship.

9 When water has been put into the potable water system, but before it is being taken into use, a bacteriological analysis of potable water samples from the system shall be carried out.

When water has been put into the potable water system, but before it is being taken into use, a bacteriological analysis of potable water samples from the system shall be carried out. Such water samples, one of which shall be from the galley, shall have been taken by a recognised laboratory (e.g. the Danish Regional Veterinary and Food Control Authorities) and analysed by a recognised laboratory. The approval of the Danish Maritime Authority will be based on the laboratory's analysis report including a chemical and bacteriological analysis and conclusion.

[45)] *"VA approval" Material approved by the Danish Agency for Enterprise and Housing's approval committee for water and drainage material.*

10 When a contaminated potable water system has been found, disinfection shall be carried out in accordance with the guidance on disinfection during the cleaning of potable water tanks and potable water pipes on ships, issued by the Danish National Board of Health.

Regulation 21 Infirmary and Hoist Stretcher

1 In any ship engaged in more than the small coasting trade and than in trade in the English Channel and in the British Isles and where the number of crewmembers exceeds 12, a separate infirmary shall be set up. The infirmary shall contain at least one bed when the number of crewmembers is 18 or less and otherwise two beds.

2 In ships where each crewmember has his own sleeping cabin with toilet and shower, a treatment room (casualty room) may be set up instead of the infirmary required under paragraph 1. This shall be suitably equipped with, for instance, a wash basin and bathtub. It is sufficient with one bed/examination couch in the treatment room, regardless of the size of the ship

3.1 Infirmaries and treatment rooms shall be located in a suitable place where the inconvenience caused by noise and vibrations is as little as possible so that the patients may be given good conditions and so that they may be properly looked after in all kinds of weather.

3.2 It shall be possible to enter the rooms in a convenient way with a person lying on a stretcher; the doorway shall be at least 75 cm wide.

4.1 The bed or the beds shall be arranged separately so that they are accessible from at least three sides. Bunk beds are not permitted.

4.2 Next to each bed, there shall be a pushbutton with a wire connection ringing a bell located at a suitable place or another facility for calling help, e.g. an internal telephone.

5 A washroom with a toilet, wash basin and bathtub the internal length of which shall be at least 1.5 m shall be located immediately next to the infirmary/treatment room. Both the wash basin and the bathtub shall be supplied with hot and cold freshwater (taps).

6 In ships with a gross tonnage below 3000, the floor area in the infirmary/treatment room shall be at least 6.50 m^2 for every bed in the room, and in ships with a gross tonnage of 3000 or more, it shall be at least 7.50 m^2 for every bed.

7 The lighting in the infirmary/treatment room shall be variable, possibly through the installation of several fixed sources of light. The lighting at the beds shall, however, as a minimum meet the standards for work lighting set out in regulation 8. In addition, a reading light shall be fitted at the bed(s) and a night light in the room.

8 The infirmary/treatment room shall be marked as such and shall not be used for other purposes.

9 As to the provision of ships with medicaments, the existing specific provisions shall apply.

10 Hoist stretcher.

In ships with a gross tonnage of 150 or more, a hoist stretcher of a suitable type shall be kept in an appropriate place.

Regulation 22 Offices

1 In ships with a gross tonnage above 3000, one or more separate rooms shall be arranged as offices for the crew in the deck and engine section.

2 Such rooms shall have a floor area of at least 6 m^2, shall, as far as possible, be supplied with daylight and shall be equipped with the necessary furniture and fittings for office use.

Regulation 23 Cleaning and Inspection

1 The accommodation shall be kept clean and tidy. Cleaning shall be carried out daily. The rooms may be used only for goods or supplies belonging to the person or persons for whom the room is intended.

2 The accommodation shall be disinfected as necessary after any infectious illness on board.

3 Accommodation where vermin are found shall be cleaned and disinfected immediately.

4 The master of the ship or the person to whom he has delegated this duty shall, together with one more crewmembers, inspect all parts of the accommodation at least weekly. The result hereof shall be entered in the ship's logbook where one is kept or otherwise in the survey book.

Regulation 24 Exits[46)]

1 On each floor, there shall be two possible exits from each large room or group of rooms and they shall be placed as far apart from each other as possible.

2 Furthermore, the exits shall be placed so that a fire on one floor cannot trap people on another floor.

3 One of the exits may be an emergency exit through a hatch/door or porthole/window for which the following requirements are made:

.1 A hatch or door to the open deck shall have an internal dimension of at least 0.60 x 0.60 m.

.2 It shall be possible to open the hatch or the door from the inside without using a key or tool. It shall also be possible to open the hatch or the door directly from the outside;

[46)] *Reference is also made to Chapter II-2, regulation 13.*

however, the handle or another device may be removable and placed in a central place, e.g. on the bridge. The hatch or the door may not be provided with fittings for a padlock.

.3 A port-hole or window that is used as an emergency exit shall have an internal diameter of 0.45 m for port-holes and an internal dimension measured across of 0.45 m in the narrow direction for windows.

.4 If the emergency exit is accessed from the accommodation through separate rooms (steering engine room, other cabins or the like), doors to such rooms may not be locked unless they are fitted with a kick-hatch that may be removed in the direction of escape.

.5 The necessary ladders, steps and handrails shall be fitted to make access through the emergency exit easier.

.6 Appropriate points, e.g. doors, kick-hatches, windows/port-holes, etc., shall be labelled "Emergency Exit"

Part III Passenger Accommodation

Regulation 25 Passenger Accommodation, etc.

The definitions and provisions set out in Part II, regulation 5, with the exception of paragraphs 1.2 and 2.2, as well as regulation 6, regulation 7, regulation 9, regulation 10, paragraph 2, regulation 17, regulation 18[47)] and regulation 24 shall also be applied unless stated otherwise below regardless of the gross tonnage of the ship.

Regulation 26 Location

1 The accommodation may not be located in superstructures that are not of a permanent character neither in front of the collision bulkhead nor on the deck that is lower than the one that lies immediately below the waterline at the maximum permissible draught. In new ro-ro passenger ships, passenger cabins may not be located below the ro-ro deck (the bulkhead deck). Reference

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[47)] *Reference is also made to Chapter II-2, regulation 13.*

is also made to the requirements for escape routes in Chapter II-2, regulation 13.7.

2 Passengers may not be accommodated in rooms that are not approved for this purpose.

3 Sleeping quarters shall be separated from adjoining rooms in a suitable way, and they shall be provided with a clear marking of the maximum number of persons that they are intended for.

Regulation 27 Specification of the Number of Passengers in Individual Rooms

1 Passenger ships on voyages lasting for more than one night:

.1 There shall be a berth or an approved permanent couchette for all passengers.

.2 The number of persons in sleeping quarters shall be set by dividing the free floor area of the sleeping quarters by 1.1 m^2. If sleeping quarters are fitted out with separate bathrooms or a bathroom with a toilet, the free floor area of these rooms may be included when calculating the number of persons. Irregular floor areas where the length and width are below 0.6 m are not included in the calculation. A shower stall with the said minimum dimensions may be included in the free area.

.3 On open deck to which the passengers have access, at least 0.5 m2 of the free deck area shall be available to each passenger in addition to the area mentioned in paragraph 1.2. The parts of the deck where the passengers cannot be standing or sitting comfortably are not included in this calculation.

2 Passenger ships on voyages that do not last for more than one night:

.1 Ships on night voyages, i.e. between 10 pm and 6 am, of more than six hours shall have enclosed spaces for all passengers.

.2 The number of passengers in other rooms than the sleeping quarters is set as the smallest of the following figures:

.1 The floor area – measured in m^2 – available to the passengers, i.e. excluding serving counters and access to them as well as exits and the like, divided by 0.85 m^2.

.2 The floor area mentioned in paragraph 2.2.1 multiplied by the average height – measured in m – of the room

measured from the top of the floor covering to the bottom of the deck beams or their panelling divided by 1.9 m^3.

.3 The number of seats in the room.

.3 The number of persons in sleeping quarters is set by dividing the free floor area of the sleeping quarters by 0.85 m^2. If sleeping quarters are fitted out with separate bathrooms or a bathroom with a toilet, the free floor area of these rooms may be included when calculating the number of persons. Irregular floor areas where the length and width are below 0.6 m are not included in the calculation.

.4 The Danish Maritime Authority may permit deviations from the provisions of paragraphs 2.2 and 2.3 in the period from 1 May to 30 September.

3 Passenger ships on daytime voyages:

.1 For ships on daytime voyages, i.e. voyages not lasting for more than six hours within the period from 10 pm to 6 am, 0.85 m^2 free floor area shall be calculated for each passenger in enclosed rooms that are not sleeping quarters; the room may, however, not be calculated for more passengers than there are seats for.

.2 The provisions of paragraph 2.3 shall apply to any sleeping quarters.

.3 From 1 May to 30 September, it may, in addition to the number of passengers permitted in enclosed rooms, also be permitted to carry passengers on open deck; in such cases, at least 0.55 m2 deck area shall be calculated for each passenger. The space required to navigate the ship etc., including the handling of and embarkation of life-saving appliances, and all parts of the deck where the passengers may not be standing or sitting comfortably shall not be included in the calculation of the number of passengers.

.4 In ships or vessels with decks on which it is permitted to carry passengers on the open deck as stipulated above from 1 May to 30 September, enclosed rooms shall be available to at least one sixth of the maximum permitted number of passengers.

Regulation 28 Toilets

1 There shall be one toilet and one wash basin for every 50 passengers or part thereof.

2 Such toilets shall be properly protected against the sea and the weather and be provided with the necessary flushing facilities.

3 All toilet rooms shall be well lit and ventilated.

4 The provisions of paragraphs 1-3 shall not apply to open vessels.

Regulation 29 Hospital

1 In ships engaged in trade outside European waters and on which the number of crewmembers and the maximum permitted number of passengers in total exceed 100, a hospital shall be arranged on board. The hospital shall be well lit and well ventilated, insulated from the rooms that are intended for the crew and the passengers and be located at a place in the ship suitable and appropriate for this purpose where the inconvenience caused by noise and vibrations is as little as possible.

2 The hospital shall have four beds and, in addition if the number of persons on board exceeds 120, one bed for every further 60 persons or part thereof.

3 The total floor area less the space taken up for beds shall be at least 1.1 m^2 for each person that the room is intended for; there shall, however, be reasonable space for stretcher transport and access to the beds.

4 The beds shall be made of a material with a hard, smooth surface that does not corrode, their internal dimensions shall be at least 1.98 m x 0.8 m, and they shall be arranged so that they are easily accessible. The beds may not be placed on top of each other.

5 Next to each bed, there shall be a pushbutton with a wire connection ringing a bell located at a suitable place.

6 Adjoining the hospital, there shall be:

.1 A special room for storage of medicine (pharmacy).

.2 An operating room (possibly the pharmacy) or another room the size of which is sufficient to set up an operating table that is accessible from all sides.

.3 A bathroom that complies with the provisions of regulation 21, paragraph 5.

.4 A toilet with a wash basin for each of the hospital wards.

.5 A ventilation arrangement that complies with the requirements of regulation 6.

.6 In ships engaged in voyages of rather short duration and where medical help may be expected, the Danish Maritime Authority may permit deviations from the above provisions.

Regulation 30 Disabled persons

1 Where practicable, appropriate measures shall be implemented on the basis of the following guidelines to ensure that there is safe access for disabled persons to all passenger ships and all high-speed passenger craft which are used for public transport, and whose keel was laid or which is at a similar stage of construction on or after 1 October 2004:

.1 IMO's Circular 735 (MSC/735) of 24 June 1996 Recommendation on the design and operation of passenger ships to respond to elderly and disabled persons' needs, must be followed.

.2 The ship shall be constructed and equipped in such a way that a disabled person may easily and safely board or disembark and is ensured access to the various decks either with or without the aid of ramps, lifting platforms or elevators. Signs shall be erected referring to such access facilities adjacent to the other entrances of the ship and at other appropriate locations throughout the ship.

.3 Signs intended to guide passengers on the ship shall be accessible and easy to read for disabled persons (including persons with sensory disabilities) and shall be erected in central locations.

.4 There shall be means on board to visually and verbally communicate messages concerning, for example, delays, changes to sailing plans and services on board for disabled persons with different forms of reduced mobility.

.5 Alarm systems and buttons shall be accessible to and shall be able to warn all disabled persons with a sensory disability and persons with a mental disability.

.6 Railings, corridors and passageways, door openings and doors shall be accessible to a person in a wheelchair. Elevators, car decks, passenger saloons, facilities and toilets shall be designed so as to be accessible in a reasonable manner and provided to a reasonable extent for disabled persons.

2 The Danish Maritime Authority collaborates with and is a member of organisations which represent disabled persons

concerning the implementation of the guidelines in regulation 30.1.

3 On rebuilding of passenger ships and high-speed craft which are used for public transport and whose keel was laid or which is at a similar stage of construction prior to 1 October 2004, the guidelines in regulation 30.1 shall be used where they are financially reasonable and feasible.

Chapter B II-5 A(1)
1 September 2004

Technical Regulation on the construction and equipment etc. of ships

C H A P T E R B I I - 5

The Load Line Convention, 1966, as amended by the Protocol of 1988, 3 January 1994.

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A N N E X 1

Regulations for determining load lines

C H A P T E R I

General provisions

The Regulations assume that the nature and stowage of the cargo, ballast etc., are such as to secure sufficient stability of the ship and the avoidance of excessive structural stress.

The Regulations also assume that where there are international requirements relating to stability or subdivision, these requirements have been complied with.

Regulation 1 Strength and intact stability of ships

(1) The Administration shall satisfy itself that the general structural strength of the hull is sufficient for the draught corresponding to the freeboard assigned.

(2) Ships designed, built and maintained in conformity with the relevant requirements of an organisation recognised by the Administration, including a classification society, or with the current national standards of the Administration in accordance with the provisions of Regulation 2-1, may be considered to possess adequate strength. The above-mentioned provisions shall apply to all structures, fittings and equipment covered by this Annex, for which strength and design criteria are not expressly given.

(3) Ships shall comply with a standard for intact stability that is acceptable to the Administration.

Regulation 2 Application

(1) Ships with mechanical means of propulsion or lighters, barges or other ships without independent means of propulsion, shall be assigned freeboards in accordance with the provisions of Regulations 1-40.

(2) Ships carrying timber deck cargoes may be assigned, in addition to the freeboards prescribed in paragraph (1), timber freeboards in accordance with the provisions of Regulations 41-45.

(3) Ships designed to carry sail, whether as the sole means of propulsion or as a supplementary means, and tugs, shall be assigned freeboards in accordance with the provisions of Regulations 1-40. Such additional freeboard shall be required as determined by the Administration.

(4) Ships of wood or of composite construction, or of other materials the use of which the Administration has approved, or ships whose constructional features are such as to render the application of the provisions of the Annex unreasonable or impracticable, shall be assigned freeboards as determined by the Administration.

(5) Regulations 10-26 shall apply to every ship to which a minimum freeboard is assigned. Relaxations from these requirements may be granted to a ship to which a greater than minimum freeboard is assigned on condition that the Administration is satisfied with the safety conditions provided.

(6) Where the assigned summer freeboard is increased such that the resulting draught is not greater than that corresponding to the ship's minimum summer freeboard, but with an assumed freeboard deck located at a distance below the actual freeboard deck at least equal to the standard superstructure height, the conditions for complying with Regulations 12, 14-1 to 20, 23, 24 and 25 with regard to the freeboard deck, may be as required for a superstructure deck.

(7) Unless expressly provided otherwise, these provisions shall apply to ships the keels of which are laid or which are at a similar stage of construction on or after 1 January 2005.

(8) The Administration shall ensure that ships whose keels are laid or are at a similar stage of construction before 1 January 2005 comply with the requirements in force pursuant to the International Convention on Load Lines, 1966, as amended by the Protocol of 1988, adopted at the International Conference on the Harmonised System of Survey and Certification, 1988.

(9) High speed craft complying with the requirements of the International Code of Safety for High Speed Craft, 2000 (HSC Code, 2000), adopted by the Maritime Safety Committee of the Organisation by Resolution MSC.97(73), and which have been surveyed and certified as provided in the Code shall be deemed to have complied with the requirements of this Annex. The certificates and permits issued under the HSC Code, 2000, shall

have the same force and the same recognition as certificates issued under these provisions.

Regulation 2-1 Authorisation of recognised organisations

Organisation, including classification societies, referred tin in Article 13 of the Convention and Regulation 1(2) shall comply with the guidelines adopted by the Organisation by Resolution A.739(18), as may be amended by the Organisation, and the specifications adopted by the Organisation by Resolution A.789(19), as may be amended by the Organisation, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of the Convention.

Regulation 3 Definitions of terms used in the Annexes

(1) 'Length'

(a) The length (L) shall be taken as 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or as the length from the fore side of the stem to the axis of the rudder stock on that waterline, if that be greater.

(b) For ships without a rudder stock, the length (L) is to be taken ad 96% of the waterline at 85% of the least moulded depth.

(c) Where the stem contour is concave above the waterline at 85% of the least moulded depth, both the forward terminal of the total length and the fore-side of the stem respectively shall be taken at the vertical projection to that waterline of the aftermost point of the stem contour (above that waterline) (see figure 3.1).

(d) In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline at 85% of the least moulded depth D_{min}, found by drawing a line parallel to the keel line of the vessel (including skeg) tangent to the moulded sheer line of the freeboard deck. The least moulded depth is the vertical distance measured from the top of the keel to the tangent line (see figure 3.2).

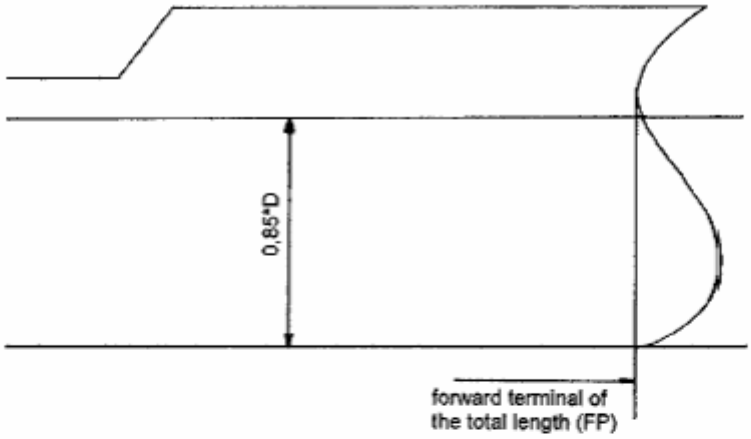

Figure 3.1

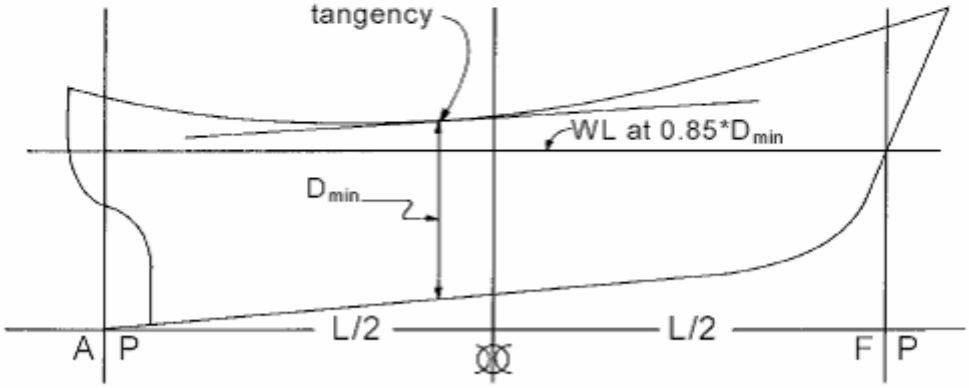

Figure 3.2

(2) 'Perpendiculars'. The forward and after perpendiculars shall be taken at the forward and after ends of the length (L). The forward perpendicular shall coincide with the foreside of the stem on the waterline on which the length is measured.

(3) 'Amidships' Amidships is at the middle of the length (L).

(4) 'Breadth'. Unless expressly provided otherwise, the breadth (B) is the maximum breadth of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the

outer surface of the hull in a ship with a shell of any other material.

(5) 'Moulded depth'

(a) The moulded depth is the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side. In wood and composite ships the distance is measured from the lower edge of the keel rabbet. Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel.

(b) In ships having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of deck and sides, the lines extending as though the gunwale were of angular design.

(c) Where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the moulded depth shall be measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

(6) 'Depth for freeboard' (D)

(a) The depth for freeboard (D) is the moulded depth amidships, plus the freeboard deck thickness at side.

(b) The depth for freeboard (D) in a ship having a rounded gunwale with a radius greater than 4% of the breadth (B) or having topsides of unusual form is the depth for freeboard of a ship having a midship section with vertical topsides and with the same round of beam and area of topside section equal to that provided by the actual midship section.

(7) 'Block coefficient'

(a) The block coefficient (C_b) is given by:

$$C_b = \frac{\nabla}{L * B * d_1}, \text{ where}$$

∇ is the volume of the moulded displacement of the ship, excluding appendages, in a ship with a metal shell, and is the volume of displacement to the outer surface of the hull in a ship with a shell of any other material, both taken at a moulded draught of d_1, where

d_1 is 85% of the least moulded depth.

(b) When calculating the block coefficient of a multi-hull craft, the full breadth (B) as defined in paragraph (4) is to be used and not the breadth of a single hull.

(8) 'Freeboard'. The freeboard assigned is the distance measured vertically downwards amidships from the upper edge of the deck line to the upper edge of the related load line.

(9) 'Freeboard deck'

(a) The freeboard deck is normally the uppermost complete deck exposed to weather and sea, which has permanent means of closing all openings in the weather part thereof, and below which all openings in the sides of the ship are fitted with permanent means of watertight closing.

(b) Lower deck as a freeboard deck

At the option of the owner and subject to the approval of the Administration, a lower deck may be designated as the freeboard deck provided it is a complete and permanent deck continuous in a fore and aft direction at least between the machinery space and peak bulkheads and continuous athwartships.

(i) When this lower deck is stepped the lowest line of the deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.

(ii) When a lower deck is designated as the freeboard deck, that part of the hull which extends above the freeboard deck is treated as a superstructure so far as concerns the application of the conditions of assignment and the calculation of freeboard. It is from this deck that the freeboard is calculated.

(iii) When a lower deck is designated as the freeboard deck, such a deck as a minimum shall consist of suitably framed stringers at the ship sides and transversely at each watertight bulkhead which extends to the upper deck, within cargo spaces. The width of these stringers shall not be less than can be conveniently fitted having regard to the structure and the operation of the ship. Any arrangement of stringers shall be such that structural requirements can also be met.

(c) Discontinuous freeboard deck, stepped freeboard deck

(i) Where a recess in the freeboard deck extends to the sides of the ship and is in excess of one metre in length, the lowest line of the exposed deck and the continuation

of that line parallel to the upper part of the deck is taken as the freeboard deck (see figure 3.3).

(ii) Where a recess in the freeboard deck does not extend to the sides of the ship, the upper part of the deck is taken as the freeboard deck.

(iii) Recesses not extending from side to side in a deck below the exposed deck, designated as the freeboard deck, may be disregarded, provided all openings in the weather deck are fitted with weathertight closing appliances.

(iv) Due regard shall be given to the drainage of exposed recesses and to free surface effects on stability.

(v) Provisions of subparagraphs (i) – (iv) are not intended to apply to dredgers, hopper barges or other similar types of ships with large open holds, where each case requires individual consideration.

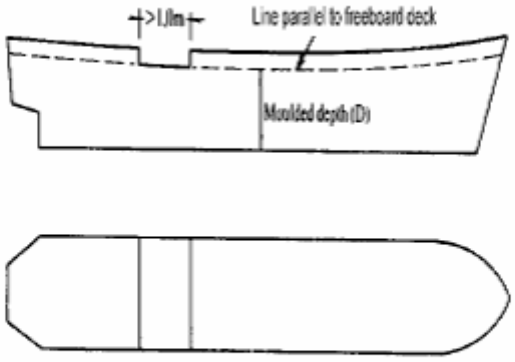

Figure 3.3

(10) 'Superstructure'

(a) A superstructure is 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% of the breadth (B).

(b) An enclosed superstructure is a superstructure with:

(i) enclosing bulkheads of efficient construction;

(ii) access openings, if any, in these bulkheads fitted with doors complying with the requirements of Regulation 12;

(iii) all other openings in sides or ends of the superstructure fitted with efficient weathertight means of closing.

A bridge or poop shall not be regarded as enclosed unless access is provided for the crew starting from any point on the uppermost complete exposed deck or higher to reach machinery and other working spaces inside these superstructures by alternative means which are available at all times when bulkhead openings are closed.

(c) The height of a superstructure is the least vertical height measured at side from the top of the superstructure deck beams to the top of the freeboard deck beams.

(d) The length of a superstructure (S) is the mean length of the part of the superstructure which lies within the length (L).

(e) 'Bridge'. A bridge is a superstructure which does not extend to either the forward or after perpendicular.

(f) 'Poop'. A poop is a superstructure which extends from the after perpendicular forward to a point which is aft of the forward perpendicular. The poop may originate from a point aft of the aft perpendicular.

(g) 'Forecastle'. A forecastle is a superstructure which extends from the forward perpendicular aft to a point which is forward of the after perpendicular. The forecastle may originate from a point forward of the forward perpendicular.

(h) 'Full superstructure'. A full superstructure is a superstructure which, as a minimum, extends from the forward to the after perpendicular.

(i) 'Raised quarterdeck'. A raised quarterdeck is a superstructure which extends forward from the after perpendicular, generally has a height less than a normal superstructure, and has an intact front bulkhead (sidescuttles of the non-opening type fitted with efficient deadlights and bolted man-hole covers) (see figure 3.4). Where the forward bulkhead is not intact due to doors and access openings, the superstructure is then to be considered as a poop.

[figure 3.4]

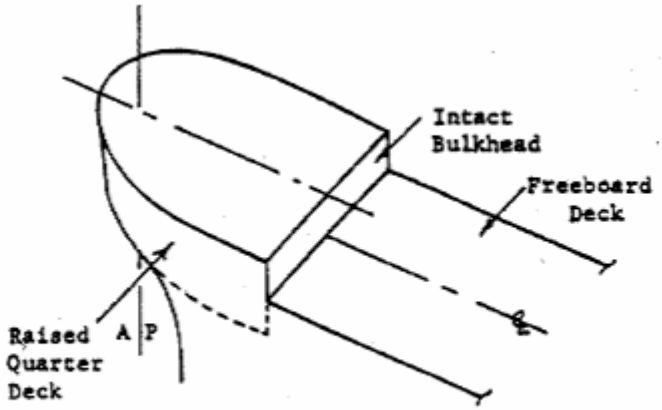

Figure 3.4

(11) 'Superstructure deck'. A superstructure deck is a deck forming the upper boundary of a superstructure.

(12) 'Flush deck ship'. A flush deck ship is one which has no superstructure on the freeboard deck.

(13) 'Weathertight'. Weathertight means that in any sea conditions water will not penetrate into the ship.

(14) 'Watertight'. Watertight means capable of preventing the passage of water through the structure in either direction under the pressure due to the maximum head of water which it might have to sustain.

(15) 'Well'. A well is any area on the deck exposed to the weather, where water may be entrapped. Wells are considered to be deck areas bounded on two or more sides by deck structures.

Regulation 4 Deck line

The deck line is a horizontal line 300 mm in length and 25 mm in breadth. It shall be marked amidships on each side of the ship, and its upper edge shall normally pass through the point where the continuation outwards of the upper surface of the freeboard deck intersects the outer surface of the shell (as illustrated in figure 4.1), provided that the deck line may placed with reference to another fixed point on the ship on condition that the freeboard is correspondingly corrected. The location of the reference point and the identification of the freeboard deck shall in all cases be indicated on the International Load Line Certificate.

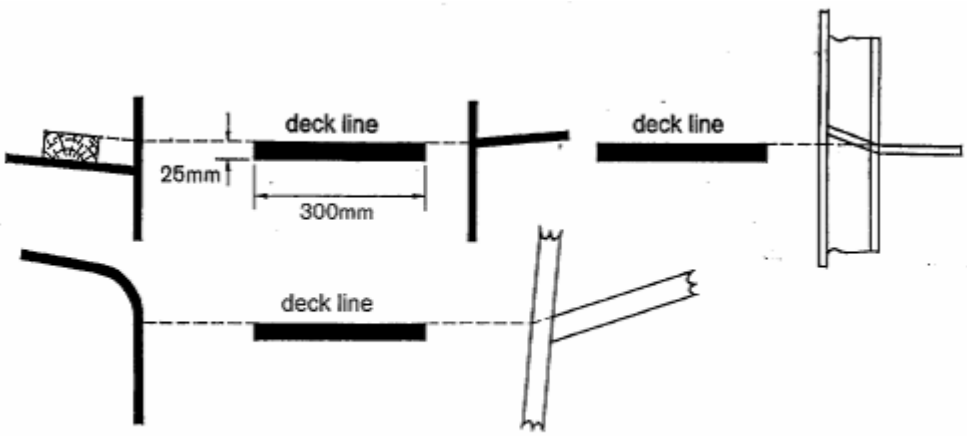

Figure 4.1 Deck line

Regulation 5 Load line mark

The load line mark shall consist of a ring 300 mm in outside diameter and 25 mm wide which is intersected by a horizontal line 450 mm in length and 25 mm in breadth, the upper edge of which passes through the centre of the ring. The centre of the ring shall be placed amidships and at a distance equal to the assigned summer freeboard measured vertically below the upper edge of the deck line (as illustrated in figure 6.1).

Regulation 6 Lines to be used with the load line mark

(1) The lines which indicate the load line assigned in accordance with these Regulations shall be horizontal lines 230 mm in length and 25 mm in breadth which extend forward of, unless expressly provided otherwise, and at right angles to, a vertical line 25 mm in breadth marked at a distance 540 mm forward of the centre of the ring (as illustrated in figure 6.1).

(2) The following load lines shall be used:

(a) The summer load line indicated by the upper edge of the line which passes through the centre of the ring and also be a line marked S.

(b) The winter load line indicated by the upper edge of a line marked W.

(c) The winter North Atlantic load line indicated by the upper edge of a line marked WNA.

(d) The tropical load line indicated by the upper edge of a line marked T.

(e) The fresh water load line in summer indicated by the upper edge of a line marked F. The fresh water load line in summer is marked abaft the vertical line. The distance between the fresh water load line in summer and the summer load line is the allowance to be made for loading in fresh water at the other load lines.

(f) The tropical fresh water load line indicated by the upper edge of a line marked TF and marked abaft the vertical line.

(3) If timber freeboards are assigned in accordance with these Regulations, the timber load lines shall be marked in addition to ordinary load lines. These lines shall be horizontal lines 230 mm in length and 25 mm in breadth which extend abaft unless expressly provided otherwise, and are at right angles to, a vertical line 25 mm in breadth marked at a distance 540 mm abaft the centre of the ring (as illustrated in figure 6.2).

(4) The following timber load lines shall be used:

(a) The summer timber load line indicated by the upper edge of a line marked LS.

(b) The winter timber load line indicated by the upper edge of a line marked LW.

(c) The winter North Atlantic load line indicated by the upper edge of a line marked LWNA.

(d) The tropical timber load line indicated by the upper edge of a line marked LT.

(e) The fresh water timber load line in summer indicated by the upper edge of a line marked LF and marked forward of the vertical line. The distance between the fresh water timber load line in summer and the summer timber load line is the allowance to be made for loading in fresh water at the other load lines.

(f) The tropical fresh water timber load line indicated by the upper edge of a line marked LTF and marked forward of the vertical line.

(5) Where the characteristics of a ship or the nature of the ship's service or navigational limits make any of the seasonal lines inapplicable, these lines may be omitted.

(6) Where a ship is assigned a greater than minimum freeboard so that the load line is marked at a position corresponding to, or lower than, the lowest seasonal load line assigned at minimum freeboard in accordance with the present Convention, only the fresh water load line need be marked.

(7) Where a winter North Atlantic load line is coincident with the winter load line corresponding to the same vertical line, this load line shall be marked W.

(8) Additional load lines required by other international conventions in force may be marked at right angles to and abaft the vertical line specified in paragraph (1).

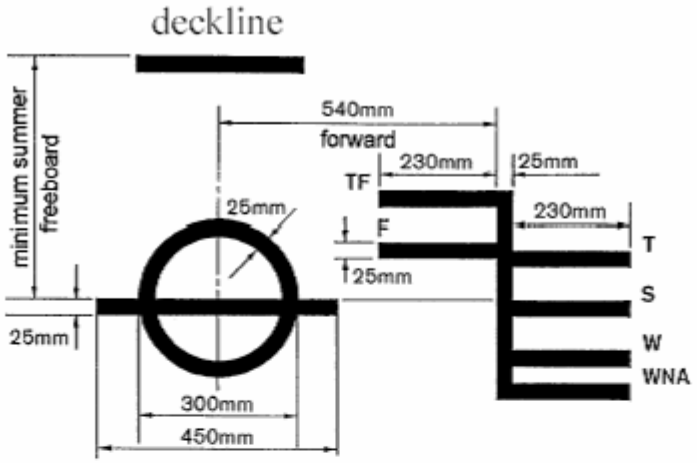

Figure 6.1 Load line mark and lines to be used with this mark

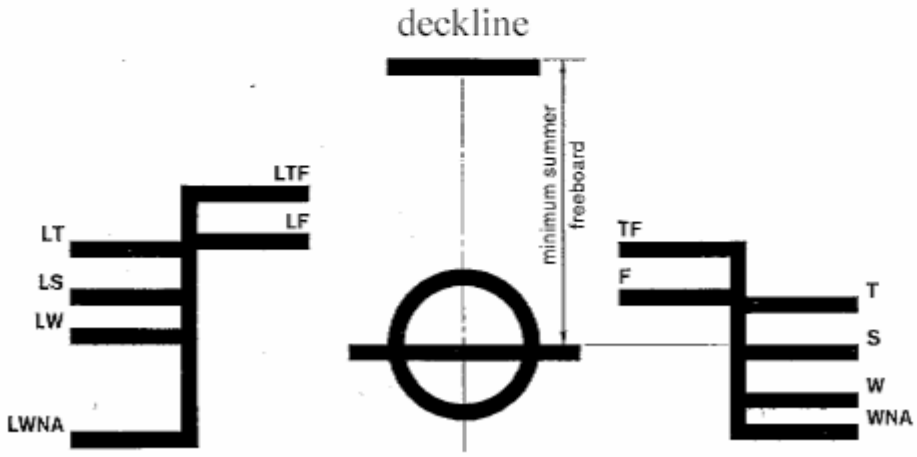

Figure 6.2 Timber load line mark and lines to be used with this mark

Regulation 7 Mark of assigning authority

The mark of the authority by whom the load lines are assigned may be indicated alongside the load line ring above the horizontal line which passes through the centre of the ring, or above and below it. This mark shall consist of not more than four

initials to identify the authority's name, each measuring approximately 115 mm in height and 75 mm in width.

Regulation 8 Details of marking

The ring, lines and letters shall be painted in white or yellow on a dark ground or in black on a light ground. They shall also be permanently marked on the sides of the ships to the satisfaction of the Administration. The marks shall be plainly visible and, if necessary, special arrangements shall be made for this purpose.

Regulation 9 Verification of marks

The International Load Line Certificate shall not be delivered to the ship until the officer or surveyor acting under the provisions of Article 13 of the Convention has certified that the marks are correctly and permanently indicated on the ship's sides.

C H A P T E R I I

Conditions of assignment of freeboard

Regulation 10Information to be supplied to the master

(1) The master of every new ship shall be supplied with information to arrange for the loading and ballasting of his ship in such a way as to avoid the creation of any unacceptable stresses in the ship's structure, provided that this requirements need not apply to any particular length, design or class of ship where the Administration considers it to be unnecessary.

(2) Information shall be provided to the master in a form that is approved by the Administration or a recognised organisation. Stability information and loading information also related to ship strength when required under paragraph (1), shall be carried on board at all times together with evidence that the information has been approved by the Administration.

(3) A ship which is not required under the International Convention for Safety of Life at Sea in force to undergo an inclining test upon its completion shall:

(a) have undergone an inclining test, and the actual displacement and position of the centre of gravity shall be determined for the lightship condition;

(b) if the Administration so approves, have its inclining test on completion dispensed with, provided basic stability data are available from the inclining test of a sister ship and it is shown to the satisfaction of the Administration that reliable stability information for the ship can be obtained from such basic data;

(c) if the Administration decides that the performance of an inclining test is not practicable or safe or yields inaccurate results due to the specific proportions, arrangements, strength or hull form of a ship, have the ship's lightship characteristics determined by a detailed weight estimate confirmed by a lightweight survey;

(d) have such information,[48] supplied for the use of its master as is necessary to enable the master, by rapid and simple

[48] Refer to the Code on Intact Stability for All Types of Ships covered by IMO Instruments, adopted by the Organisation by Resolution A.749(18), as amended.

processes, to obtain accurate guidance as to the stability of the ship under all conditions likely to be encountered in normal service; and

(e) carry on board at all times its approved stability information together with evidence that the information has been approved by the Administration.

(4) Where any alterations are made to a ship so as to materially affect the loading or stability information supplied to the master, amended information shall be provided. If necessary the ship shall be re-inclined.

Regulation 11Superstructure end bulkheads

Bulkheads at exposed ends of enclosed superstructures shall be of an acceptable level of strength.

Regulation 12Doors

(1) All access openings in bulkheads at ends of enclosed superstructures shall be fitted with doors of steel or other equivalent material, permanently and strongly attached to the bulkhead, and framed, stiffened and fitted so that the whole structure is of equivalent strength to the un-pierced bulkhead and weathertight when closed. The means for securing these doors weathertight shall consist of gaskets and clamping devices or other equivalent means and shall be permanently attached to the bulkhead or to the doors themselves, and the doors shall be arranged that they can be operated from both sides of the bulkhead.

(2) Unless otherwise permitted by the Administration, doors shall open outwards to provide additional security against the impact of the sea.

(3) Except as otherwise provided in these Regulations, the height of the sills of access openings in bulkheads at ends of enclosed superstructures shall be at least 380 mm above the deck.

(4) Portable sills shall be avoided. However, in order to facilitate the loading/unloading of heavy spare parts of similar, portable sills may be fitted on the following conditions:

(a) they shall be installed before the ship leaves port; and

(b) they shall be gasketed and fastened by closely spaced through bolts.

Regulation 13Position of hatchways, doorways and ventilators

For the purpose of these Regulations, two positions of hatchways, doorways and ventilators are defined as follows:

Position 1 Upon exposed freeboard and raised quarter decks, and upon exposed superstructure decks situated forward of a point located a quarter of the ship's length from the forward perpendicular.

Position 2 Upon exposed superstructure decks situated abaft a quarter of the ship's length from the forward perpendicular and located at least one standard height of superstructure above the freeboard deck.

Upon exposed superstructure decks situated forward of a point located a quarter of the ship's length from the forward perpendicular and located at least two standard heights of superstructure above the freeboard deck.

Regulation 14Cargo and other hatchways

(1) The construction and means for securing the weathertightness of cargo and other hatchways in position 1 and 2 shall be at least equivalent to the requirements of Regulation 16, unless the application of Regulation 15 to such hatchways is granted by the Administration.

(2) Coamings and hatchway covers to exposed hatchways on decks above the superstructure deck shall comply with the requirements of the Administration.

Regulation 14-1 Hatchway coamings

(1) The coamings of hatchways shall be of substantial construction in accordance with their position, and their height above the deck shall be at least as follows:

600 mm if in position 1; and

450 mm if in position 2.

(2) In the case of hatchways which comply with Regulation 16(2)-16(5), the height of these coamings may be reduced, or the coamings omitted entirely, on condition that the Administration is satisfied that the safety of the ship is not thereby impaired in any sea conditions.

Regulation 15Hatchways closed by portable covers and secured weathertight by tarpaulins and battening devices

Hatchway covers

(1) The width of each bearing surface for hatchway covers shall be at least 65 mm.

(2) Where covers are made of wood, the finished thickness shall be at least 60 mm in association with a span of not more than 1.5 m.

(3) Where covers are made of mild steel, the strength shall be calculated in accordance with the requirement of Regulations 16(2)-16(4) and the product of the maximum stress thus calculated and the factor 1.25 shall not exceed the minimum upper yield point strength of the material. They shall be so designed as to limit the deflection to not more than 0.0056 times the span under these loads.

Portable beams

(4) Where portable beams for supporting hatchway covers are made of mild steel, the strength shall be calculated with assumed loads not less than 3.5 t/m^2 on hatchways in position 1 and not less than 2.6 t/m^2 on hatchways in position 2 and the product of the maximum stress thus calculated and the factor 1.47 shall not exceed the minimum upper yield point strength of the material. They shall be so designed as to limit the deflection to not more than 0.0044 times the span under these loads.

(5) The assumed loads on hatchways in position 1 may be reduced to 2 t/m2 for ships 24 m in length and shall be not less than 3.5 t/m2 for ships 100 m in length. The corresponding loads on hatchways in position 2 may be reduced to 1.5 t/m2 and 2.6 t/m2, respectively. In all cases, values at intermediate lengths shall be obtained by linear interpolation.

Pontoon covers

(6) Where pontoon covers used in place of portable beams and covers are made of mild steel, the strength shall be calculated in accordance with the requirement of Regulation 16(2) to (4) and the product of the maximum stress thus calculated and the factor 1.47 shall not exceed the minimum upper yield point strength of the material. They shall be so designed as to limit the deflection to not more than 0.0044 times the span. Mild steel plating forming the tops of covers shall be not less in thickness than 1% of the spacing of stiffeners or 6 mm if that be greater.

(7) The strength and stiffness of covers made of materials other than mild steel shall be equivalent to those of mild steel to the satisfaction of the Administration.

Carriers or sockets

(8) Carriers or sockets for portable beams shall be of substantial construction, and shall provide means for the efficient fitting and securing of the beams. Where rolling types of beams are used, the arrangements shall ensure that the beams remain properly in position when the hatchway is closed.

Cleats

(9) Cleats shall be set to fit the taper of the wedges. They shall be at least 65 mm wide and spaced not more than 600 mm centre to centre; the cleats along each side or end shall be not more than 150 mm from the hatch corners.

Battens and wedges

(10) Battens and wedges shall be efficient and in good condition. Wedges shall be of tough wood or other equivalent material. They shall have a taper of not more than 1 in 6 and shall be not less than 13 mm thick at the toes.

Tarpaulins

(11) At least two layers of tarpaulin in good condition shall be provided for each hatchway in position 1 or 2. The tarpaulins shall be waterproof and of ample strength. They shall be of a material of at least an approved standard weight and quality.

Securing of hatchway covers

(12) For all hatchways in position 1 or 2 steel bars or other equivalent means shall be provided in order efficiently and independently to secure each section of hatchway covers after the tarpaulins are battened down. Hatchway covers of more than 1.5 m in length shall be secured by at least two such securing appliances.

Regulation 16 Hatchways closed by weathertight covers of steel or other equivalent materials.

(1) All hatchways in position 1 and 2 shall be fitted with hatch covers of steel or other equivalent material. Except as provided in regulation 14(2), such covers shall be weathertight and fitted with gaskets and clamping devices. The means for securing and maintaining weathertightness shall be to the satisfaction of the Administration. The arrangements shall ensure that the tightness can be maintained in any sea conditions, and for this purpose tests for tightness shall be required at the initial survey, and may be required at renewal and annual surveys or at more frequent intervals.

Hatch cover minimum design loads

(2) For ships of 100 m in length and above:

(a) Position 1 hatch covers located in the forward quarter of the ship's length shall be designed for wave loads at the forward perpendicular, calculated from the following equation:

Load = $5 + (L_H\text{-}100)A$ in tons/m^2

where:

L_H is L for ships of not more than 340 m and equal to 340 m for ships of more than 340 m in length;

L is the length of the ship (meters), as defined in Regulation 3;

A is given in table 16.1,

and reduced linearly to 3.5 t/m2 at the end of the forward quarter's length, as shown in table 16.2. The design load used for each hatch cover panel shall be that determined at its midpoint location.

(b) All other position 1 hatch covers shall be designed to 3.5 t/m2.

(c) Position 2 hatch covers shall be designed to 2.6 t/m2.

(d) Where a position 1 hatchway is located at least one superstructure standard height higher than the freeboard deck, it may be designed to 3.5 t/m2.

Table 16.1

	a
Type B freeboard ships	0.0074
Ships assigned reduced freeboard by regulation	0.0363

	27(9) or (10)	

(3) For ships 24 m in length:

(a) Position 1 hatch covers located in the forward quarter of the ship's length shall be designed for wave loads of 2.43 t/m^2 at the forward perpendicular and reduced linearly to 2 t/m^2 at the end of the forward quarter's length as shown in table 16.2. The design load used for each hatch cover panel shall be that determined at its midpoint location.

(b) All other position 1 hatch covers shall be designed to 2 t/m^2.

(c) Position 2 hatch covers shall be designed to 1.5 t/m^2.

(d) Where a position 1 hatchway is located at least one superstructure standard height higher than the freeboard deck, it may be designed to 2 t/m^2.

(4) For ships between 24 m and 100 m in length, and for positions between FP and 0.25L, wave loads shall be obtained by linear interpolation of the values shown in table 16.2.

Table 16.2

	Longitudinal position		
	FP	0.25 L	Aft of 0.25 L
	L > 100 m		
Freeboard deck	Equation in 16(2)(a)	3.5 t/m^2	3.5 t/m^2
Superstructure deck	3.5 t/m^2		2.6 t/m^2
	L = 100 m		
Freeboard deck	5 t/m^2	3.5 t/m^2	3.5 t/m^2
Superstructure deck	3.5 t/m^2		2.6 t/m^2
	L = 24 m		
Freeboard deck	2.43 t/m^2	2 t/m^2	2 t/m^2

	Superstructure deck	2 t/m^2	1.5 t/m^2

(5) All hatch covers shall be designed such that:

(a) the product of the maximum stress determined in accordance with the above loads and the factor of 1.25 does not exceed the minimum upper yield point strength of the material in tension and the critical buckling strength in compression;

(b) the deflection is limited to not more than 0.0056 times the span;

(c) steel plating forming the tops of covers is not less in thickness than 1% of the spacing of stiffeners or 6 mm if that be greater; and

(d) an appropriate corrosion margin is incorporated.

Securing arrangements

(6) The means for securing and maintaining weathertightness by other means than gaskets and clamping shall be to the satisfaction of the Administration.

(7) Hatch covers which rest on coamings shall be located in their closed position by means capable of withstanding horizontally acting loads in any sea conditions.

Regulation 17 Machinery space openings

(1) Machinery space openings in position 1 or 2 shall be properly framed and efficiently enclosed by steel casings of ample strength, and where the casings are not protected by other structures their strength shall be specially considered. Access openings in such casings shall be fitted with doors complying with the requirements of regulation 12(1), the sills of which shall be at least 600 mm above the deck if in position 1, and at least 380 mm above the deck if in position 2. Other openings in such casings shall be fitted with equivalent covers, permanently attached in their proper positions.

(2) Where machinery casings are not protected by other structures, double doors (i.e. inner and outer doors complying with the requirements of regulation 12(1)) shall be required for ships assigned freeboards less than those based on table 28.2 of regulation 28. An inner sill of 230 mm in conjunction with the outer sill of 600 mm shall be provided.

(3) Coamings of any fiddley, funnel or machinery space ventilator in an exposed position on the freeboard deck or superstructure deck shall be as high above the deck as is reasonable and practicable. In general, ventilators necessary to continuously supply the machinery space shall have coamings of sufficient height to comply with regulation 19(3), without having to fit weathertight closing appliances. Ventilators necessary to continuously supply the emergency generator room, if this is considered buoyant in the stability calculation or protecting opening leading below, shall have coamings of sufficient height to comply with regulation 19(3), without having to fit weathertight closing appliances.

(4) Where due to ship size and arrangement this is not practicable, lesser heights for machinery space and emergency generator room ventilator coamings, fitted with weathertight closing appliances in accordance with regulation 19(4), may be permitted by the Administration in combination with other suitable arrangements to ensure an uninterrupted, adequate supply of ventilation to these spaces.

(5) Fiddley openings shall be fitted with strong covers of steel or other equivalent material permanently attached in their proper positions and capable of being secured weathertight.

Regulation 18
Miscellaneous openings in freeboard and superstructure decks

(1) Manholes and flush scuttles in position 1 or 2 or within superstructures other than enclosed superstructures shall be closed by substantial covers capable of being made watertight. Unless secured by closely spaced bolts, the covers shall be permanently attached.
(2) Openings in freeboard decks other than hatchways, machinery space openings, manholes and flush scuttles shall be protected by an enclosed superstructure, or by a deckhouse or companionway of equivalent strength and weathertightness. Similarly, any such opening in an exposed superstructure deck, in the top of a deckhouse on the freeboard deck

which gives access to a space below the freeboard deck or a space within an enclosed superstructure shall be protected by an efficient deckhouse or companionway. Doorways in such companionways or deckhouses that lead or give access to stairways leading below, shall be fitted with doors in accordance with regulation 12(1). Alternatively, if stairways within a deckhouse are enclosed within properly constructed companionways fitted with doors complying with regulation 12(1), the external door need not be weathertight.

(3) Openings in the top of a deckhouse on a raised quarterdeck or superstructure of less than standard height, having a height equal to or greater than the standard quarterdeck height, shall be provided with an acceptable means of closing but need not be protected by an efficient deckhouse or companionway as defined in the regulation, provided that the height of the deckhouse is at least the standard height of a superstructure. Openings in the top of the deck house on a deck house of less than a standard superstructure height may be treated in a similar manner.

(4) In position 1 the height above the deck of sills to the doorways in companionways shall be at least 600 mm. In position 2 it shall be at least 380 mm.

(5) Where access is provided from the deck above as an alternative to access from the freeboard deck in accordance with regulation 3(10)(b), then the height of sills into a bridge or poop shall be 380 mm. The same shall apply to deckhouses on the freeboard deck.

(6) Where access is not provided from above, the height of the sills to doorways in deckhouses on the freeboard deck shall be 600 mm.

(7) Where the closing appliances of access openings in superstructures and deckhouses are not in accordance with regulation 12(1), interior deck openings shall be considered exposed (i.e. situated in the open deck).

Regulation 19 Ventilators

(1) Ventilators in position 1 or 2 to spaces below freeboard deck or decks of enclosed superstructures shall have coamings of steel or other equivalent material, substantially constructed and efficiently connected to the deck. Ventilators in position 1 shall have coamings of a height of at

least 900 mm above the deck; in position 2 the coamings shall be of a height at least 760 mm above the deck. Where the coaming of any ventilator exceeds 900 mm in height it shall be specially supported.

(2) Ventilators passing through superstructures other than enclosed superstructures shall have substantially constructed coamings of steel or other equivalent material at the freeboard deck.

(3) Ventilators in position 1 the coamings of which extend to more than 4.5 m above the deck, and in position 2 the coamings of which extend to more than 2.3 m above the deck, need not be fitted with closing arrangements unless specifically required by the Administration.

(4) Except as provided in paragraph (3), ventilator openings shall be provided with weathertight closing appliances of steel or other equivalent material. In ships of not more than 100 m in length the closing appliances shall be permanently attached; where not so provided in other ships, they shall be conveniently stowed near the ventilators to which they are to be fitted.

(5) In exposed locations, the height of coamings may be increased to the satisfaction of the Administration.

Regulation 20 Air pipes

(1) Where air pipes to ballast and other tanks extend above the freeboard or superstructure decks, the exposed parts of the pipes shall be of substantial construction; the height from the deck to the point where water may have access below shall be at least 760 mm on the freeboard deck and 450 mm on the superstructure deck.

(2) Where these heights may interfere with the working of the ship, a lower height may be approved, provided that the Administration is satisfied that the closing arrangements and other circumstances justify a lower height.

(3) Air pipes shall be provided with automatic closing devices.

(4) Pressure-vacuum valves (PV valves) may be accepted on tankers.

Regulation 21

Cargo ports and other similar openings

(1) Cargo ports and other similar openings in the sides of ships below the freeboard deck shall be fitted with doors so designed as to ensure the same watertightness and structural integrity as the surrounding shell plating. Unless otherwise granted by the Administration, these opening shall open outwards. The number of such openings shall be the minimum compatible with the design and proper working of the ship.

(2) Unless otherwise permitted by the Administration, the lower edge of openings referred to in paragraph (1) shall not be below a line drawn parallel to the freeboard deck at side, which is at its lowest point at least 230 mm above the upper edge of the uppermost load line.

(3) Where it is permitted to arrange cargo ports and other similar openings with their lower edge below the line specified in paragraph (2), additional features shall be fitted to maintain the watertight integrity.

(4) The fitting of a second door of equivalent strength and watertightness is one acceptable arrangement. A leakage detection device shall be provided in the compartment between the two doors. Drainage of this compartment to the bilges, controlled by a readily accessible screw down valve, shall be arranged. The outer door shall open outwards.

(5) Arrangements for bow doors and their inner doors, side doors and stern doors and their securings shall be in compliance with the requirements of a recognised organisation, or with the applicable national standards of the Administration which provide an equivalent level of safety.

Regulation 22
Scuppers, inlets and discharges

(1) (a) Discharges led through the shell either from spaces below the freeboard deck or from within superstructures and deckhouses on the freeboard deck fitted with doors complying with the requirements of regulation 12 shall, except as provided in paragraph (2), be fitted with efficient and accessible means for preventing water from passing inboard. Normally each separate discharge shall have one automatic non-return valve with a positive means of closing it from a position above the freeboard deck. Where the inboard end of the discharge pipe is located at least 0.01L above the Summer Load Line, the discharge may have two automatic non-return valves without positive means of closing. Where

that vertical distance exceeds 0.02L, a single automatic non-return valve without positive means of closing may be accepted. The means for operating the positive action valve shall be readily accessible and provided with an indicator showing whether the valve is open or closed.

(b) One automatic non-return valve and one sluice valve controlled from above the freeboard deck instead of one automatic non-return valve with a positive means of closing from a position above the freeboard deck, is acceptable.

(c) Where two automatic non-return valves are required, the inboard valve shall always be accessible for examination under service conditions (i.e., the inboard valve shall be above the level of the Tropical Load Line). If this is not practicable, the inboard valve need not be located above the Tropical Load Line, provided that a locally controlled sluice valve is fitted between the two automatic non-return valves.

(d) Where sanitary discharges and scuppers lead overboard through the shell in way of machinery spaces, a locally operated positive closing valve at the shell, together with a non-return valve inboard, is acceptable. The controls of the valves shall be in an easily accessible position.

(e) The position of the inboard end of discharges shall be related to the Summer Timber Load Line when a timber freeboard is assigned.

(f) The requirements for non-return valves are applicable only to those discharges which remain open during the normal operation of a ship. For discharges which are to be kept closed at sea, a single screw down valve operated from the deck is acceptable.

(g) Table 22.1 provides the acceptable arrangements of scuppers, inlets and discharges.

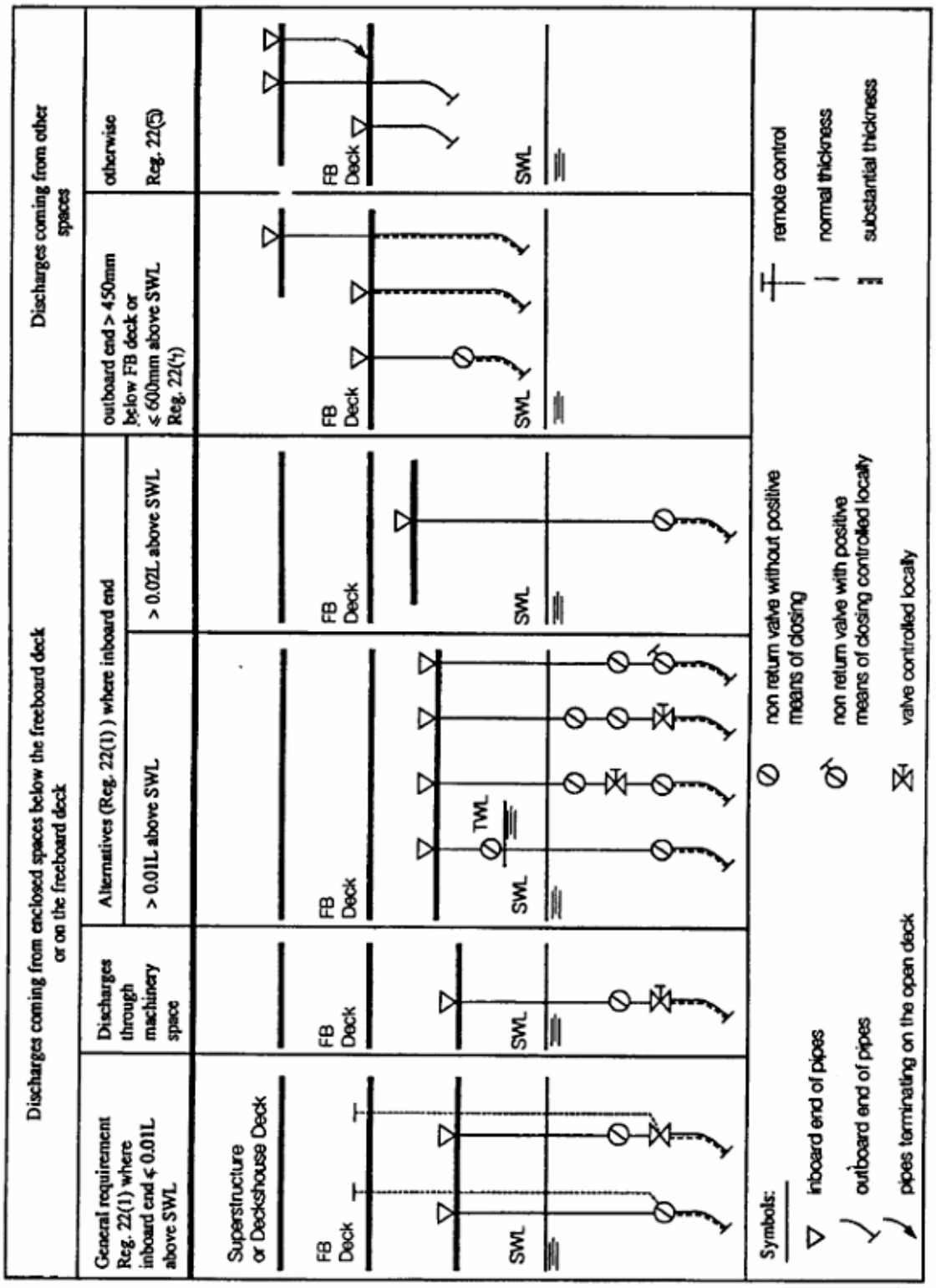
Discharges coming from enclosed spaces below the freeboard deck or on the freeboard deck
General requirement Reg. 22(1) where inboard end ≤ 0.01L above SWL
Discharges through machinery space
Alternatives (Reg. 22(1)) where inboard end
> 0.01L above SWL
> 0.02L above SWL
Discharges coming from other spaces
outboard end > 450mm below FB deck or ≤ 600mm above SWL Reg. 22(4)
otherwise Reg. 22(5)
Superstructure or Deckhouse Deck
FB Deck
SWL
TWL
Symbols:
inboard end of pipes
outboard end of pipes
pipes terminating on the open deck
non return valve without positive means of closing
non return valve with positive means of closing controlled locally
valve controlled locally
remote control
normal thickness
substantial thickness

Table 22.1

(2) Scuppers led through the shell from enclosed superstructures used for the carriage of cargo shall be permitted only where the edge of the freeboard deck is not immersed when the ship heels 5° either way. In other cases the drainage shall be led inboard in accordance with the requirements of the International Convention for the Safety of Life at Sea in force.

(3) In manned machinery spaces, main and auxiliary sea inlets and discharges in connection with the operation of machinery may be controlled locally. The controls shall be readily accessible and shall be provided with indicators showing whether the valves are open or closed.

(4) Scuppers and discharge pipes originating at any level and penetrating the shell either more than 450 mm below the freeboard deck or less than 600 mm above the Summer Load Line shall be provided with a non-return valve at the shell. This valve, unless required by paragraph (2), may be omitted if the piping is of substantial thickness (see paragraph (7) below).

(5) Scuppers leading from superstructures or deckhouses not fitted with doors complying with the requirements of regulation 12 shall be led overboard.

(6) All shell fittings and the valves required by this regulation shall be of steel, bronze or other approved ductile material. Valves of ordinary cast iron or similar material are not acceptable. All pipes to which this regulation refers shall be of steel or other equivalent material to the satisfaction of the Administration.

(7) Scupper and discharge pipes:

(a) For scupper and discharge pipes, where substantial thickness is not required:

(i) for pipes having an external diameter equal to or less than 155 mm, the thickness shall not be less than 4.5 mm;

(ii) for pipes having an external diameter equal to or more than 230 mm, the thickness shall not be less than 6 mm.

Intermediate sizes shall be determined by linear interpolation.

(b) For scupper and discharge pipes, where substantial thickness is required:

(i) for pipes having an external diameter equal to or less than 80 mm, the thickness shall not be less than 7 mm;

(ii) for pipes having an external diameter of 180 mm, the thickness shall not be less than 10 mm;

(iii) for pipes having an external diameter equal to or more than 220 mm, the thickness shall not be less than 12.5 mm.

Intermediate sizes shall be determined by linear interpolation.

Regulation 22-1 Garbage chutes

(1) Two gate valves controlled from the working deck of the chute instead of the non-return valve with a positive means of closing from a position above the freeboard deck which comply with the following requirements are acceptable:

(a) the lower gate valve shall be controlled from a position above the freeboard deck. An interlock system between the two valves shall be arranged;

(b) the inboard end shall be located above the waterline formed by an 8.5° heel to port or starboard at a draft corresponding to the assigned summer freeboard, but not less than 1,000 mm above the summer waterline. Where the inboard end exceeds 0.01L above the summer waterline, valve control from the freeboard deck is not required, provided the inboard gate valve is always accessible under service conditions; and

(c) alternatively, the upper and lower gate valves may be replaced by a hinged weathertight cover at the inboard end of the chute together with a discharge flap. The cover and flap shall be arranged with an interlock so that the discharge flap cannot be operated until the hopper cover is closed.

(2) The entire chute, including the cover, shall be constructed of material of substantial thickness.

(3) The controls for the gate valves and/or hinged covers shall be clearly marked:
"Keep closed when not in use".

(4) Where the inboard end of the chute is below the freeboard deck of a passenger ship or the equilibrium waterlines of a cargo ship to which damage stability requirements apply, then:

(a) the inboard end hinged cover/valve shall be watertight;

(b) the valve shall be a screw-down non-return valve fitted in an easily accessible position above the deepest load line; and

(c) the screw-down non-return valve shall be controlled from a position above the bulkhead deck and provided with open/closed indicators. The valve control shall be clearly marked: "Keep closed when not in use".

Regulation 22-2
Spurling pipes and cable lockers

(1) Spurling pipes and cable lockers shall be watertight up to the deck exposed to weather.

(2) Where means of access are provided, they shall be closed by a substantial cover and secured by closely spaced bolts.

(3) Spurling pipes through which anchor cables are led shall be provided with permanently attached closing appliances to minimise water ingress.

Regulation 23
Side scuttles, windows and skylights

(1) Side scuttles and windows, together with their glasses, deadlights and storm covers[49], if fitted, shall be of an approved design and substantial construction. Non-metallic frames are not acceptable.

(2) Side scuttles are defined as being round or oval openings with an area not exceeding 0.16 m^2. Round or oval openings having areas exceeding 0.16 m^2 shall be treated as windows.

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[49] Deadlights are fitted to the inside of windows and side scuttles, while storm covers are fitted to the outside of windows, where accessible, and may be hinged or portable.

(3) Windows are defined as being rectangular openings generally, having a radius at each corner relative to the window size and round or oval openings with an area exceeding 0.16 m^2.

(4) Side scuttles to the following spaces shall be fitted with hinged inside deadlights:

(a) spaces below freeboard deck;

(b) spaces within the first tier of enclosed superstructures; and

(c) first tier deckhouses on the freeboard deck protecting openings leading below or considered buoyant in stability calculations.

Deadlights shall be capable of being closed and secured watertight if fitted below the freeboard deck and weathertight if fitted above.

(5) Side scuttles shall not be fitted in such a position that their sills are below a line drawn parallel to the freeboard deck at side and having its lowest point 2.5% of the breadth (B), or 500 mm, whichever is the greatest distance, above the Summer Load Line (or Timber Summer Load Line if assigned).

(6) If the required damage stability calculations indicate that the side scuttles would become immersed at any intermediate stage of flooding or the final equilibrium waterline, they shall be of the non-opening type.

(7) Windows shall not be fitted in the following locations:

(a) below the freeboard deck;

(b) in the first tier end bulkheads or sides of enclosed superstructures; or

(c) in first tier deckhouses that are considered buoyant in the stability calculations.

(8) Side scuttles and windows at the side shell in the second tier shall be provided with hinged inside deadlights capable of being closed and secured weathertight if the superstructure protects direct access to an opening leading below or is considered buoyant in the stability calculations.

(9) Side scuttles and windows in side bulkheads set inboard from the side shell in the second tier which protect direct access below to spaces listed in paragraph (4) shall be provided with either hinged inside deadlights or, where they are accessible, permanently attached external storm covers which are capable of being closed and secured weathertight.

(10) Cabin bulkheads and doors in the second tier and above separating side scuttles and windows from a direct access leading below or the second tier considered buoyant in the stability calculations may be accepted in place of deadlights or storm covers fitted to the side scuttles and windows.

(11) Deckhouses situated on a raised quarter deck or on the deck of a superstructure of less than standard height may be regarded as being in the second tier as far as the requirements for deadlights are concerned, provided that the height of the raised quarter deck or superstructure is equal to or greater than the standard quarter deck height.

(12) Fixed or opening skylights shall have a glass thickness appropriate to their size and position as required for side scuttles and windows. Skylight glasses in any position shall be protected from mechanical damage and, where fitted in position 1 or 2, shall be provided with permanently attached deadlights or storm covers.

Regulation 24 Freeing ports

(1) (a) Where bulwarks on the weather portions of freeboard or superstructure decks form wells, ample provision shall be made for rapidly freeing the decks of water and for draining them.

(b) Except as provided in paragraphs (1)(c) and (2), the minimum freeing port area (A) on each side of the ship for each well on the freeboard deck shall be that given by the following formulae in cases where the sheer in way of the well is standard or greater than standard.

The minimum area for each well on superstructure decks shall be one-half of the area given by the following formulae:

Where the length of bulwark (l) in the well is 20 m or less:

$A = 0.7 + 0.035\ l\ m^2$;

where l exceeds 20 m:

$A = 0.07\ l\ m^2$.

l need in no case be taken as greater than 0.7L.

If the bulwark is more than 1.2 m in average height, the required area shall be increased by 0.004 m2 per metre of length of well for each 0.1 m difference in height. If the bulwark is less than 0.9 m in average height, the required

area may be decreased by 0.004 m2 per m of length of well for each 0.1 m difference in height;

(c) In ships with no sheer, the area calculated according to paragraph (b) shall be increased by 50%. Where the sheer is less than the standard, the percentage shall be obtained by linear interpolation.

(d) On a flush deck ship with a deckhouse amidships having a breadth at least 80% of the beam of the ship and the passageways along the side of the ship not exceeding 1.5 m in width, two wells are formed. Each shall be given the required freeing port area based upon the length of each well.

(e) Where a screen bulkhead is fitted completely across the ship at the forward end of a midship deckhouse, the exposed deck is divided into two wells and there is no limitation on the breadth of the deckhouse.

(f) Wells on raised quarterdecks shall be treated as being on freeboard decks.

(g) Gutter bars greater than 300 mm in height fitted around the weather decks of tankers in way of cargo manifolds and cargo piping shall be treated as bulwarks. Freeing ports shall be arranged in accordance with this regulation. Closures attached to the freeing ports for use during loading and discharge operations are to be arranged in such a way that jamming cannot occur while at sea.

(2) Where a ship fitted with a trunk does not comply with the requirements of Regulation 36(1)(e) or where continuous or substantially continuous hatchway side coamings are fitted between detached superstructures, the minimum area of the freeing port openings shall be calculated from the following table:

Breadth of hatch or trunk in relation to the breadth of the ship	Area of freeing port in relation to the total area of the bulwarks
40% or less	20%
75% or more	10%

The area of freeing ports at intermediate breadths shall be obtained by linear interpolation.

(3) The effectiveness of the freeing area in bulwarks required by paragraph (1) depends on the free flow area across the deck of a ship.

The free flow area on deck is the net area of gaps between hatchways, and between hatchways and superstructures and deckhouses up to the actual height of the bulwark.

The freeing port area in bulwarks shall be assessed in relation to the net free flow area as follows:

(a) If the free flow area is not less than the freeing area calculated from paragraph (2) as if the hatchway coamings were continuous, then the minimum freeing port area calculated from paragraph (1) shall be deemed sufficient.

(b) If the free flow area is equal to, or less than the area calculated from paragraph (1), the minimum freeing area in the bulwarks shall be determined from paragraph (2).

(c) If the free flow area is smaller than calculated from paragraph (2), but greater than calculated from paragraph (1), the minimum freeing area in the bulwark shall be determined from the following formula:

$F = F_1 + F_2 – f_p \ m^2$

where:

F_1 is the minimum freeing area calculated from paragraph (1);

F_2 is the minimum freeing area calculated from paragraph (2); and

f_p is the total net area of passages and gaps between hatch ends and superstructures or deckhouses up to the actual height of bulwark.

(4) In ships having superstructures on the freeboard deck or superstructure decks, which are open at either or both ends to wells formed by bulwarks on the open decks, adequate provision for freeing the open spaces within the superstructures shall be provided.

The minimum freeing port area on each side of the ship for the open superstructure (As) and for the open well (Aw), shall be calculated in accordance with the following procedure:

(a) Determine the total well length (l_t) equal to the sum of the length of the open deck enclosed by bulwarks (l_w), and the length of the common space within the open superstructure (l_s).

(b) To determine A_s:

(i) calculate the freeing port area (A) required for an open well of length *l*t in accordance with paragraph (1) with standard height bulwark assumed;

(ii) multiply by a factor of 1.5 to correct for the absence of sheer, if applicable, in accordance with paragraph (1)(c);

(iii) multiply by the factor b_o/l_t to adjust the freeing port area for the breadth (b_o) of the openings in the end bulkhead of the enclosed superstructure;

(iv) to adjust the freeing port area for that part of the entire length of the well which is enclosed by the open superstructure, multiply by the factor:

$1 - (l_w/l_t)^2$

where l_w and l_t are defined in paragraph (4)(a);

(v) to adjust the freeing port area for the distance of the well deck above the freeboard deck, for decks located more than 0.5 h_s above the freeboard deck, multiply by the factor:

$0.5\ (h_s/h_w)$

where h_w is the distance of the well deck above the freeboard deck, and h_s is one standard superstructure height.

(c) To determine A_w:

(i) the freeing port area for the open well (A_w) shall be calculated in accordance with paragraph (b)(i), using l_w to calculate a nominal freeing port area (A'), and then adjusted for the actual height of the bulwark (h_b) by the application of one of the following area corrections, whichever is applicable:

for bulwarks greater than 1.2 m in height:

$A_c = l_w((h_b - 1.2)/0.10)(0.004)\ m^2$;

for bulwarks less than 0.9 m in height:

$A_c = l_w((h_b - 0.9)/0.10)(0.004)\ m^2$;

for bulwarks between 1.2 m and 0.9 m in height there is no correction (i.e. $A_c = 0$);

(ii) the corrected freeing port area ($A_w = A' + A_c$) shall then be adjusted for absence of sheer, if applicable, and

height above freeboard deck as in paragraphs (b)(ii) and (b)(v), using h_s and h_w.

(d) The resulting freeing port areas for the open superstructure (A_s) and for the open well (A_w) shall be provided along each side of the open space covered by the open superstructure and each side of the open well, respectively.

(e) The above relationships are summarised by the following equations, assuming l_t, the sum of l_w and l_s, is greater than 20 m:

freeing port area A_w for the open well:

$A_w = (0.07l_w + A_c)$ (sheer correction) $(0.5h_s/h_w)$;

freeing port area A_s for the open superstructure:

$A_s = (0.07l_t)$ (sheer correction) (b_o/l_t) $(1 - (l_w/l_t)^2)$ $(0.5h_s/h_w)$;

where l_t is 20 m or less, the basic freeing port area is $A = 0.7 + 0.035l_t$ in accordance with paragraph (1).

(5) The lower edges of freeing ports shall be as near the deck as practicable. Two thirds of the freeing port area required shall be provided in the half of the well nearest the lowest point of the sheer curve. One third of the freeing port area required shall be evenly spread along the remaining length of the well. With zero or little sheer on the exposed freeboard deck or an exposed superstructure deck the freeing port area shall be evenly spread along the length of the well.

(6) All freeing port openings in the bulwarks shall be protected by rails or bars spaced approximately 230 mm apart. If shutters are fitted to freeing ports, ample clearance shall be provided to prevent jamming. Hinges shall have pins or bearings of non-corrodible material. Shutters shall not be fitted with securing appliances.

Regulation 25 Protection of the crew

(1) The deckhouses used for the accommodation of the crew shall be constructed to an acceptable level of strength.

(2) Guard rails or bulwarks shall be fitted around all exposed decks. The height of the bulwarks or guard rails shall be at least 1 m from the deck, provided that where this height would interfere with the normal operation of the ship, a lesser height may be approved, if the Administration is satisfied that adequate protection is provided.

(3) Guard rails fitted on superstructure and freeboard decks shall have at least three courses. The opening below the lowest course of the guard rails shall not exceed 230 mm. The other courses shall be not more than 380 mm apart. In the case of ships with rounded gunwales the guard rail supports shall be placed on the flat of the deck. In other locations, guardrails with at least two courses shall be fitted. Guard rails shall comply with the following provisions:

(a) fixed, removable or hinged stanchions shall be fitted about 1.5 m apart. Removable or hinged stanchions shall be capable of being locked in the upright position;

(b) at least every third stanchion shall be supported by a bracket or stay;

(c) where necessary for the normal operation of the ship, steel wire ropes may be accepted in lieu of guard rails. Wires shall be made taut by means of turnbuckles; and

(d) where necessary for the normal operation of the ship, chains fitted between two fixed stanchions and/or bulwarks are acceptable in lieu of guard rails .

(4) Satisfactory means for safe passage required by regulation 25-1 (in the form of guard rails, lifelines, gangways or underdeck passages, etc.) shall be provided for the protection of the crew in getting to and from their quarters, the machinery space and any other spaces used in the essential operation of the ship.

(5) Deck cargo carried on any ship shall be so stowed that any opening which is in way of the cargo and which gives access to and from the crew's quarters, the machinery space and all other parts used in the essential operation of the ship can be closed and secured against water ingress. Protection for the crew in the form of guard rails or lifelines shall be provided above the deck cargo if there is no convenient passage on or below the deck of the ship.

Regulation 25-1 Means for safe passage of crew

(1) The safe passage of crew shall be provided by at least one of the means prescribed in table 25-1.1 below:

Type of ship	Locations of access in ship	Assigned summer freeboard	Acceptable arrangements according to type of freeboard assigned***			
			Type "A"	Type "B-100"	Type "B-60"	Type "B" and "B+"
All ships other than oil tankers*, chemical tankers* and gas carriers*	**1.1 Access to midship quarters** 1.1.1 Between poop and bridge, or 1.1.2 Between poop and deckhouse containing living accommodation or navigating equipment, or both.	≤ 3,000 mm	(a) (b) (e)	(a) (b) (e)	(a) (b) (c)(i) (e) (f)(i)	(a) (b) (c)(i) (c)(ii) (c)(iv) (d)(i) (d)(ii) (d)(iii) (e) (f)(i) (f)(ii) (f)(iv)
		> 3,000 mm	(a) (b) (e)	(a) (b) (e)	(a) (b) (c)(i) (c)(ii) (e) (f)(i) (f)(ii)	
	1.2 Access to ends 1.2.1 Between poop and bow (if there is no bridge), 1.2.2 Between bridge and bow, or	≤ 3,000 mm	(a) (b) (c)(i) (e) (f)(i)	(a) (b) (c)(i) (c)(ii) (e) (f)(i) (f)(ii)	(a) (b) (c)(i) (c)(ii) (e) (f)(i) (f)(ii)	
	1.2.3 Between a deckhouse containing living accommodation or navigating equipment, or both, and bow, or 1.2.4 In the case of a flush deck ship, between crew accommodation and the forward and after ends of ship.	> 3,000 mm	(a) (b) (c)(i) (d)(i) (e) (f)(i)	(a) (b) (c)(i) (c)(ii) (d)(i) (d)(ii) (e) (f)(i) (f)(ii)	(a) (b) (c)(i) (c)(ii) (c)(iv) (d)(i) (d)(ii) (d)(iii) (e) (f)(i) (f)(ii) (f)(iv)	
Oil tankers*, chemical tankers* and gas carriers*	**2.1 Access to bow** 2.1.1 Between poop and bow or	≤ (A_f + H_s)**	(a) (e) (f)(i) (f)(v)			
	2.1.2 Between a deckhouse containing living accommodation or navigating equipment, or both, and bow, or 2.1.3 In the case of a flush deck ship, between crew accommodation and the forward ends of ship.	> (A_f + H_s)**	(a) (e) (f)(i) (f)(ii)			
	2.2 Access to after end In the case of a flush deck ship, between crew accommodation and the after end of ship.	As required in 1.2.4 for other types of ships				

* Oil tankers, chemical tankers and gas carriers as defined in Regulations II-1/2.12, VII/8.2 and VII/11.2, respectively, of the SOLAS Convention, 1974, as amended.

** A_f: the minimum summer freeboard calculated as type 'A' ship regardless of the type freeboard actually assigned.

H_s: the standard height of superstructure as defined in Regulation 33.

*** Arrangements (a)-(f) are described in paragraph (2) below. Locations (i)-(v) are described in paragraph (3) above.

(2) Acceptable arrangements referred to in table 25-1.1 are defined as follows:

(a) A well lighted and ventilated under-deck passageway (with a clear opening of at least 0.8 m wide and 2 m high), as close as practicable to the freeboard deck, connecting and providing access to the locations in question.

(b) A permanent and efficiently constructed gangway, fitted at or above the level of the superstructure deck, on or as near as practicable to the centre line of the ship, providing a continuous platform at least 0.6 m in width and a non-slip surface and with guard rails extending on each side throughout its length. Guard rails shall be at least 1 m high with three courses and constructed as required in regulation 25(3). A foot-stop shall be provided.

(c) A permanent walkway at least 0.6 m in width, fitted at freeboard deck level and consisting of two rows of guard rails with stanchions spaced not more than 3 m. The number of courses of rails and their spacing shall be in accordance with regulation 25(3). On type .B. ships, hatchway coamings not less than 0.6 m in height may be accepted as forming one side of the walkway, provided that two rows of guard rails are fitted between the hatchways.

(d) A wire rope lifeline not less than 10 mm in diameter, supported by stanchions not more than 10 m apart, or a single hand rail or wire rope attached to hatch coamings, continued and supported between hatchways.

(e) A permanent gangway that is:

(i) located at or above the level of the superstructure deck;

(ii) located on or as near as practicable to the centre line of the ship;

(iii) located so as not to hinder easy access across the working areas of the deck;

(iv) providing a continuous platform at least 1 m in width;

(v) constructed of fire resistant and non-slip material;

(vi) fitted with guard rails extending on each side throughout its length; guard rails shall be at least 1 m high with courses as required by regulation 25(3) and supported by stanchions spaced not more than 1.5 m apart;

(vii) provided with a foot-stop on each side;

(viii) having openings, with ladders where appropriate, to and from the deck. Openings shall not be more than 40 m apart; and

(ix) having shelters set in way of the gangway at intervals not exceeding 45 m if the length of the exposed deck to be traversed exceeds 70 m. Every such shelter shall be capable of accommodating at least one person and be so constructed as to afford weather protection on the forward, port and starboard sides.

(f) A permanent walkway located at the freeboard deck level, on or as near as practicable to the centre line of the ship, having the same specifications as those for a permanent gangway listed in (e), except for foot-stops. On type .B. ships (certified for the carriage of liquids in bulk) with a combined height of hatch coaming and fitted hatch cover of not less than 1 m in height, the hatchway coamings may be accepted as forming one side of the walkway, provided that two rows of guard rails are fitted between the hatchways.

(3) Permitted transverse locations for arrangements in paragraphs (2)(c), (d) and (f) above, where appropriate:

(i) at or near the centre line of the ship; or fitted on hatchways at or near the centre line of the ship;

(ii) fitted on each side of the ship;

(iii) fitted on one side of the ship, provision being made for fitting on either side;

(iv) fitted on one side of the ship only;

(v) fitted on each side of the hatchways, as near to the centre line as practicable.

(4) (a) Where wire ropes are fitted, turnbuckles shall be provided to ensure their tautness.

(b) Where necessary for the normal operation of the ship, steel wire ropes may be accepted in lieu of guard rails.

(c) Where necessary for the normal operation of the ship, chains fitted between two fixed stanchions are acceptable in lieu of guard rails.

(d) Where stanchions are fitted, every third stanchion shall be supported by a bracket or stay.

(e) Removable or hinged stanchions shall be capable of being locked in the upright position.

(f) A means of passage over obstructions such as pipes or other fittings of a permanent nature, shall be provided.

(g) Generally, the width of the gangway or deck-level walkway should not exceed 1.5 m.

(5) For tankers less than 100 m in length, the minimum width of the gangway platform or deck-level walkway fitted in accordance with paragraphs (2)(e) or (f) above, respectively, may be reduced to 0.6 m.

Regulation 26 Special conditions of assignment for type 'A' ships

Machinery casings

(1) Machinery casings on type 'A' ships, as defined in Regulation 27, shall be protected by one of the following arrangements:

(a) an enclosed poop or bridge of at least standard height; or

(b) a deckhouse of equal height and equivalent strength.

(2) Machinery casings may, however, be exposed if there are no openings giving direct access from the freeboard deck to the machinery space. A door complying with the requirements of regulation 12 is acceptable in the machinery casing, provided that it leads to a space or passageway which is as strongly constructed as the casing and is separated from the stairway to the engine-room by a second weathertight door of steel or other equivalent material.

Gangway and access

(3) A fore and aft permanent gangway, constructed in accordance with the provisions of regulation 25-1(2)(e), shall be fitted on type 'A' ships at the level of the superstructure deck between the poop and the midship bridge or deckhouse where fitted. The arrangement contained in regulation 25-1(2)(a) is considered an equivalent means of access to carry out the purpose of the gangway.

(4) Safe access from the gangway level shall be available between separate crew accommodations and also between crew accommodations and the machinery space.

Hatchways

(5) Exposed hatchways on the freeboard and forecastle decks or on the tops of expansion trunks on type 'A' ships shall be provided with efficient watertight covers of steel or other equivalent material.

Freeing arrangements

(6) Type 'A' ships with bulwarks shall have open rails fitted for at least half the length of the weather deck or other equivalent freeing arrangements. A freeing port area, in the lower part of the bulwarks, of 33% of the total area of the bulwarks, is an acceptable equivalent freeing arrangement. The upper edge of the sheer strake shall be kept as low as practicable.

(7) Where superstructures are connected by trunks, open rails shall be fitted for the whole length of the exposed parts of the freeboard deck.

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C H A P T E R I I I

Freeboards

Regulation 27 Types of ships

(1) For the purposes of freeboard computation, ships shall be divided into type 'A' and type 'B'.

Type 'A' ships

(2) A type 'A' ship is one which:

(a) is designed to carry only liquid cargoes in bulk;

(b) has a high integrity of the exposed deck with only small access openings to cargo compartments, closed by watertight gasketed covers of steel or equivalent material; and

(c) has low permeability of loaded cargo compartments.

(3) A type ‘A’ ship, if over 150 m in length, to which a freeboard less than type 'B' has been assigned, when loaded in accordance with the requirements of paragraph (11), shall be able to withstand the flooding of any compartment or compartments, with an assumed permeability of 0.95, consequent upon the damage assumptions specified in paragraph (12), and shall remain afloat in a satisfactory condition of equilibrium, as specified in paragraph (13). In such a ship, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

(4) A type ‘A’ ship shall be assigned a freeboard not less than that based on table 28.1.

Type ‘B’ ships

(5) All ships which do not come within the provisions regarding type ‘A’ ships in paragraphs (2) and (3) shall be considered as type ‘B’ ships.

(6) Type ‘B’ ships, which in position 1 have hatch covers which are permitted by the Administration to comply with the requirements of regulation 15 (other than paragraph (6)) or which are fitted with securing arrangements accepted under the provisions of regulation 16(6), shall be assigned freeboards based upon the values given in table 28.2, increased by the values given in table 27.1:

Table 27.1
Freeboard increase over tabular freeboard for type 'B' ships, for ships with hatch covers complying with the provisions of Regulation 15 (other than Regulation 16)

Length of ship m	Freeboard increase mm	Length of ship m	Freeboard increase mm	Length of ship m	Freeboard increase mm
108 and below	50	139	175	170	290
109	52	140	181	171	292
110	55	141	186	172	294
111	57	142	191	173	297
112	59	143	196	174	299
113	62	144	201	175	301
114	64	145	206	176	304
115	68	146	210	177	306
116	70	147	215	178	308
117	73	148	219	179	311
118	76	149	224	180	313
119	80	150	228	181	315
120	84	151	232	182	318
121	87	152	236	183	320
122	91	153	240	184	322
123	95	154	244	185	325
124	99	155	247	186	327
125	103	156	251	187	329
126	108	157	254	188	332
127	112	158	258	189	334
128	116	159	261	190	336
129	121	160	264	191	339
130	126	161	267	192	341
131	131	162	270	193	343
132	136	163	273	194	346
133	142	164	275	195	348
134	147	165	278	196	350
135	153	166	280	197	353
136	159	167	283	198	355
137	164	168	285	199	357
138	170	169	287	200	358

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation.

Ships above 200 m in length shall be dealt with by the Administration.

(7) Type .B. ships, which in position 1 have hatchways fitted with hatch covers complying with the requirements of regulation 16(2) through (5), shall, except as provided in paragraphs (8) to (13) inclusive, be assigned freeboards based on table 28.2.

(8) Any type 'B' ship of over 100 m in length may be assigned freeboards less than those required under paragraph (7), provided that, in relation to the amount of reduction granted, the Administration is satisfied that:

(a) the measures provided for the protection of the crew are adequate;

(b) the freeing arrangements are adequate;

(c) the covers in position 1 and 2 comply with the provisions of Regulation 16(1) through (5) and (7); and

(d) the ship, when loaded in accordance with the requirements of paragraph (11), shall be able to withstand the flooding of any compartment or compartments, with an assumed permeability of 0.95, consequent upon the damage assumptions specified in paragraph (12), and shall remain afloat in a satisfactory condition of equilibrium, as specified in paragraph (13). In such a ship, if over 150 m in length, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

(9) In calculating the freeboards for type 'B' ships which comply with the requirements of paragraphs (8), (11), (12) and (13), the values from table 28.2 shall not be reduced by more than 60% of the difference between the tabular values in tables 28.1 and 28.2 for the appropriate ship lengths.

(10) (a) The reduction in tabular freeboard allowed under paragraph (9) may be increased up to the total difference between the values in table 28.1 and those in table 28.2 on condition that the ship complies with the requirements of:

(i) Regulation 26, other than paragraph (5), as if it were a type 'A' ship;

(ii) paragraphs (8), (11) and (13); and

(iii) paragraph (12), provided that throughout the length of the ship any one transverse bulkhead will be assumed to be damaged, such that two adjacent fore and aft compartments shall be flooded simultaneously, except that such damage will not apply to the boundary bulkheads of a machinery space.

(b) In such a ship, if over 150 m in length, the machinery space shall be treated as a floodable compartment, but with a permeability of 0.85.

Initial condition of loading

(11) The initial condition of loading before flooding shall be determined as follows:

(a) The ship is loaded to its summer load waterline on an imaginary even keel.

(b) When calculating the vertical centre of gravity, the following principles apply:

(i) homogeneous cargo is carried.

(ii) all cargo compartments, except those referred to under subparagraph (iii), but including compartments intended to be partially filled, shall be considered fully loaded except that in the case of fluid cargoes each compartment shall be treated as 98% full.

(iii) if the ship is intended to operate at its summer load waterline with empty compartments, such compartments shall be considered empty, provided the height of the centre of gravity so calculated is not less than as calculated under subparagraph (ii).

(iv) 50% of the individual total capacity of all tanks and spaces fitted to contain consumable liquids and stores is allowed for. It shall be assumed that for each type of liquid at least one transverse pair or a single centreline tank has maximum free surface, and the tank or combination of tanks to be taken into account shall be those where the effect of free surfaces is the greatest; in each tank the centre of gravity of the contents shall be taken at the centre of volume of the tank. The remaining tanks shall be assumed either completely empty or completely filled, and the distribution of consumable liquids between these tanks shall be effected so as to obtain the greatest possible height above the keel for the centre of gravity.

(v) at an angle of heel of not more than 5° in each compartment containing liquids, as prescribed in subparagraph (ii), except that in the case of compartments containing consumable fluids, as prescribed in subparagraph (iv), the maximum free surface effect shall be taken into account. Alternatively, the actual free surface effects may be used, provided the

methods of calculation are acceptable to the Administration.

(vi) weights shall be calculated on the basis of the following values for specific gravities:

Salt water	1.025
Fresh water	1.000
Oil fuel	0.950
Diesel oil	0.900
Lubricating oil	0.900

Damage assumptions

(12) The following principles regarding the character of the assumed damage apply:

(a) The vertical extent of damage in all cases is assumed to be from the base line upwards without limit.

(b) The transverse extent of damage is equal to B/5 or 11.5 m, whichever is the lesser, measured inboard from the side of the ship perpendicularly to the centreline at the level of the summer load waterline.

(c) If damage of a lesser extent than specified in subparagraphs (a) and (b) results in a more severe condition, such lesser extent shall be assumed.

(d) Except where otherwise required by paragraph (10)(a), the flooding shall be confined to a single compartment between adjacent transverse bulkheads, provided that the inner longitudinal boundary of the compartment is not in a position within the transverse extent of assumed damage. Transverse boundary bulkheads of wing tanks, which do not extend over the full breadth of the ship shall be assumed not to be damaged, provided that they extend beyond the transverse extent of assumed damage prescribed in subparagraph (b).

If in a transverse bulkhead there are steps or recesses of not more than 3 m in length, located within the transverse extent of assumed damage as defined in subparagraph (b), such transverse bulkhead may be considered intact and the adjacent compartment may be floodable singly. If, however, within the transverse extent of assumed damage there is a step or recess of more than 3 m in length in a transverse bulkhead, the two compartments adjacent to this bulkhead shall be considered as flooded. The step formed by the afterpeak bulkhead and the afterpeak tank top shall not be regarded as a step for the purpose of this Regulation.

(e) Where a main transverse bulkhead is located within the transverse extent of assumed damage and is stepped in way of a double bottom or side tank by more than 3 m, the double bottom or side tanks adjacent to the stepped portion of the main transverse bulkhead shall be considered as flooded simultaneously. If this side tank has openings into one or several holds, such as grain feeding holes, such hold or holds shall be considered as flooded simultaneously. Similarly, in a ship designed for the carriage of fluid cargoes, if a side tank has openings into adjacent compartments, such adjacent compartments shall be considered as empty and as being flooded simultaneously. This provision is applicable even where such openings are fitted with closing appliances, except in the case of sluice valves fitted in bulkheads between tanks and where the valves are controlled from the deck. Manhole covers with closely spaced bolts are considered equivalent to the unpierced bulkhead, except in the case of openings in topside tanks making the topside tanks common to the holds.

(f) Where the flooding of any two adjacent fore and aft compartments is envisaged, main transverse watertight bulkheads shall be spaced at least 1/3 L2/3 or 14.5 m, whichever is the lesser, in order to be considered effective. Where transverse bulkheads are spaced at a lesser distance, one or more of these bulkheads shall be assumed as non-existent in order to achieve the minimum spacing between bulkheads.

Condition of equilibrium

(13) The condition of equilibrium after flooding shall be regarded as satisfactory provided:

(a) The final waterline after flooding, taking into account sinkage, heel and trim, is below the lower edge of any opening through which progressive downflooding may take place. Such openings shall include air pipes, ventilators (even if they comply with regulation 19(4)) and openings which are closed by means of weathertight doors (even if they comply with regulation 12) or hatch covers (even if they comply with regulation 16(1) through (5)), and may exclude those openings closed by means of manhole covers and flush scuttles (which comply with regulation 18), cargo hatch covers of the type described in regulation 27(2), remotely operated sliding watertight doors, and sidescuttles of the non-opening type (which comply with regulation 23). However, in the case of doors separating a main machinery

space from a steering gear compartment, watertight doors may be of a hinged, quick-acting type kept closed at sea whilst not in use, provided also that the lower sill of such doors is above the summer load waterline.

(b) If pipes, ducts or tunnels are situated within the assumed extent of damage penetration as defined in paragraph (12)(b), arrangements shall be made so that progressive flooding cannot thereby extend to compartments other than those assumed to be floodable in the calculation for each case of damage.

(c) The angle of heel due to unsymmetrical flooding does not exceed 15°. If no part of the deck is immersed, an angle of heel of up to 17° may be accepted.

(d) The metacentric height in the flooded condition is positive.

(e) When any part of the deck outside the compartment assumed flooded in a particular case of damage is immersed, or in any case where the margin of stability in the flooded condition may be considered doubtful, the residual stability is to be investigated. It may be regarded as sufficient if the righting lever curve has a minimum range of 20° beyond the position of equilibrium with a maximum righting lever of at least 0.1 m within this range. The area under the righting lever curve within this range shall be not less than 0.0175 m.rad. The Administration shall give consideration to the potential hazard presented by protected or unprotected openings which may become temporarily immersed within the range of residual stability.

(f) The Administration is satisfied that the stability is sufficient during intermediate stages of flooding.

Ships without means of propulsion

(14) A lighter, barge or other ship without independent means of propulsion shall be assigned a freeboard in accordance with the provisions of these regulations. Barges which meet the requirements of paragraphs (2) and (3) may be assigned type 'A' freeboards.

(a) The Administration should especially consider the stability of barges with cargo on the weather deck. Deck cargo can only be carried on barges to which the ordinary type 'B' freeboard is assigned.

(b) However, in the case of barges which are unmanned, the requirements of Regulations 25, 26(3), 26(4) and 39 shall not apply.

(c) Such unmanned barges which have on the freeboard deck only small access openings closed by watertight gasketed covers of steel or equivalent material may be assigned a freeboard 25% less than those calculated in accordance with these regulations.

Regulation 28 Freeboard tables

Type 'A' ships

(1) The tabular freeboard for type 'A' ships shall be determined from table 28.1:

Table A
Freeboard table for type 'A' ships

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
24	200	52	467
25	208	53	478
26	217	54	490
27	225	55	503
28	233	56	516
29	242	57	530
30	250	58	544
31	258	59	559
32	267	60	573
33	275	61	587
34	283	62	600
35	292	63	613
36	300	64	626
37	308	65	639
38	316	66	653
39	325	67	666
40	334	68	680
41	344	69	693
42	354	70	706
43	364	71	720
44	374	72	733
45	385	73	746
46	396	74	760
47	408	75	773
48	420	76	786
49	432	77	800
50	443	78	814
51	455	79	828
80	841	118	1426
81	855	119	1442
82	869	120	1459

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
83	883	121	1476
84	897	122	1494
85	911	123	1511
86	926	124	1528
87	940	125	1546
88	955	126	1563
89	969	127	1580
90	984	128	1598
91	999	129	1615
92	1014	130	1632
93	1029	131	1650
94	1044	132	1667
95	1059	133	1684
96	1074	134	1702
97	1089	135	1719
98	1105	136	1736
99	1120	137	1753
100	1135	138	1770
101	1151	139	1787
102	1166	140	1803
103	1181	141	1820
104	1196	142	1837
105	1212	143	1853
106	1228	144	1870
107	1244	145	1886
108	1260	146	1903
109	1276	147	1919
110	1293	148	1935
111	1309	149	1952
112	1326	150	1968
113	1342	151	1984
114	1359	152	2000
115	1376	153	2016
116	1392	154	2032
117	1409	155	2048
156	2064	194	2552
157	2080	195	2562
158	2096	196	2572

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
159	2111	197	2582
160	2126	198	2592
161	2141	199	2602
162	2155	200	2612
163	2169	201	2622
164	2184	202	2632
165	2198	203	2641
166	2212	204	2650
167	2226	205	2659
168	2240	206	2669
169	2254	207	2678
170	2268	208	2687
171	2281	209	2696
172	2294	210	2705
173	2307	211	2714
174	2320	212	2723
175	2332	213	2732
176	2345	214	2741
177	2357	215	2749
178	2369	216	2768
179	2381	217	2767
180	2393	218	2775
181	2405	219	2784
182	2416	220	2792
183	2428	221	2801
184	2440	222	2809
185	2451	223	2817
186	2463	224	2825
187	2474	225	2833
188	2486	226	2841
189	2497	227	2849
190	2508	228	2857
191	2519	229	2865
192	2530	230	2872
193	2541	231	2880
232	2888	270	3128
233	2895	271	3133
234	2903	272	3138

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
235	2910	273	3143
236	2918	274	3148
237	2925	275	3153
238	2932	276	3158
239	2939	277	3163
240	2946	278	3167
241	2953	279	3172
242	2959	280	3176
243	2966	281	3181
244	2973	282	3185
245	2979	283	3189
246	2986	284	3194
247	2993	285	3198
248	3000	286	3202
249	3006	287	3207
250	3012	288	3211
251	3018	289	3215
252	3024	290	3220
253	3030	291	3224
254	3036	292	3228
255	3042	293	3233
256	3048	294	3237
257	3054	295	3241
258	3060	296	3246
259	3066	297	3250
260	3072	298	3254
261	3078	299	3258
262	3084	300	3262
263	3089	301	3266
264	3095	302	3270
265	3101	303	3274
266	3106	304	3278
267	3112	305	3281
268	3117	306	3285
269	3123	307	3288
308	3292	337	3375
309	3295	338	3378
310	3298	339	3380

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
311	3302	340	3382
312	3305	341	3385
313	3308	342	3387
314	3312	343	3389
315	3315	344	3392
316	3318	345	3394
317	3322	346	3396
318	3325	347	3399
319	3328	348	3401
320	3331	349	3403
321	3334	350	3406
322	3337	351	3408
323	3339	352	3410
324	3342	353	3412
325	3345	354	3414
326	3347	355	3416
327	3350	356	3418
328	3353	357	3420
329	3355	358	3422
330	3358	359	3423
331	3361	360	3425
332	3363	361	3427
333	3366	362	3428
334	3368	363	3430
335	3371	364	3432
336	3373	365	3433

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation.

Ships above 365 m in length shall be dealt with by the Administration.

Type 'B' ships

(2) The tabular freeboard for type 'B' ships shall be determined from table 28.2:

Table B
Freeboard table for type 'B' ships

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
24	200	54	490
25	208	55	503
26	217	56	516
27	225	57	530
28	233	58	544
29	242	59	559
30	250	60	573
31	258	61	587
32	267	62	601
33	275	63	615
34	283	64	629
35	292	65	644
36	300	66	659
37	308	67	674
38	316	68	689
39	325	69	705
40	334	70	721
41	344	71	738
42	354	72	754
43	364	73	769
44	374	74	784
45	385	75	800
46	396	76	816
47	408	77	833
48	420	78	850
49	432	79	868
50	443	80	887
51	455	81	905
52	467	82	923

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
53	478	83	942
84	960	122	1729
85	978	123	1750
86	996	124	1771
87	1015	125	1793
88	1034	126	1815
89	1054	127	1837
90	1075	128	1859
91	1096	129	1880
92	1116	130	1901
93	1135	131	1921
94	1154	132	1940
95	1172	133	1959
96	1190	134	1979
97	1209	135	2000
98	1229	136	2021
99	1250	137	2043
100	1271	138	2065
101	1293	139	2087
102	1315	140	2109
103	1337	141	2130
104	1359	142	2151
105	1380	143	2171
106	1401	144	2190
107	1421	145	2209
108	1440	146	2229
109	1459	147	2250
110	1479	148	2271
111	1500	149	2293
112	1521	150	2315
113	1543	151	2334
114	1565	152	2354
115	1587	153	2375
116	1609	154	2396
117	1630	155	2418
118	1651	156	2440
119	1671	157	2460
120	1690	158	2480

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
121	1709	159	2500
160	2520	198	3235
161	2540	199	3249
162	2560	200	3264
163	2580	201	3280
164	2600	202	3296
165	2620	203	3313
166	2640	204	3330
167	2660	205	3347
168	2680	206	3363
169	2698	207	3380
170	2716	208	3397
171	2735	209	3413
172	2754	210	3430
173	2774	211	3445
174	2795	212	3460
175	2815	213	3475
176	2835	214	3490
177	2855	215	3505
178	2875	216	3520
179	2895	217	3537
180	2915	218	3554
181	2933	219	3570
182	2952	220	3586
183	2970	221	3601
184	2988	222	3615
185	3007	223	3630
186	3025	224	3645
187	3044	225	3660
188	3062	226	3675
189	3080	227	3690
190	3098	228	3705
191	3116	229	3720
192	3134	230	3735
193	3151	231	3750
194	4167	232	3765
195	3185	233	3780
196	3202	234	3795

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
197	3219	235	3808
236	3821	274	4327
237	3835	275	4339
238	3849	276	4350
239	3864	277	4362
240	3880	278	4373
241	3893	279	4385
242	3906	280	4397
243	3920	281	4408
244	3934	282	4420
245	3949	283	4432
246	3965	284	4443
247	3978	285	4455
248	3992	286	4467
249	4005	287	4478
250	4018	288	4490
251	4032	289	4502
252	4045	290	4513
253	4058	291	4525
254	4072	292	4537
255	4085	293	4548
256	4098	294	4560
257	4112	295	4572
258	4125	296	4583
259	4139	297	4594
260	4152	298	4607
261	4165	299	4618
262	4177	300	4630
263	4189	301	4642
264	4201	302	4654
265	4214	303	4665
266	4227	304	4676
267	4240	305	4686
268	4252	306	4695
269	4264	307	4704
270	4276	308	4714
271	4289	309	4725
272	4302	310	4736

Length of ship m	Freeboard mm	Length of ship m	Freeboard mm
273	4315	311	4748
312	4757	339	5045
313	4768	340	5055
314	4779	341	5065
315	4790	342	5075
316	4801	343	5086
317	4812	344	5097
318	4823	345	5108
319	4834	346	5119
320	4844	347	5130
321	4855	348	5140
322	4866	349	5150
323	4878	350	5160
324	4890	351	5170
325	4899	352	5180
326	4909	353	5190
327	4920	354	5200
328	4931	355	5210
329	3943	356	5220
330	4955	357	5230
331	4965	358	5240
332	4975	359	5250
333	4985	360	5260
334	4995	361	5268
335	5005	362	5276
336	5015	363	5285
337	5025	364	5294
338	5035	365	5303

Freeboards at intermediate lengths of ship shall be obtained by linear interpolation.

Ships above 365 m in length shall be dealt with by the Administration.

Regulation 29 Correction to the freeboard for ships under 100 m in length

The tabular freeboard for a type 'B' ship of between 24 m and 100 m in length having enclosed superstructures with an effective length of up to 35% of the length of the ship shall be increased by:

$$7.5\,(100 - L)\left(0.35 - \frac{E_1}{L}\right)(mm)$$

where L is the length of the ship in m; and,

E_1 is the effective length E of superstructure in m as defined in Regulation 35, but excluding the length of trunks.

Regulation 30 Correction for block coefficient

Where the block coefficient (Cb) exceeds 0.68, the tabular freeboard specified in Regulation 28 as modified, if applicable, by Regulations 27(8), 27(10) and 29 shall be multiplied by the factor:

$$\frac{C_b + 0.68}{1.36}$$

The block coefficient is not to be taken greater than 1.0.

Regulation 31 Correction for depth

(1) Where D exceeds $\frac{L}{15}$,

the freeboard shall be increased by:

$$(D - \frac{L}{15})\,R\ mm, \text{where R er} \frac{L}{0.48} \text{is at lengths}$$

less than 120 m and 250 at 120 m length and above.

(2) Where D is less than $\frac{L}{15}$, no reduction shall be made

except in a ship with an enclosed superstructure covering at least 0.6L amidships, with a complete trunk, or combination of detached enclosed superstructures and trunks which extend all

fore and aft, where the freeboard shall be reduced at the rate prescribed in paragraph (1).

(3) Where the height of the superstructure or trunk is less than the corresponding standard height, the calculated reduction shall be corrected in the ratio of the height of the actual superstructure or trunk to the applicable standard height, as defined in Regulation 33.

Regulation 32 Correction for position of deck line

Where the actual depth to the upper edge of the deck line is greater or less than *D*, the difference between the depths shall be added to or deducted from the freeboard.

Regulation 32-1 Correction for recess in freeboard deck

(1) Where a recess is arranged in the freeboard deck, and it does not extend to the sides of the ship, the freeboard calculated without regard to the recess shall be corrected for the consequent loss of buoyancy. The correction shall be equal to the value obtained by dividing the volume of the recess by the waterplane area of the ship at 85% of the least moulded depth (see figure 32-1.1).

(2) The correction shall be an addition to the freeboard obtained after all other corrections have been applied, except bow height correction.

(3) Where the freeboard, corrected for lost buoyancy as above, is greater than the minimum geometric freeboard determined on the basis of a moulded depth measured to the bottom of the recess, the latter value may be used.

[figure 32-1.1 here]

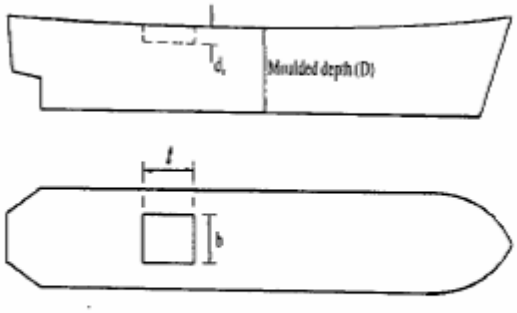

Figure 32-1.1

Correction is the addition to freeboard equal to:

$$\frac{l \times b \times d_r}{0.85D \text{ at Area } WP}$$

Regulation 33 Standard height of superstructure

The standard height of a superstructure shall be as given in the following table:

Table 33.1

	Standard height (m)	
L (m)	Raised quarter deck	All other superstructures
30 or less	0.90	1.80
75	1.20	1.80
125 or more	1.80	2.30

The standard heights at intermediate lengths of the ship shall be obtained by linear interpolation.

Regulation 34 Length of superstructure

(1) Except as provided in paragraph (2), the length of a superstructure (S) shall be the mean length of the parts of the superstructure which lie within the length (L).

Where a superstructure bulkhead is recessed, the effective length of the superstructure shall be reduced by an amount equal to the area of the recess in plan view divided by the breadth of the superstructure at the midlength of the recess. Where the recess is unsymmetrical about the centreline, the largest portion of the recess shall be considered as applying to both sides of the ship. A recess need not be decked over.

(2) Where the end bulkhead of an enclosed superstructure extends in a fair convex curve beyond its intersection with the superstructure sides, the length of the superstructure may be increased on the basis of an equivalent plane bulkhead. This increase shall be two-thirds of the fore and aft extent of the curvature. The maximum curvature which may be taken into account in determining this increase is one-half the breadth of the superstructure at the point of intersection of the curved end of the superstructure with its side.

Where there is an extension to a superstructure, which extension has a breadth on each side of the centre line at least 30% of the breadth of the ship, the effective length of the superstructure may be increased by considering an equivalent superstructure bulkhead in the form of a parabola. This parabola shall extend from the extension at the centreline and pass through the junction of the actual superstructure bulkhead with the sides of the extension and extend to the sides of the ship. This parabola shall be completely contained within the boundary of the superstructure and its extensions.

If the superstructure is set-in from the side, up to the limit allowed under Regulation 3(10), the equivalent bulkhead should be calculated on the basis of the actual breadth of the superstructure (and not the breadth of the ship).

(3) Superstructures which have sloped end bulkheads shall be dealt with in the following manner:

(a) When the height of superstructure, clear of the slope, is equal to or smaller than the standard height, length S is to be obtained as shown in figure 34.1.

(b) When the height is greater than the standard, length S is to be obtained as shown in figure 34.2.

(c) The foregoing will apply only when the slope, related to the base line, is 15° or greater. Where the slope is less than 15°, the configuration shall be treated as sheer.

[figure 34.1 and 34.2 here]

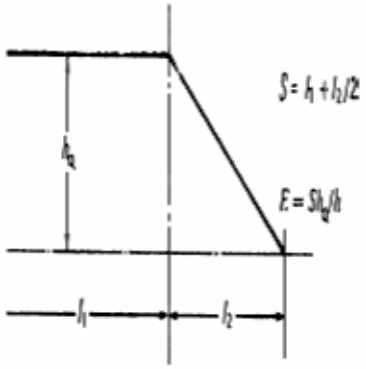

Figure 34.1 Height of superstructure equal to or smaller than the standard height h

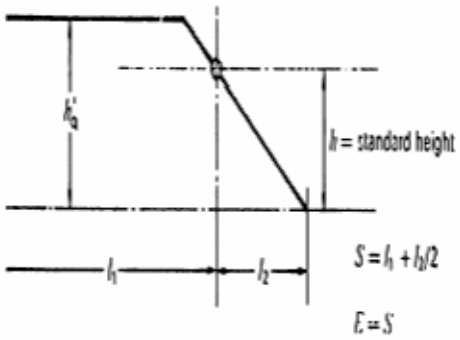

Figure 34.2 Height of superstructure greater than the standard height

Regulation 35 Effective length of superstructure

(1) Except as provided for in paragraph (2), the effective length (E) of an enclosed superstructure of standard height shall be its length.

(2) In all cases where an enclosed superstructure of standard height is set-in from the sides of the ship as permitted in regulation

3(10), the effective length shall be the length modified by the ratio of b/Bs, where

b is the breadth of the superstructure at the middle of its length; and

B_s is the breadth of the ship at the middle of the length of the superstructure.

Where a superstructure is set-in for a part of its length, this modification shall be applied only to the set-in part.

(3) Where the height of an enclosed superstructure is less than the standard height, the effective length shall be its length reduced in the ratio of the actual height to the standard height. Where the height exceeds the standard, no increase shall be made to the effective length of the superstructure (see figures 34.1 and 34.2).

Where the height, clear of the slope, of a superstructure which has sloped end bulkheads is less than the standard height, its effective length E shall be its length S as obtained from figure 34.1, reduced in the ratio of the actual height to the standard height .

Where a poop or forecastle of less than standard height is fitted on a ship with excessive sheer but without any superstructure within 0.2L amidships, credit may be given to the height of the poop or forecastle by increasing the actual height by the difference between the actual and the standard sheer profiles. The deduction for excess sheer in accordance with Regulation 38(16) is not to be granted.

(4) The effective length of a raised quarter deck, if fitted with an intact front bulkhead, shall be its length up to a maximum of 0.6L. Where the bulkhead is not intact, the raised quarter deck shall be treated as a poop of less than standard height.

The maximum effective length of 0.6L of a raised quarterdeck is to be measured from the after perpendicular, even where a poop is fitted in conjunction with the raised quarterdeck.

(5) Superstructures which are not enclosed shall have no effective length.

Regulation 36 Trunks

(1) A trunk or similar structure which does not extend to the sides of the ship shall be regarded as efficient on the following conditions:

(a) the trunk is at least as strong as a superstructure;

(b) the hatchways are in the trunk deck, the hatchway coamings and covers comply with the requirements of regulations 13 to 16 inclusive and the width of the trunk deck stringer provides a satisfactory gangway and sufficient lateral stiffness. However, small access openings with watertight covers may be permitted in the freeboard deck;

(c) a permanent working platform fore and aft fitted with guard rails is provided by the trunk deck, or by detached trunks connected to superstructures by efficient permanent gangways;

(d) ventilators are protected by the trunk, by watertight covers or by other equivalent means;

(e) open rails are fitted on the weather parts of the freeboard deck in way of the trunk for at least half their length or, alternatively, freeing port area in the lower part of the bulwarks, subject to regulation 24(2), of 33% of the total area of the bulwarks is provided;

(f) the machinery casings are protected by the trunk, by a superstructure of at least standard height, or by a deckhouse of the same height and of equivalent strength;

(g) the breadth of the trunk is at least 60% of the breadth of the ship; and

(h) where there is no superstructure, the length of the trunk is at least 0.6L.

(2) The full length of an efficient trunk reduced in the ratio of its mean breadth to B shall be its effective length.

(3) The standard height of a trunk is the standard height of a superstructure other than a raised quarter deck.

(4) Where the height of a trunk is less than the standard height, its effective length shall be reduced in the ratio of the actual to the standard height. Where the height of hatchway coamings on the trunk deck is less than that required under Regulation 14-1, a reduction from the actual height of trunk shall be made which corresponds to the difference between the actual and the required height of coaming.

(5) Where the trunk height is less than standard and the trunk hatch coamings are also of less than standard height, or omitted entirely, the reduction from the actual height of trunk on account of insufficient hatch coaming height shall be taken as the difference between 600 mm and the actual height of coaming, or 600 mm if no hatch coamings are fitted. Reduction in the actual

height of trunk shall not be required in cases where only small hatches with less than standard height are fitted in the trunk deck for which dispensation from the requirement of standard coaming height may be given.

(6) Continuous hatchways may be treated as a trunk in the freeboard computation, provided the provisions of this paragraph are complied with in all respects.

The trunk deck stringer referred to in paragraph (1)(b) may be fitted outboard of the trunk side bulkhead in association with the following:

(a) the stringer so formed is to provide a clear walkway of at least 450 mm in width on each side of the ship;

(b) the stringer is to be of solid plate, efficiently supported and stiffened;

(c) the stringer is to be as high above the freeboard deck as practicable. In the freeboard calculation, the trunk height is to be reduced by at least 600 mm or by the actual difference between the top of the trunk and the stringer, whichever is greater;

(d) hatch cover securing appliances are to be accessible from the stringer or walkway; and

(e) the breadth of the trunk is to be measured between the trunk side bulkheads.

(7) Where the trunk adjoining the superstructures such as poop, bridge or forecastle is included in the calculation of freeboard, openings shall not be arranged in that part of the bulkhead which is common for the trunk and superstructure. A relaxation may be made for small openings such as for piping, cable or manholes with covers attached by means of bolts.

(8) The sides of a trunk included in the calculation of freeboard shall be intact. Side scuttles of the non-opening type and bolted manhole covers may be allowed.

Regulation 37 Deduction for superstructures and trunks

(1) Where the effective length of superstructures and trunks is 1L, the deduction from the freeboard shall be 350 mm at 24 m length of ship, 860 mm at 85 m length and 1,070 mm at 122 m length and above. Deductions at intermediate lengths shall be obtained by linear interpolation.

(2) Where the total effective length of superstructures and trunks is less than 1L, the deduction shall be a percentage obtained from the following table:

Table 37.1
Percentage of deduction for type 'A' and 'B' ships

	Total effective length of superstructures and trunks										
Percentage of deduction for all types of superstructure											

Percentages at intermediate lengths of superstructures and trunks shall be obtained by linear interpolation.

(3) For ships of type 'B' where the effective length of a forecastle is less than 0.07L no deduction is allowed.

Regulation 38 Sheer

General

(1) The sheer shall be measured from the deck at side to a line of reference drawn parallel to the keel through the sheer line amidships.

(2) In ships designed with a rake of keel, the sheer shall be measured in relation to a reference line drawn parallel to the design load waterline.

(3) In flush deck ships and in ships with detached superstructures the sheer shall be measured at the freeboard deck.

(4) In ships with topsides of unusual form in which there is a step or break in the topsides, the sheer shall be considered in relation to the equivalent depth amidships.

(5) In ships with a superstructure of standard height which extends over the whole length of the freeboard deck, the sheer shall be measured at the superstructure deck. Where the height exceeds the standard, the least difference (Z) between the actual and standard heights shall be added to each end ordinate. Similarly, the intermediate ordinates at distances of 1/6L and 1/3L from each perpendicular shall be increased by 0.444Z and 0.111Z, respectively. Where there is an enclosed poop or forecastle superimposed on the superstructure, sheer credit shall be allowed for such a poop or forecastle, according to the method of paragraph (12) as shown in figure 38.1.

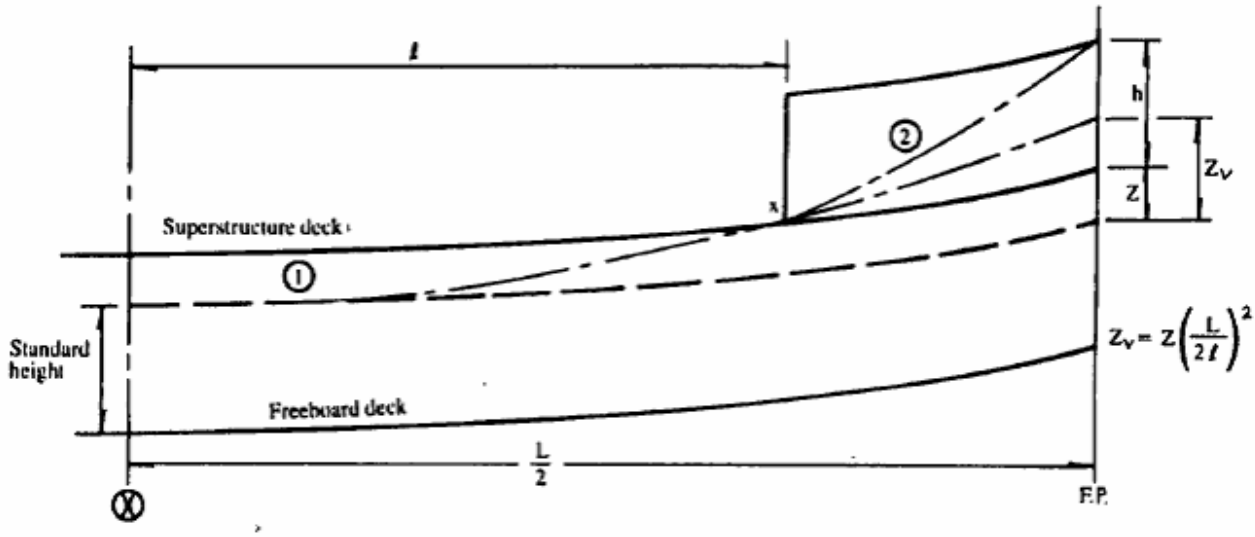

Figure 38.1

[figure 38.1 here]

(6) Where the deck of an enclosed superstructure has at least the same sheer as the exposed freeboard deck, the sheer of the enclosed portion of the freeboard deck shall not be taken into account.

(7) Where an enclosed poop or forecastle is of standard height with greater sheer than that of the freeboard deck, or is of more than standard height, an addition to the sheer of the freeboard deck shall be made as provided in paragraph (12).

Where a poop or forecastle consists of two layers, the method shown in figure 38.2 shall be used.

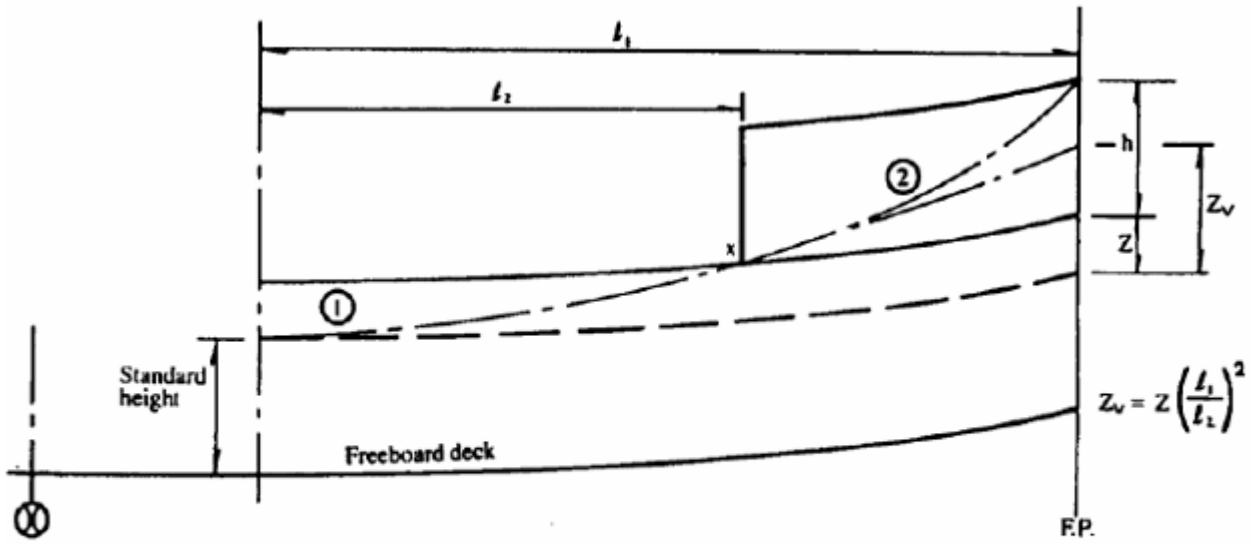

Figure 38.2

[figure 38.2 here]

In figures 38.1and 38.2, the following definitions apply:

Z is as defined in paragraph (5); and

Z_v is the end ordinate of a virtual standard parabolic curve taken through the point "X". If Z_v is greater than (Z + h), the end ordinate shall be (Z + h), in which case point "X" shall be disregarded and curve (2) not taken into account.

When the length of the first tier superstructure is greater than 0.5 l, the virtual standard parabolic curve shall commence at amidships as indicated in figure 38.1.

Standard sheer profile

(8) The ordinates of the standard sheer profile are given in the following table:

Table 38.1
Standard sheer profile
(L is in metres)

Station	Ordinate (mm)	Factor
After perpendicular	$25\ (\frac{L}{3}+10)$	1
After half 1/6L from A P.....	$11.1\ (\frac{L}{3}+10)$	3
1/3L from A P	$2.8\ (\frac{L}{3}+10)$	3
Amidships	0	1
Amidships	0	1
Forward half 1/3L from F P	$5.6\ (\frac{L}{3}+10)$	3
1/6L from F P	$22.2\ (\frac{L}{3}+10)$	3
Forward perpendicular	$50\,(\frac{L}{3}+10)$	1

Measurement of variation from standard sheer profile

(9) Where the sheer profile differs from the standard, the four ordinates of each profile in the forward or after half shall be multiplied by the appropriate factors given in the above table of ordinates. The difference between the sums of the respective products and those of the standard divided by 8 measures the deficiency or excess of sheer in the forward or after half. The arithmetical mean of the excess or deficiency in the forward and after halves measures the excess or deficiency of sheer.

(10) Where the after half of the sheer profile is greater than the standard and the forward half is less than the standard, no credit shall be allowed for the part in excess and deficiency only shall be measured.

(11) Where the forward half of the sheer profile exceeds the standard, and the after portion of the sheer profile is not less than 75% of the standard, credit shall be allowed for the part in excess. Where the after part is less than 50% of the standard no credit shall be given for the excess sheer forward. Where the after sheer is between 50% and 75% of the standard, intermediate allowances may be granted for excess sheer forward.

(12) Where sheer credit is given for a poop or forecastle the following formula shall be used:

$$s = \frac{y}{3}\ \frac{L'}{L}$$

where s = is the sheer credit, to be deducted from the deficiency, or added to the excess of sheer,

y = is the difference between actual and standard height of superstructure at the after or forward perpendicular,

L' = is the mean enclosed length of poop or forecastle up to a maximum length of 0.5 L; and

L = is the length of the ship as defined in Regulation 3(1).

The above formula provides a curve in the form of a parabola tangent to the actual sheer curve at the freeboard deck and intersecting the end ordinate at a point below the superstructure deck a distance equal to the standard height of a superstructure. The superstructure deck shall not be less than standard height above this curve at any point. This curve shall be used in determining the sheer profile for forward and after halves of the ship.

(13) (a) Any excess in the height of a superstructure which does not extend to the after perpendicular cannot be regarded as contributing to the sheer allowance.

(b) Where the height of a superstructure is less than standard, the superstructure deck shall not be less than the minimum height of the superstructure above the virtual shear curve at any point. For this purpose y shall be taken as the difference between the actual and minimum height of the superstructure at the after/forward perpendicular.

(c) For a raised quarterdeck credit may be given only when the height of this quarterdeck is greater than the standard height of 'other superstructures' as defined in Regulation 33, and only for the amount by which the actual height of the raised quarterdeck exceeds that standard height.

(d) When a poop or a forecastle has sloping end bulkheads, the sheer credit may be allowed on account of excess height. The formula given in paragraph (12) shall be used, the values for y and L' being as shown in figure 38.3.

[figure 38.3 here]

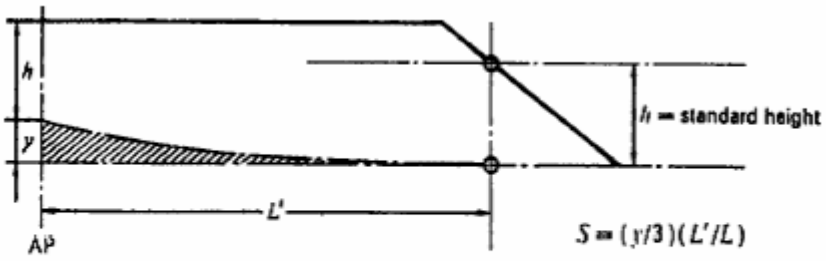

Figure 38.3 Sheer credit S for excess height

Correction for variations from standard sheer profile

(14) The correction for sheer shall be the deficiency or excess of sheer (see paragraphs (9) to (11) inclusive), multiplied by

$$0.75 - \frac{S_1}{2L}$$

where S_1 is the total length S of enclosed superstructures as defined in Regulation 34 without trunks.

Addition for deficiency in sheer

(15) Where the sheer is less than the standard, the correction for deficiency in sheer (see paragraph (14)) shall be added to the freeboard.

Deduction for excess sheer

(16) In ships where an enclosed superstructure covers 0.1L before and 0.1L abaft amidships, the correction for excess of sheer as calculated under the provisions of paragraph (14) shall be deducted from the freeboard; in ships where no enclosed superstructure covers amidships, no deduction shall be made from the freeboard; where an enclosed superstructure covers less than 0.1L before and 0.1L abaft amidships, the deduction shall be obtained by linear interpolation. The maximum deduction for excess sheer shall be at the rate of 125 mm per 100 m of length.

In applying this paragraph, the height of the superstructure shall be related to its standard height. Where the height of the superstructure or raised quarterdeck is less than standard, the reduction shall be in the ratio of the actual to the standard height thereof.

Regulation 39 Minimum bow height and reserve buoyancy

(1) The bow height (F_b) defined as the vertical distance at the forward perpendicular between the waterline corresponding to the assigned summer freeboard and the designed trim and the top of the exposed deck at side, shall be not less than:

$$F_b = (6075\,(L/100) - 1875\,(L/100)^2 + 200\,(L/100)^{3)}) \text{ x } (2.08 + 0.609C_b - 1.603C_{wf} - 0.0129\,(L/d_1))$$

where:

F_b is the calculated minimum bow height, in mm;

L is the length, as defined in Regulation 3, in m;

B is the moulded breadth, as defined in Regulation 3, in m;

D_1 is the draught at 85% of the depth D, in m;

C_b is the block coefficient, as defined in Regulation 3;

C_{wf} is the waterplane area coefficient forward of L/2: $C_{wf} = A_{wf}/\{(L/2) \text{ x } B\}$;

A_{wf} is the waterplane area forward of L/2 at draught d_1 in m^2.

For ships to which timber freeboards are assigned, the summer freeboard (and not the timber summer freeboard) is to be assumed when applying paragraph (1).

(2) Where the bow height required in paragraph (1) is obtained by sheer, the sheer shall extend for at least 15% of the length of the ship measured from the forward perpendicular. Where it is obtained by fitting a superstructure, such superstructure shall extend from the stem to a point at least 0.07L abaft the forward perpendicular, and shall be enclosed as defined in Regulation 3(10).

(3) Ships which, to suit exceptional operational requirements, cannot meet the requirements of paragraphs (1) and (2) of this Regulation may be given special consideration by the Administration.

(4) (a) The sheer of the forecastle deck may be taken into account, even if the length of the forecastle is less than 0.15L, but greater than 0.07L, provided that the forecastle height is not less than one half of standard height of superstructure as defined in Regulation 33 between 0.07L and the forward perpendicular.

(b) Where the forecastle height is less than one half of the standard height of superstructure, as defined in Regulation 33, the credited bow height may be determined as follows:

(i) Where the freeboard deck has sheer extending from abaft 0.15L, by a parabolic curve having its origin at 0.15L abaft the forward perpendicular at a height equal to the midship depth of the ship, extended through the point of intersection of forecastle bulkhead and deck, and up to a point at the forward perpendicular not higher than the level of the forecastle deck (as illustrated in figure 39.1). However, if the value of the height denoted ht in figure 39.1 is smaller than the value of the height denoted hb then ht may be replaced by hb in the available bow height.

(ii) Where the freeboard deck has sheer extending for less than 0.15L or has no sheer, by a line from the forecastle deck at side at 0.07L extended parallel to the base line to the forward perpendicular (as illustrated in figure 39.2).

[figure 39.1 and 39.2 here]

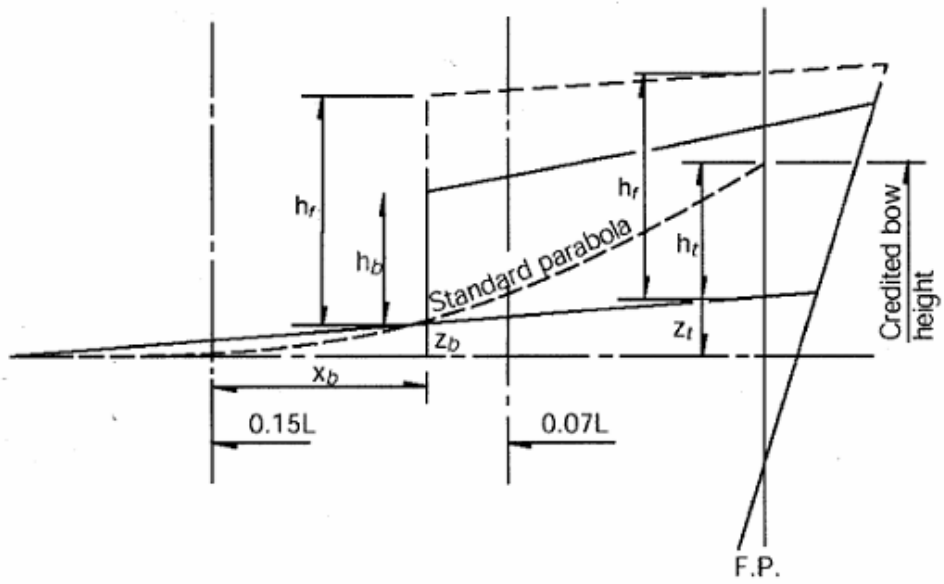

Figure 39.1

$$h_t = Z_b\left(\frac{0.15L}{x_b}\right)^2 - Z_t$$

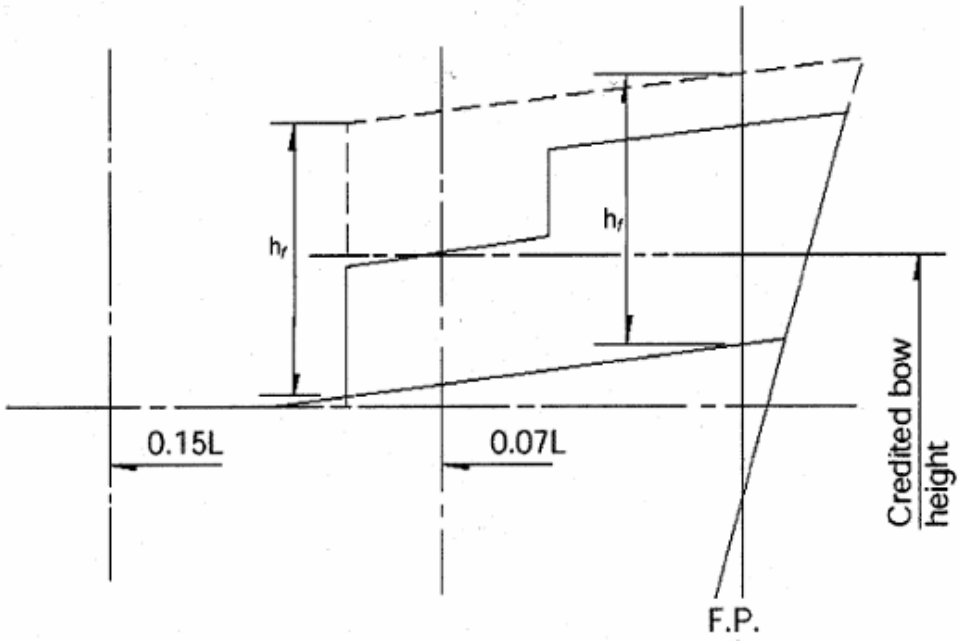

Figure 39.2

h_f = Half standard height of superstructure as defined in regulation 33.

h_f = Half standard height of superstructure as defined in Regulation 33.

(5) All ships assigned a type 'B' freeboard, other than oil tankers,[50] chemical tankers[1] and gas carriers[1], shall have additional reserve buoyancy in the fore end. Within the range of 0.15L abaft of the forward perpendicular, the sum of the projected area between the summer load waterline and the deck at side (A1 and A2 in figure 39.3) and the projected area of an enclosed superstructure, if fitted, (A3) shall not be less than:

$$(0.15\,F_{min} + 4\,(L/3 + 10))L/1000\,m^2$$

where:

F_{min} is calculated by: $F_{min} = (F_0 \times f_1) + f_2$;

F_0 is the tabular freeboard, in mm, taken from table 28.2, corrected for Regulation 27(9) or 27(10), as applicable;

f_1 is the correction for block coefficient given in Regulation 30; and

f2 is the correction for depth, in mm, given in Regulation 31.

[figure 39.3 here]

[50] Oil tankers, chemical tankers and gas carriers as defined in the SOLAS Convention, 1974, Regulations II-1/2.12, VII/8.2 and VII/11.2, respectively

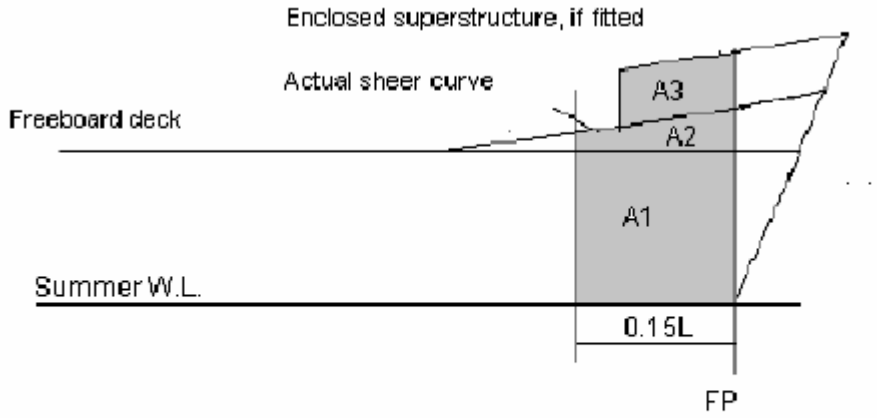

Figure 39.3

Regulation 40 Minimum freeboard

Summer freeboard

(1) The minimum freeboard in summer shall be the freeboard derived from the tables in Regulation 28, as modified by the corrections in Regulations 27, as applicable, 29, 30, 31, 32, 37, 38 and, if applicable, 39.

(2) The freeboard in salt water, as calculated in accordance with paragraph (1), but without the correction for deck line, as provided by Regulation 32, shall not be less than 50 mm. For ships having in position 1 hatchways with covers which do not comply with the requirements of Regulation 16(1) through (5) or Regulation 26, the freeboard shall be not less than 150 mm.

Tropical freeboard

(3) The minimum freeboard in the Tropical Zone shall be the freeboard obtained by a deduction from the summer freeboard of one forty-eighth of the summer draught measured from the top of the keel to the centre of the ring of the load line mark.

(4) The freeboard in salt water, as calculated in accordance with paragraph (3), but without the correction for deck line, as provided by Regulation 32, shall not be less than 50 mm. For ships having in position 1 hatchways with covers which do not

comply with the requirements of Regulation 16(1) through (5) or Regulation 26, the freeboard shall be not less than 150 mm.

Winter freeboard

(5) The minimum freeboard in winter shall be the freeboard obtained by an addition to the summer freeboard of one forty-eighth of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

Winter North Atlantic freeboard

(6) The minimum freeboard for ships of not more than 100 m in length which enter any part of the North Atlantic defined in Regulation 52 (Annex II) during the winter seasonal period shall be the winter freeboard plus 50 mm. For other ships, the winter North Atlantic freeboard shall be the winter freeboard.

Fresh water freeboard

(7) The minimum freeboard in fresh water of unit density shall be obtained by deducting from the minimum freeboard in salt water:

$$\frac{\Delta}{40\,T}\ \text{cm}$$

where Δ = the displacement in salt water in tonnes at the summer load waterline; and

T = the tonnes per centimetre immersion in salt water at the summer load waterline.

(8) Where the displacement at the summer load waterline cannot be certified, the deduction shall be one forty-eight of summer draught, measured from the top of the keel to the centre of the ring of the load line mark.

C H A P T E R I V

Special requirements for ships assigned timber freeboard

Regulation 41 Application of this Chapter

Regulations 42 to 45 inclusive apply only to ships to which timber load lines are assigned.

Regulation 42 Definitions

(1) 'Timber deck cargo': The term 'timber deck cargo' means a cargo of timber carried on an uncovered part of a freeboard deck. The term does not include wood pulp or similar cargo.[51]

(2) 'Timber load line': A timber deck cargo may be regarded as giving a ship a certain additional buoyancy and a greater degree of protection against the sea. For that reason, ships carrying a timber deck cargo may be granted a reduction of freeboard calculated according to the provisions of Regulation 45 and marked on the ship's side in accordance with the provisions of regulations 6(3) and (4). However, in order that such special freeboard may be granted and used, the timber deck cargo shall comply with certain conditions which are laid down in Regulation 44, and the ship itself shall also comply with certain conditions relating to its construction which are set out in Regulation 43.

Regulation 43 Construction of the ship

Superstructure

(1) Ships shall have a forecastle of at least standard height and a length of at least 0.07L. In addition, if the ship is less than 100 m in length, a poop of at least standard height, or a raised quarterdeck with a deckhouse of at least the same total height shall be fitted aft.

Double bottom tanks

[51] Refer to "the Code of Safe Practice for Ships Carrying Timber Deck Cargoes" adopted by the Organisation by Resolution A.715(17), as amended.

(2) Double bottom tanks, where fitted within the midship half length of the ship, shall have adequate watertight longitudinal subdivision.

Bulwarks

(3) The ship shall be fitted either with permanent bulwarks at least 1 m in height, specially stiffened on the upper edge and supported by strong bulwark stays attached to the deck and provided with necessary freeing ports, or with efficient rails of the same height and of specially strong construction.

Regulation 44 Stowage

General

(1) Openings in the deck exposed to weather over which cargo is stowed shall be securely closed and battened down.

The ventilators and air pipes shall be efficiently protected.

(2) Timber deck cargoes shall extend over at least the entire available length which is the total length of the well or wells between superstructures.

Where there is no limiting superstructure at the after end, the timber shall extend at least to the after end of the aftermost hatchway.

The timber deck cargo shall extend athwartships as close as possible to the ship's side, due allowance being made for obstructions such as guard rails, bulwark stays, uprights, pilot access, etc., provided that any gap thus created at the side of the ship shall not exceed a mean of 4% of the breadth. The timber shall be stowed as solidly as possible to at least the standard height of the superstructure other than any raised quarterdeck.

(3) On a ship within a seasonal winter zone in winter, the height of the deck cargo above the deck exposed to weather shall not exceed one third of the extreme breadth of the ship.

(4) The timber deck cargo shall be compactly stowed, lashed and secured. It shall not interfere in any way with the navigation and necessary work of the ship.

Uprights

(5) Uprights, when required by the nature of the timber, shall be of adequate strength considering the breadth of the ship; the strength of the uprights shall not exceed the strength of the bulwark and the spacing shall be suitable for the length and character of timber carried, but shall not exceed 3 m. Strong

angles or metal sockets or equally efficient means shall be provided for securing the uprights.

Lashings

(6) Timber deck cargo shall be effectively secured throughout its length by a lashing system acceptable to the Administration for the character of the timber carried.[2]

Stability

(7) Provision shall be made for a safe margin of stability at all stages of the voyage, regard being given to additions of weight, such as those arising from absorption of water or icing, if applicable, and to losses of weight such as those arising from consumption of fuel and stores.

Protection of crew, access to machinery spaces etc.

(8) In addition to the requirements of Regulation 25(5), guard-rails or lifelines not more than 350 mm apart vertically shall be provided on each side of the cargo deck to a height of at least 1 m above the cargo.

In addition a lifeline, preferably wire rope set up taut with a stretching screw, shall be provided as near as practicable to the centreline of the ship. The stanchion supports to all guard-rails and lifelines shall be so spaced as to prevent undue sagging. Where the cargo is uneven, a safe walking surface of not less than 600 mm in width shall be fitted over the cargo and effectively secured beneath or adjacent to the lifeline.

(9) Where the requirements prescribed in paragraph (8) are impracticable, alternative arrangements satisfactory to the Administration shall be used.

Steering arrangements

(10) Steering arrangements shall be effectively protected from damage by cargo and, as far as practicable, shall be accessible. Efficient provision shall be made for steering in the event of a breakdown in the main steering arrangements.

Regulation 45 Computation for freeboard

(1) The minimum summer freeboards shall be computed in accordance with Regulations 27(5), 27(6), 28, 29, 30, 31, 32, 37 and 38, except that Regulation 37 is modified by substituting the following percentages for those given in Regulation 37:

Table 45.1

	Total effective length of superstructure										
Percentage of deduction for all types of superstructure											

Percentages at intermediate lengths of superstructure shall be obtained by linear interpolation.

(2) The Winter Timber Freeboard shall be obtained by adding to the Summer Timber Freeboard one thirty-sixth of the moulded summer timber draught.

(3) The Winter North Atlantic Timber Freeboard shall be the same as the Winter North Atlantic Freeboard prescribed in Regulation 40(6).

(4) The Tropical Timber Freeboard shall be obtained by deducting from the Summer Timber Freeboard one forty-eighth of the moulded summer timber draught.

(5) The Fresh Water Timber Freeboard shall be computed in accordance with Regulation 40(7), based on the summer timber load waterline or with Regulation 40(8), based on the summer timber draught measured from the top of the keel to the summer timber load line.

(6) Timber freeboards may be assigned to ships with reduced type 'B' freeboards, provided the timber freeboards are calculated on the basis of the ordinary type 'B' freeboard.

(7) The Timber Winter mark and/or the Timber Winter North Atlantic mark shall be placed at the same level as the reduced type 'B' Winter mark when the computed Timber Winter mark and/or the computed Timber Winter North Atlantic mark fall below the reduced type 'B' Winter mark.

Chapter B II-3
1 September 2004

Technical regulation on construction and equipment, etc. of ships

C H A P T E R I I - 3

Accommodation, etc.

PART I – DEFINITIONS, ETC.

Regulation 1 Definitions **Erreur ! Signet non défini.**
Regulation 2 Application **Erreur ! Signet non défini.**
Regulation 3 Approval and Survey **Erreur ! Signet non défini.**
Regulation 4 Exemptions and Equivalents **Erreur ! Signet non défini.**

PART II - CREW ACCOMMODATION

Regulation 5 Location, Building and Arrangement **Erreur ! Signet non défini.**
Regulation 6 Ventilation, Air-Conditioning and Mosquito Nets **Erreur ! Signet non défini.**
Regulation 7 Heating **Erreur ! Signet non défini.**
Regulation 8 Lighting **Erreur ! Signet non défini.**
Regulation 9 Sleeping Quarters: Location, Size, Arrangement, etc.. **Erreur ! Signet non défini.**
Regulation 10 Berths **Erreur ! Signet non défini.**
Regulation 11 Lockers for Work Clothes **Erreur ! Signet non défini.**
Regulation 12 Dining Rooms **Erreur ! Signet non défini.**
Regulation 13 Recreation Rooms **Erreur ! Signet non défini.**
Regulation 14 Toilets and Bathrooms **Erreur ! Signet non défini.**
Regulation 15 Separate Toilets and Changing Rooms **Erreur ! Signet non défini.**
Regulation 16 Laundry Rooms, etc. **Erreur ! Signet non défini.**
Regulation 17 Headroom in Accommodation, etc. **Erreur ! Signet non défini.**

Regulation 18 Corridors, Staircases and Doors **Erreur ! Signet non défini.**
Regulation 19 Galleys and Provision Stores **Erreur ! Signet non défini.**
Regulation 20 Potable Water System **Erreur ! Signet non défini.**
Regulation 21 Infirmary and Hoist Stretcher **Erreur ! Signet non défini.**
Regulation 22 Offices **Erreur ! Signet non défini.**
Regulation 23 Cleaning and Inspection **Erreur ! Signet non défini.**
Regulation 24 Exits **Erreur ! Signet non défini.**

PART III - PASSENGER ACCOMMODATION

Regulation 25 Passenger Accommodation, etc..**Erreur ! Signet non défini.**
Regulation 26 Location **Erreur ! Signet non défini.**
Regulation 27 Specification of the Number of Passengers in Individual Rooms **Erreur ! Signet non défini.**
Regulation 28 Toilets **Erreur ! Signet non défini.**
Regulation 29 Hospital **Erreur ! Signet non défini.**

Regulation 30 Disabled persons

C H A P T E R I I - 3

Accommodation, etc.[1)]

Part I Definitions, etc.

Regulation 1 Definitions

The following definitions shall apply in this chapter.

1 "New ship": A ship whose keel was laid or which was at a similar stage of construction on or after 1 January 2002.

2 "Existing ship": A ship that is not a new ship.

3 "Passenger ship": A ship carrying more than 12 passengers.

4 "Cargo ship": Any ship that is not a passenger ship or a fishing vessel.

5 "Officer": Any person, apart from the master of the ship, who is, according to legislation, collective agreement or custom, regarded as an officer.

6 "Accommodation": The sleeping quarters, dining rooms, toilets and bathrooms, infirmaries, recreation rooms and offices intended for the use of the crew and the passengers".

7 "Ship's crew or crew": Any person in service on board except for the master of the ship.

8 "Adult": A person above the age of 18.

9 "Sea-going ship": A ship whose area of service is not limited to port areas.

10 "Port area": An area that is not a sea area and that stretches to the most remote fixed installation parts forming an integrated part of the port or to boundaries defined by natural geographic characteristics protecting a mouth of a river or a similar shielded area.

11 "Gross tonnage": The gross tonnage (GT) measured in accordance with relevant provisions on the measuring of ships. For ships of a length of 24m and above, according to the

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[1)] *Parts I and II of this Chapter contain provisions that implement ILO Convention No. 92 of 18 June 1949 and Convention No. 133 of 30 October 1970, concerning Crew Accommodation on Board Ship.*

provisions of the International Convention of Tonnage Measurement of Ships, 1969.

Regulation 2 Application

1 The provisions of this Chapter shall apply to new cargo ships with a length (L)[2)] of 15m or more or with a scantling number (see definition in Chapter B I) of 100 or more and to passenger ships engaged in international trade with a gross tonnage of 20 or more.

2 To the extent that is found reasonable in consideration of their arrangement, existing ships shall be made to comply with the provisions of this Chapter when they are subjected to major rebuildings or when changes are made to the structure of the ship involving considerable changes in the size of the ship's crew.

Regulation 3 Approval and Survey

1 For all new ships, drawings as well as information about the ship's area served, expected gross tonnage, the number of crewmembers and passengers, if any, and their distribution by category shall be forwarded to the Danish Maritime Authority for approval, etc. The drawings shall show the location, size and arrangement of the accommodation, the utilisation of the space, the placing of fittings and appurtenances as well as the arrangement of heating, ventilation, exits, etc.

2 Equivalent drawings and information shall be submitted to the Danish Maritime Authority before the accommodation in an existing ship undergoes alterations and modifications.

3 A complete survey of the accommodation, etc. shall be carried out before the ship is put into service.

4 Dependent on the circumstances, either a complete or a partial survey shall be carried out following major repairs, alterations or modifications involving considerable changes to the accommodation.

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2) *"Length (L)" shall be calculated as 96% of the total length on a waterline at 85% of the least moulded depth measured from the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel, the waterline on which the length is measured shall be parallel to the designed waterline.*

5 The Danish Maritime Authority or an organisation authorised by the Danish Maritime Authority may, at any time, carry out an unannounced inspection of the accommodation on board.

Regulation 4 Exemptions and Equivalents

1 Taking into consideration the special circumstances that apply to the individual ship and following negotiations with the relevant ship-owner and crew organisations, the Danish Maritime Authority may allow deviations from the provisions of this Chapter concerning the accommodation for the crew in respect of the following:

.1 Ferries or similar ships constantly manned with a permanent crew.

.2 The accommodation, etc., intended for repair personnel or special personal when these persons are temporarily carried in addition to the ship's crew.

.3 Ships engaged on short voyages that allow the crewmembers to go home or make use of equivalent possibilities for part of the day.

.4 Ships for special purposes, such as cable-laying ships, factory ships, etc., with a need for considerable special personnel in addition to the ship's crew as such.

2 Furthermore, the Danish Maritime Authority may allow deviations from the provisions of regulations 5-11, 13-16, 18-22, 26 and 28 when conditions otherwise indicate this in consideration of the special circumstances of the individual ship.

3 In ships with a gross tonnage below 250, the Danish Maritime Authority may allow deviations from the provisions when conditions otherwise indicate this in consideration of the special circumstances of the individual ship.

4 In ships where it is, during the manning and without any differential treatment, necessary to take consideration of conditions of importance to crews with different specific religious and social customs and practices, the Danish Maritime Authority may, following negotiations with the ship-owner and crew organisations of the seamen in question and subject to agreement between the said two parties, allow deviations from the provisions of regulations 9.1.3, 9.3, 9.5 and 14.2 provided that such deviations do not mean that the facilities as a whole become less appropriate than they would have been had the provisions of the technical regulation been applied.

5 Equivalents

5.1 Any provision of Part II of this Chapter may be departed from if, following negotiations with the relevant ship-owner and crew organisations, the Danish Maritime Authority is satisfied that such deviations would result in such advantages that the conditions as a whole are not less favourable than they would have been had the provisions been applied in full.

Part II Crew Accommodation

Regulation 5 Location, Building and Arrangement

1.1 The location, access, construction and placing in relation to other rooms shall be such as to provide sufficient safety, protection against weather and sea, insulation from heat, cold and noise and air pollution from other rooms.

1.2 The accommodation shall be located as far as seems reasonable from rooms in which substantial noise occurs, such as rooms for propulsion machinery, auxiliary machinery, steering machinery and deck machinery, and from rooms in which strong heat or cold may occur; neither may they be located directly above the propeller.

1.3 There must be no direct access to sleeping quarters from the rooms mentioned in paragraph 1.2 or from cargo rooms, galleys, chain locker, lamp rooms, rooms for storage of paint, stores rooms, drying rooms, washrooms and toilets intended for more than two persons. Bulkheads dividing such rooms from sleeping quarters as well as external bulkheads to accommodation shall be made of steel or another material that has been approved and shall be watertight and gas-tight; furthermore, they shall be adequately insulated both against noise and heat and cold.

1.4 There must be no direct access to toilets and bathrooms from galleys or dining rooms.

2.1 The accommodation and corridors leading to the accommodation shall be insulated against heat transmission from machine casings, galleys and other rooms in which heat may arise as well as against heat transmission from steam and hot water pipes and against effects from rooms that are cooled.

2.2 Internal bulkheads shall be made of an approved, sound-insulating material that does not represent a risk in respect of vermin.

2.3 Sleeping quarters, dining rooms, recreation rooms and corridors in the crew accommodation shall be insulated to prevent condensation or overheating.

3 Main steam pipes and waste steam pipes for capstans and similar machinery may not be laid through the accommodation or through corridors leading to the accommodation.

4.1 The internal panelling or internal wall coverings shall be made of a material with a surface that is easy to keep clean.

4.2 Planed off and matched boards or any other kind of construction that may involve a risk of vermin may not be used.

5 Each accommodation section shall have at least two exits.

6.1 The ceilings and bulkheads in the accommodation shall be easy to keep clean and, if they have been painted, they shall be kept in light colours and shall be renewed or repaired when necessary. Pipes, cables and ducts shall be covered with lining sheets as far as possible.

6.2 In all rooms in the accommodation, the floor shall be made of an approved material and construction, and the surface shall be impervious to moisture and easy to keep clean.

7 The transition between the bulkhead/wall panelling and the floor shall not have cracks.

8 There shall be sufficient drainage. In corridors and large rooms[3], the drain shall have a size of approximately 25 cm^2 or more.

Regulation 6 Ventilation, Air-Conditioning and Mosquito Nets

1.1 The accommodation and corridors leading to other rooms in the accommodation as well as workrooms where the crew are to carry out work for long periods of time, e.g. radio rooms and engine control rooms, shall be ventilated so that a sufficient exchange of air is ensured under all circumstances when doors, port-holes, skylights, etc. are closed. The same applies to navigation rooms.

1.2 If the exchange of air takes place exclusively through natural ventilation, the inlet and outlet openings shall have a clear flow

[3]) *Rooms of 25m^2 or more*

area of at least 30 cm^2 for every person for whom the room is intended.

2.1 In ships with a gross tonnage of 200 or more, the ventilation shall be mechanical and the exchange of air shall comply with the following requirements:

.1 The ventilation of sleeping quarters, dining rooms, recreation rooms, offices, radio rooms, navigation rooms and equivalent workrooms shall take place through the blowing in of air equivalent to six air changes per hour.

.2 The outlet of air may take place via air gratings in the doors to corridors provided with a return air duct or directly to the open air.

.3 Recirculation of up to 50 per cent of the air supply may be permitted on the condition that toilets and bathrooms are provided with separate mechanical exhaustion. The supply of fresh air to sleeping quarters shall, however, be at least 30 cubic metres per hour for each person for whom the room is intended.

2.2 The inlet openings shall be placed appropriately relative to the arrangement of the rooms and may not give rise to annoying draughts over a berth.

3 In ships with a gross tonnage of 200 or more, toilet rooms and bathrooms shall be ventilated by a separate exhaustion system leading directly to the open air. The exhaustion system shall be designed for ten air changes per hour. The air supply to toilet rooms and bathrooms with access from adjoining sleeping quarters may take place through the door from here.

4 The galley shall be ventilated by a separate exhaustion system. Above the cooker, an exhaust hood with a vent pipe leading to the open air shall be fitted.

5 The ventilation system shall be constantly switched on during the operation of the ship. Maintenance of the mechanical ventilation shall be ensured by means of the necessary spare-parts[4)] or in another satisfactory way.

[4)] *The following spare-parts shall be considered necessary as a minimum:*

1. *One spare motor for each type of motor in the ventilation systems.*
2. *One set of extra bearings for each type of motor both in the ventilation and the air-conditioning systems.*
3. *One set of extra bearings for the ventilator, where this is driven by a belt drive from a motor.*
4. *100% supplement of air filters.*

6 In infirmaries and special changing rooms on board ships carrying hazardous substances, the ventilation shall be constructed so that air from the said rooms cannot penetrate into other parts of the accommodation. Doors to corridors leading to other parts of the accommodation may not be provided with ventilation openings and any ventilation ducts shall be provided with a non-return flap or other arrangements shall be made to ensure that the air does not penetrate into the rest of the accommodation.

7 Ships that are regularly engaged in trade between 30°N and 30°S shall be equipped with air-condition in sleeping quarters, living rooms, infirmary, dining rooms, recreation rooms, offices, radio rooms, navigation rooms, including the wheel house, as well as in engine control rooms.

8 The air-conditioning system may be a central system or consist of separate units and shall be designed so that, at 35°C and 70 per cent relative humidity outside, it can maintain 29°C and about 50 per cent relative humidity inside. No more than 50 per cent return air may be used.

9 Furthermore, the cooling machinery and air coolers of the system shall be designed so that, at 28°C and 80 per cent relative humidity outside, they can maintain 24°C and about 50 per cent relative humidity inside. It shall be possible to achieve such conditions with the quantities of fresh air mentioned in paragraph 2.1.

10 Ventilation and air-condition systems shall be provided with appropriate filters at air inlets, shall be designed for the special conditions characteristic of operation at sea and may not cause noise nuisance or vibrations.

11 Mosquito nets.

.1 In ships regularly calling at mosquito-plagued ports, measures shall be taken to protect the accommodation from the penetration of mosquitoes by placing suitable nets in front of port-holes, ventilators and doors to the open air.

.2 Ships provided with air-condition systems meeting the requirements of paragraphs 7-10 shall be exempted from meeting the requirement for mosquito nets.

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5. *One set of V-belts of each type.*
6. *One spares box containing special tools and small spare parts and O-rings.*

Regulation 7 Heating

1.1 A suitable heating system for the accommodation shall be fitted in all ships.

1.2 The heating system shall constantly be switched on during the operation of the ship when the circumstances necessitate its use. The capacity shall be sufficient to maintain a room temperature of at least 20° C in all circumstances.

2 In ships with a gross tonnage above 100, heating by means of open fire shall not be permitted.

3 Radiators and other heating systems shall be arranged and shielded so that they do not represent a danger or inconvenience.

4 Electric heaters and gas heaters shall be of an approved type.

Regulation 8 Lighting

1 The accommodation shall be properly lit.

2 Sleeping quarters, living rooms, dining rooms, recreation rooms and infirmary shall be lit by daylight. This shall, however, not apply to hobby rooms and similar rooms. The supply of daylight shall be sufficient to read ordinary newsprint in clear weather anywhere in the room where persons may normally be. In passenger ships, special arrangements may, however, be permitted.

3.1 In all ships, the accommodation shall be provided with electric lighting arranged so that it offers the greatest possible benefit to the persons in the room. In sleeping quarters, an electric reading lamp shall be fitted at the head of each berth.

3.2 If two electric sources of energy are not installed independent of each other, reserve lighting shall be available for use in case of emergency. Such emergency lighting may, for example, consist of permanently installed electric battery lamps that are recharged when the main current is on or a similar system. The lighting shall be sufficiently good for the route to exits to be easily seen.

4 The following guidelines are laid down as to the luminous power that shall be considered suitable for artificial lighting:

.1 Sleeping quarters and separate day rooms:

a)	General lighting	50 lux
b)	Lighting on tables where reading and writing take place	200 lux

.2 Dining rooms and recreation rooms:

a)	General lighting	50 lux
b)	Lighting on dining tables	150 lux
c)	Lighting on tables where reading, writing and games, etc. take place	200 lux

.3 Bathrooms and toilets:

a)	General lighting	50 lux
b)	At mirrors	200 lux

.4 Corridors and staircases:

a)	General lighting	50 lux

In other rooms that are not mentioned here and as an equivalent to the luminous power mentioned above, the luminous power recommended by the Danish Standards Association[5)] may be used.

5 The general lighting is measured at a horizontal plane 0.85 m above floor level.

Regulation 9 Sleeping Quarters: Location, Size, Arrangement, etc.

1.1 Sleeping quarters shall be located midship or aft, and no part of a sleeping quarter may be located below the highest load line mark or the highest load waterline on ships that are not provided with load line marks. Living rooms may, under no circumstances, be located in front of the collision bulkhead or below corridors in which work causing noise nuisance is regularly carried out.

1.2 In special cases, if the size, type or use of the ship makes the location of the sleeping quarters midship or aft inappropriate, permission may be given to place them further forward, but never in front of the collision bulkhead. In passenger ships, permission may be given to place sleeping quarters partly below the highest load line mark provided that satisfactory lighting and ventilation is allowed. In new ro-ro passenger ships, passenger cabins may not be placed below the ro-ro deck (the bulkhead

5) *Reference is made to DS 700, Artificial lighting in work premises.*

deck). Further reference is made to the requirements for escape routes in Chapter II-2, regulation 13.

In ships with a gross tonnage below 250 built for special purposes, such as tow-boats, permission may be given to locate sleeping quarters partly below the deepest loaded waterline provided that satisfactory lighting and ventilation is allowed.

1.3 The floor areas in sleeping quarters shall have at least the following size:

Gross tonnage	Minimum floor area[2])				
	Cargo ships		Passenger ships		
	1 person	2 persons	1 person	2 persons	3 persons
20 – 499	3.00	4.00	3.00	4.00	6.00
500 – 999	3.50	4.50	3.00	4.00	6.00
1000 – 2999	3.75	5.50	3.75	5.00	7.00
3000 – 9999	4.25	6.50	3.75	6.00	9.00
10000 and more	4.75	7.50	3.75	6.00	9.00

1.4 Sleeping quarters for officers shall have a floor area of at least 6.50 m^2 in ships with a gross tonnage below 3000 and of 7.50 m^2 in ships with a gross tonnage of 3000 or more.

1.5 The floor area taken up by fixed furniture such as berths, lockers, chests of drawers, tables and benches shall be included in the floor area mentioned above. Small[6)] or inappropriate areas that are not available for free movement and that cannot be used for the placement of fittings shall not be included.

2 In ships of 3000 tons or more, the chief engineer and the chief mate shall, in addition to their sleeping quarters, have an adjoining living room or day room.

3 In cargo ships, the number of persons in a sleeping cabin may not exceed two, and in passenger ships, three.

4 Each officer shall have his own sleeping cabin.

5 In ships with a gross tonnage of 500 or more, apart from passenger ships, each adult member of the crew shall have a separate sleeping cabin.

[6)] *Below about 0.6 x 0.6 m.*

6 All sleeping quarters shall be arranged and equipped so that they provide the crew with reasonable comfort and are easy to keep tidy.

7 The fittings shall consist of the following as a minimum:

.1 A wardrobe with a shelf and hanging rail for each person for which the room is intended. The wardrobe shall have a height of at least 1.50 m to the underside of the shelf, and the cross-sectional area shall be at least 0.193 m^2.

.2 A table and seats for the number of persons for which the room is intended.

.3 Drawers or the like with a capacity of at least 0.10 m^3 for every person for which the room is intended.

.4 A mirror, small locker for toiletries, a bookshelf and a suitable coat-hook arrangement.

At least one locker or drawer for each person shall be lockable with a separate key.

8 Port-holes in sleeping quarters shall be provided with curtains.

9 Each sleeping cabin shall be clearly marked inside with the number of persons for which it is intended and approved.

10 At the outside either on or next to the door, it shall be specified who the cabin is intended for.

11 Exits to the open deck shall be well protected and in ships with a gross tonnage of 100 or more, exits from sleeping quarters may not lead only to the open deck.

Regulations 10 Berths

1 Each crewmember shall have a separate berth.

2 The internal dimensions of a berth shall be at least 1.98 m x 0.80 m.

3 Berths may not be placed immediately next to each other.

4 More than two berths may not be placed on top of each other. The distance between the bottoms of the berths as well as between the bottom of the top berth and the underside of the ceiling panelling shall be at least 0.75 m. The bottom of the berth shall be at least 0.30 m above the floor.

5 As far as possible, berths may not be located along the side of the ship. If this is necessary in exceptional cases, only one single berth may be located there if a port-hole is found over the berth.

6 The berths shall be made of wood or another material that is hard, smooth, corrosion-free and which does represent a risk of vermin. If tubes are used, they shall be completely sealed so that they may not provide living space for vermin.

7 The berths shall be provided with spring mattresses or a spring bottom and mattresses of a generally recognized type. The mattresses may not contain material where vermin may live.

8 Top berths shall be provided with a base of wood or another suitable dust-tight material.

Regulation 11 Lockers for Work Clothes

1 In ships with a gross tonnage of 75 or more, one or more well-ventilated lockers of a suitable size and arrangement for work clothes, oil clothes, sea boots and the like shall be located.

Regulation 12 Dining Rooms

1 In ships with a gross tonnage of 500 or more, separate dining rooms shall be available for officers and deck and engine crew. In ships with a gross tonnage below 250, the galley may be used as a dining room for the crew.

2 In ships with a gross tonnage of 3000 or more, separate dining rooms shall also be available for the catering and serving staff if their number exceeds four.

3 The provisions of paragraphs 1 and 2 may be departed from if, during negotiations with the relevant ship-owner and crew organisations, it has been stated that other arrangements are preferable. An agreement has been reached with these organisations concerning a practice and equivalence arrangement for the use of a common dining room on board cargo ships[7)].

[7)] *If a common dining room (mess) for officers, deck and engine crew and catering and operating staff is provided in cargo ships with a gross tonnage of 500 or more, there shall also be at least one common duty mess, and in ships with a gross tonnage of 3000 or more there shall also be a smoking room. Until further notice, such arrangements for each ship or the first in a series of sister ships shall be sent for consultation to the Danish Seamen's Union (Sømændenes Forbund), SiD (Special-arbejderforbundet i Danmark) and the Danish Navigators' Union (Dansk Navigatørforening). Equivalent arrangements on passenger ships shall until further notice be sent for consultation to all relevant ship-owner and crew organisations.*

4 In ships where no separate dining room is required, a table and seats shall be located in the galley or in another suitable place where the crew may eat, and suitable storage arrangements shall be available for provisions and eating utensils.

5 Dining rooms shall be located conveniently relative to sleeping quarters and galleys.

6 The floor area in dining rooms shall be at least 1.0 m^2 for each person who is to use the room. When the floor area is calculated, the space taken up by dining tables, benches and chairs may be included.

7 Dining rooms shall be equipped with tables and approved fixed or loose seats in such a number that the crewmembers for whom the room is intended may eat their meals at the same time. In ships carrying special personnel for repairs and the like, it may be accepted that they do not eat at the same time as the crew. At least 0.6 m of table space shall be available at the tables for each seat.

8 The necessary lockers for storage of tableware shall be available, and outside the dining room or rooms, the necessary arrangements for the cleaning of the tableware shall be available.

9 The surfaces of tables and seats shall be easy to clean and resistant to cracks and damp.

10 In ships with a gross tonnage of 250 or more, there shall at all times be:

.1 Access to appropriately placed cooling equipment with a capacity corresponding to the number of persons using the dining room or rooms. The capacity shall be at least 10 l per person for up to ten persons, and 5 l per person for each additional person,

.2 facilities for getting hot drinks, and

.3 facilities for getting chilled drinking water.

11 The Danish Maritime Authority may allow such deviations from the provisions of paragraphs 4-7 on dining rooms as are necessary with regard to the particular conditions on board passenger ships.

Regulation 13 Recreation Rooms

1 In ships with a gross tonnage of 250 or more, one or more places shall be set up on open deck to which the crew have access in their spare-time. Such a space or spaces shall be of a suitable size in consideration of the size and arrangement of the crew and the ship, and in ships regularly sailing between 30° northern latitude and 30° southern latitude and in the Persian Gulf, the spaces shall be provided with awnings or other cover.

2 In ships with a gross tonnage of 250 or more, but below 8000, there shall be appropriately located and suitably equipped rooms intended for the crew to spend their spare-time in. The fittings in such rooms shall include a bookcase as well as furniture providing opportunity to read, write and play games.

3 In ships of a gross tonnage below 1000, such rooms may be dispensed with provided that the dining room or rooms are sized, furnished and arranged so that they are suitable for spending the spare-time. The total floor area shall be at least twice the required area of a dining room.

4 In ships with a gross tonnage of 1000 and more, it shall be examined whether there is a possibility of setting up a canteen when the recreation and dining rooms are planned.

5 In ships with a gross tonnage of 8000 or more, a smoking room or reading room shall be found; there shall also be a room for other recreation activities, including gymnastics and other physical activities. In one of the rooms, it shall be possible to watch films or television.

6 In ships with a gross tonnage of 8000 or more, a swimming pool shall be provided if the Danish Maritime Authority considers that it would be reasonable and possible.

Regulation 14 Toilets and Bathrooms

1 In all ships, toilet rooms and bathrooms shall be set up conveniently situated in relation to sleeping quarters and other parts of the accommodation.

2 In all ships with a gross tonnage of 250 or more, there shall for every six persons or fewer in each of the groups of officers and other crew be at least one toilet and one shower, disregarding persons who have their own bathroom adjoining their sleeping cabin with a wash basin, shower and toilet. If female staff are employed on board, they shall have separate toilet rooms and bathrooms.

3 Regardless of the stipulations of paragraph 2, at least the following number of separate toilets shall be available, including the separate toilets required in regulation 15:

.1 In ships with a gross tonnage of 500 or more, but below 800: three.

.2 In ships with a gross tonnage of 800 or more, but below 3000: four.

.3 In ships with a gross tonnage of 3000 or more: six.

4 In ships with a gross tonnage of 75 or more, the toilets shall be provided with adequate flushing facilities and drainage. Both flushing facilities and drainage shall be properly fitted out and ensured for all climatic conditions and always be ready for use during the operation of the ship. All toilet rooms shall be provided with a wash basin with running hot and cold freshwater.

5 All bathroom shall be provided with at least one shower for every six persons or fewer and one wash basin for every three persons or fewer for whom the room is intended. Wash basins shall be of a suitable size and made of stainless steel, porcelain or another approved material.

6 In ships with a gross tonnage of 5000 or more, all officers shall have separate bathrooms provided with toilet, shower and wash basin with running hot and cold freshwater adjoining their sleeping quarters.

7 In ships with a gross tonnage of 25000 or more, except for passenger ships, at least one bathroom shall be available to every two members of other crew. The bathroom shall be located either opposite the entrance to the rooms to which the bathroom belongs or in another convenient way.

8 There shall be an adequate supply of hot and cold freshwater in all bathrooms.

9 Toilet rooms and bathrooms shall otherwise meet the following requirements:

.1 The floor shall be made of an approved and durable material that is easy to clean, impervious to water, non-slip and

provided with the necessary drainage, though floor drainage shall not be required in separate toilet rooms.

.2 The bulkheads shall be tight and made of steel or another approved material and shall be impervious to water.

.3 The rooms shall be properly lit and heated. Bathrooms shall have separate heating if they are not surrounded by heated rooms on all sides or adequate heating is secured by other means.

.4 If intended for more than two persons, shared toilet rooms shall be separate from sleeping quarters and bathrooms. There must not be direct access from sleeping quarters to toilet rooms or bathrooms intended for more than two persons.

.5 Toilets shall be sufficiently screened from each other.

Regulation 15 Separate Toilets and Changing Rooms

1 In ships with a gross tonnage of 250 or more, a separate toilet with a wash basin with running hot and cold freshwater shall be situated conveniently close to the navigation bridge.

2 In ships with a gross tonnage of 1000 or more, a toilet with a wash basin with running hot and cold water shall be situated conveniently close to the engine room if one has not been installed close to the control centre of the engine room.

3 In ships with a gross tonnage of 1000 or more, except for ships where one-man or two-man bathrooms are provided for the crew in the engine section, changing rooms for the crew employed in the engine room shall be situated outside the engine room but with easy access and provided with wardrobes for every crewmember and with wash basins and showers with running hot and cold freshwater.

4 Changing rooms in ships carrying hazardous substances.

.1 In all ships approved to carry carcinogenic substances in bulk (e.g. crude oil, petrol, benzene, vinyl chloride, butadiene, etc.), separate bathing and changing facilities shall be set up where there is considered to be a risk of contamination of work clothes; see regulation 6 of the Danish Maritime Authority's Notices A, Chapter A II C. Carcinogenic substances and materials means substances and materials referred to in Notices from the Danish Maritime Authority A, Chapter A II C, Annex 1. Furthermore, it shall either be possible to collect work

clothes in containers for laundry ashore or facilities shall be available for laundering the clothes on board. If disposable clothes or equipment is used, closed, appropriate waste containers shall be available for this purpose.

.2 Separate bathing and changing facilities shall be divided into one changing room for work clothes and one for general clothes with bathing facilities between the two.

The changing room for work clothes may not be intended for use for purposes other than as a changing room by crew members who are contaminated. The changing room for general clothing may be not be intended for use for purposes other than as a changing room by crew members who are not contaminated.

.3 There must be access to separate bathing and changing facilities for contaminated work clothes directly from the open deck.

.4 A toilet with a wash basin must be located immediately adjacent to the changing room.

.5 Bathrooms shall be provided with showers and wash basins with hot and cold water and set up as specified in regulation 14.5.

.6 Bathrooms and changing rooms for work clothes may not be intended for use by others than those exposed to the contamination in question.

.7 Changing rooms shall be provided with lockers for everyone who is to use the rooms. The lockers shall be made of a suitable material that is easy to clean and they shall be provided with ventilation apertures at the top and at the bottom.

.8 When separate laundry facilities are set up for laundering the said work clothes (see 4.1), they shall be equipped with a washing machine and a drying machine or drying rooms of sufficient capacity. The laundry facilities for these work clothes shall not be used for other clothing.

.9 In existing ships approved to carry carcinogenic substances in bulk, the requirements for the special bathing and changing facilities should be met operationally. In most cases, by dividing the changing room into a clean and dirty section, e.g. by markings on the floor.

Regulation 16 Laundry Rooms, etc.

1 In ships with a gross tonnage of 250 or more, there shall be rooms for laundering clothes with a sufficient supply of hot and cold freshwater and with a possibility of drying and ironing clothes to the extent appropriate for the size of the crew and the normal duration of the voyage.

2 The equipment shall include:

.1 Washing machines.

.2 Drying machines or appropriately heated and ventilated drying rooms.

.3 Irons and ironing boards or the like.

3 Laundry and drying rooms shall be situated conveniently in relation to the accommodation.

Regulation 17 Headroom in Accommodation, etc.

In all rooms in the accommodation and corridors, the clear headroom measured from the top of the deck covering to the bottom edge of the deck beams or their covering (the ceiling) shall be at least 1.98 m. If there is, for design reasons, a wish to make the headroom smaller than stipulated above at specified points in the rooms or in individual rooms for special use (sauna or the like), the Danish Maritime Authority may permit this if it is assessed that it will not cause inconvenience.

Regulation 18 Corridors, Staircases and Doors

1 In general, the width of corridors used for access to accommodation may not be below 90 cm measured between the restricting bulkheads.

2 In general, stairs shall have a width of at least 80 cm measured between the restricting bulkheads and a suitable rise as well as be provided with handrails on at least one side.

3.1 Permission may be given to place fire alarm boxes, ventilation ducts, cable tracks and the like on the restricting bulkheads in corridors and on staircases when it is considered not to cause inconvenience during passage. However, the room for free passage may not be less than 60 cm at any point.

3.2 In short, enclosed corridors and associated staircases that are normally used by only one or two persons, permission may be given to reduce the width provided that it is not less than 60 cm.

4 In general[8], doors[9] that provide access to shared accommodation, stairs and the like shall have a width that is not less than 90 cm on passenger ships and 80 cm on cargo ships, measured as the internal dimension of the doorframe.

.1 In general, doors that provide access to cabins and the like shall ordinarily not have a width below 75 cm measured as the internal dimension of the doorframe.

.2 If the doors in question lead to one-man cabins or if they shall usually be used by only one person, a width of 70 cm may be used.

.3 In general, doors that provide access to toilets or bathing facilities shall not have a width below 60 cm.

5 On ships with a gross tonnage of less than 500 and ships for special purposes, the Danish Maritime Authority may permit deviations taking into account the spatial conditions on board. Door openings below 60 cm are however not normally permitted.

6 The height of the doorway shall be at least 1.88 m above the floor covering.

Regulation 19 Galleys and Provision Stores

1 In all ships, the cooker shall be located in a separate room, which may, however, also be used as a dining room for the crew in ships with a gross tonnage below 250.

2 The room shall have a suitable size and be well lit and ventilated. Above the cooker, a hood with a vent pipe leading to the open air shall be fitted.

3 The cooker shall be properly set up and secured. Any woodwork shall be protected against inflammability.

4 In the galley, freshwater shall be supplied by means of a pipe system. A tap for seawater shall not be located in this room.

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[8] *"In general" is interpreted in this context as meaning that there may be a negative deviation in the internal widths of the doorframe used of about 5% of the nominal width specified, with the exception of doors to infirmaries and doors for use by disabled persons on passenger ships.*

[9] *Reference is also made to the fact that from 1 July 2002 pursuant to Chapter B II-2, regulation 13, "Escape routes/exits", the IMO's "Fire Safety Systems Code" (FSS Code), Chapter 13 contains obligatory requirements for minimum sizes of common access routes and escape routes. This is obligatory for all passenger ships and cargo ships with a gross tonnage of 500 or more whose keel was laid on or after 1 July 2002.*

5 The galley room shall be provided with the necessary sinks with drainage, and there shall also be drainage in the floor. The bulkheads and the floor shall be made of a material that is impervious to water and easy to keep clean. Fittings, lockers, tables and drawers shall be made of materials that are easy to clean and hygienic. Ordinary, joined wood of dressed and matched boards may not be used.

6 Suitable facilities for the storage of provisions as well as refrigerating and freezing facilities for perishable foods shall be available.

Regulation 20 Potable Water System

1 Permanently installed potable water tanks shall have a cofferdam separating them from tanks that may be used for other liquids, oil or the like. However, cofferdams may be dispensed from as separation from tanks intended exclusively for seawater. In riveted ships, the side of the ship below the loaded waterline may not form boundaries on a potable water tank.

2 The potable water tanks shall have the necessary manholes, and they shall, as far as possible, be accessible for both external and internal inspection. If their construction and size does not allow access to the inside of the tanks, they shall be provided with a sufficient number of cleaning holes. Manholes and/or cleaning holes and their covers shall be designed so that the accumulation of impurities on top of the covers is avoided.

.1 Manhole covers and cleaning hole covers shall be fitted on frames that have a height of at least 50 mm and shall be marked "Potable Water Tank".

.2 All steel in potable water tanks shall be fully welded. All internal surfaces, including surfaces in small containers etc., shall have a suitable finish approved by the Danish Maritime Authority.

.3 Pipes forming a part of other pipe systems shall not be led through potable water tanks.

.4 It shall be possible to empty the tanks completely either by means of suction from the lowest point in the tank or through a bottom screw.

3 Air pipes and filling pipes for tanks shall be led to proper heights above deck, minimum 400 mm. The outlet of the air pipe shall be designed so that impurities may not enter the tanks by this means. Filling pipes shall be provided with covers that it may not be possible to mistake for covers for tanks for other purposes.

4 Potable water tanks shall be provided with a sounding pipe or another approved sounding device that shall be designed so that the water may not be polluted by this means. If sounding pipes for sounding rods/tapes have been fitted, the means of closing these shall be lockable, e.g. with a padlock, and they shall be labelled "Potable Water Tank".

5 For ventilation purposes, potable water tanks shall normally be provided with at least two air pipes that shall be provided with a fine-meshed net.

6 Pumps shall be of the membrane or centrifugal type or another suitable type that does not require lubrication of the parts that are in contact with the potable water.

7 The pipe system may not be connected to other pipe systems in the ship, and only materials and components suitable for the purpose (e.g. those that have received the Danish VA-approval by ETA-Danmark A/S for use with water and drainage)[10)] may be used. If the pipelines to the potable water system have been marked, such marking shall comply with the standardization rules in force. Dead-end service pipes on main pipes shall be provided with a shut-off device at the main pipe.

Pipes that may be exposed to frost shall be sufficiently insulated. Pipes for potable water shall not be led through tanks intended for other liquids with the exception of tanks for seawater.

8 If freshwater generators, distillation apparatuses and the like are installed, the sea suction from the freshwater generator shall be placed clear of all drains from the ship.

9 When water has been put into the potable water system, but before it is being taken into use, a bacteriological analysis of potable water samples from the system shall be carried out.

When water has been put into the potable water system, but before it is being taken into use, a bacteriological analysis of potable water samples from the system shall be carried out. Such water samples, one of which shall be from the galley, shall have been taken by a recognized laboratory (e.g. the Danish Regional Veterinary and Food Control Authorities) and analysed by a recognized laboratory. The approval of the Danish Maritime Authority will be based on the laboratory's analysis report including a chemical and bacteriological analysis and conclusion.

[10)] *"VA approval" Material approved by the Danish Agency for Enterprise and Housing's approval committee for water and drainage material.*

10 When a contaminated potable water system has been found, disinfection shall be carried out in accordance with the guidance on disinfection during the cleaning of potable water tanks and potable water pipes on ships, issued by the Danish National Board of Health.

Regulation 21 Infirmary and Hoist Stretcher

1 In any ship engaged in more than the small coasting trade and than in trade in the English Channel and in the British Isles and where the number of crewmembers exceeds 12, a separate infirmary shall be set up. The infirmary shall contain at least one bed when the number of crewmembers is 18 or less and otherwise two beds.

2 In ships where each crewmember has his own sleeping cabin with toilet and shower, a treatment room (casualty room) may be set up instead of the infirmary required under paragraph 1. This shall be suitably equipped with, for instance, a wash basin and bathtub. It is sufficient with one bed/examination couch in the treatment room, regardless of the size of the ship

3.1 Infirmaries and treatment rooms shall be located in a suitable place where the inconvenience caused by noise and vibrations is as little as possible so that the patients may be given good conditions and so that they may be properly looked after in all kinds of weather.

3.2 It shall be possible to enter the rooms in a convenient way with a person lying on a stretcher; the doorway shall be at least 75 cm wide.

4.1 The bed or the beds shall be arranged separately so that they are accessible from at least three sides. Bunk beds are not permitted.

4.2 Next to each bed, there shall be a pushbutton with a wire connection ringing a bell located at a suitable place or another facility for calling help, e.g. an internal telephone.

5 A washroom with a toilet, wash basin and bathtub the internal length of which shall be at least 1.5 m shall be located immediately next to the infirmary/treatment room. Both the wash basin and the bathtub shall be supplied with hot and cold freshwater (taps).

6 In ships with a gross tonnage below 3000, the floor area in the infirmary/treatment room shall be at least 6.50 m^2 for every bed in the room, and in ships with a gross tonnage of 3000 or more, it shall be at least 7.50 m^2 for every bed.

7 The lighting in the infirmary/treatment room shall be variable, possibly through the installation of several fixed sources of light. The lighting at the beds shall, however, as a minimum meet the standards for work lighting set out in regulation 8. In addition, a reading light shall be fitted at the bed(s) and a night light in the room.

8 The infirmary/treatment room shall be marked as such and shall not be used for other purposes.

9 As to the provision of ships with medicaments, the existing specific provisions shall apply.

10 Hoist stretcher.

In ships with a gross tonnage of 150 or more, a hoist stretcher of a suitable type shall be kept in an appropriate place.

Regulation 22 Offices

1 In ships with a gross tonnage above 3000, one or more separate rooms shall be arranged as offices for the crew in the deck and engine section.

2 Such rooms shall have a floor area of at least 6 m^2, shall, as far as possible, be supplied with daylight and shall be equipped with the necessary furniture and fittings for office use.

Regulation 23 Cleaning and Inspection

1 The accommodation shall be kept clean and tidy. Cleaning shall be carried out daily. The rooms may be used only for goods or supplies belonging to the person or persons for whom the room is intended.

2 The accommodation shall be disinfected as necessary after any infectious illness on board.

3 Accommodation where vermin are found shall be cleaned and disinfected immediately.

4 The master of the ship or the person to whom he has delegated this duty shall, together with one more crewmembers, inspect all parts of the accommodation at least weekly. The result hereof shall be entered in the ship's logbook where one is kept or otherwise in the survey book.

Regulation 24 Exits[11)]

1 On each floor, there shall be two possible exits from each large room or group of rooms and they shall be placed as far apart from each other as possible.

2 Furthermore, the exits shall be placed so that a fire on one floor cannot trap people on another floor.

3 One of the exits may be an emergency exit through a hatch/door or porthole/window for which the following requirements are made:

.1 A hatch or door to the open deck shall have an internal dimension of at least 0.60 x 0.60 m.

.2 It shall be possible to open the hatch or the door from the inside without using a key or tool. It shall also be possible to open the hatch or the door directly from the outside;

[11)] *Reference is also made to Chapter II-2, regulation 13.*

however, the handle or another device may be removable and placed in a central place, e.g. on the bridge. The hatch or the door may not be provided with fittings for a padlock.

.3 A port-hole or window that is used as an emergency exit shall have an internal diameter of 0.45 m for port-holes and an internal dimension measured across of 0.45 m in the narrow direction for windows.

.4 If the emergency exit is accessed from the accommodation through separate rooms (steering engine room, other cabins or the like), doors to such rooms may not be locked unless they are fitted with a kick-hatch that may be removed in the direction of escape.

.5 The necessary ladders, steps and handrails shall be fitted to make access through the emergency exit easier.

.6 Appropriate points, e.g. doors, kick-hatches, windows/port-holes, etc., shall be labelled "Emergency Exit"

Part III Passenger Accommodation

Regulation 25 Passenger Accommodation, etc.

The definitions and provisions set out in Part II, regulation 5, with the exception of paragraphs 1.2 and 2.2, as well as regulation 6, regulation 7, regulation 9, regulation 10, paragraph 2, regulation 17, regulation 18[12)] and regulation 24 shall also be applied unless stated otherwise below regardless of the gross tonnage of the ship.

Regulation 26 Location

1 The accommodation may not be located in superstructures that are not of a permanent character neither in front of the collision bulkhead nor on the deck that is lower than the one that lies immediately below the waterline at the maximum permissible draught. In new ro-ro passenger ships, passenger cabins may not be located below the ro-ro deck (the bulkhead deck). Reference

[12)] *Reference is also made to Chapter II-2, regulation 13.*

is also made to the requirements for escape routes in Chapter II-2, regulation 13.7.

2 Passengers may not be accommodated in rooms that are not approved for this purpose.

3 Sleeping quarters shall be separated from adjoining rooms in a suitable way, and they shall be provided with a clear marking of the maximum number of persons that they are intended for.

Regulation 27 Specification of the Number of Passengers in Individual Rooms

1 Passenger ships on voyages lasting for more than one night:

.1 There shall be a berth or an approved permanent couchette for all passengers.

.2 The number of persons in sleeping quarters shall be set by dividing the free floor area of the sleeping quarters by 1.1 m^2. If sleeping quarters are fitted out with separate bathrooms or a bathroom with a toilet, the free floor area of these rooms may be included when calculating the number of persons. Irregular floor areas where the length and width are below 0.6 m are not included in the calculation. A shower stall with the said minimum dimensions may be included in the free area.

.3 On open deck to which the passengers have access, at least 0.5 m2 of the free deck area shall be available to each passenger in addition to the area mentioned in paragraph 1.2. The parts of the deck where the passengers cannot be standing or sitting comfortably are not included in this calculation.

2 Passenger ships on voyages that do not last for more than one night:

.1 Ships on night voyages, i.e. between 10 pm and 6 am, of more than six hours shall have enclosed spaces for all passengers.

.2 The number of passengers in other rooms than the sleeping quarters is set as the smallest of the following figures:

.1 The floor area – measured in m^2 – available to the passengers, i.e. excluding serving counters and access to them as well as exits and the like, divided by 0.85 m^2.

.2 The floor area mentioned in paragraph 2.2.1 multiplied by the average height – measured in m – of the room

measured from the top of the floor covering to the bottom of the deck beams or their panelling divided by 1.9 m^3.

.3 The number of seats in the room.

.3 The number of persons in sleeping quarters is set by dividing the free floor area of the sleeping quarters by 0.85 m^2. If sleeping quarters are fitted out with separate bathrooms or a bathroom with a toilet, the free floor area of these rooms may be included when calculating the number of persons. Irregular floor areas where the length and width are below 0.6 m are not included in the calculation.

.4 The Danish Maritime Authority may permit deviations from the provisions of paragraphs 2.2 and 2.3 in the period from 1 May to 30 September.

3 Passenger ships on daytime voyages:

.1 For ships on daytime voyages, i.e. voyages not lasting for more than six hours within the period from 10 pm to 6 am, 0.85 m^2 free floor area shall be calculated for each passenger in enclosed rooms that are not sleeping quarters; the room may, however, not be calculated for more passengers than there are seats for.

.2 The provisions of paragraph 2.3 shall apply to any sleeping quarters.

.3 From 1 May to 30 September, it may, in addition to the number of passengers permitted in enclosed rooms, also be permitted to carry passengers on open deck; in such cases, at least 0.55 m2 deck area shall be calculated for each passenger. The space required to navigate the ship etc., including the handling of and embarkation of life-saving appliances, and all parts of the deck where the passengers may not be standing or sitting comfortably shall not be included in the calculation of the number of passengers.

.4 In ships or vessels with decks on which it is permitted to carry passengers on the open deck as stipulated above from 1 May to 30 September, enclosed rooms shall be available to at least one sixth of the maximum permitted number of passengers.

Regulation 28 Toilets

1 There shall be one toilet and one wash basin for every 50 passengers or part thereof.

2 Such toilets shall be properly protected against the sea and the weather and be provided with the necessary flushing facilities.

3 All toilet rooms shall be well lit and ventilated.

4 The provisions of paragraphs 1-3 shall not apply to open vessels.

Regulation 29 Hospital

1 In ships engaged in trade outside European waters and on which the number of crewmembers and the maximum permitted number of passengers in total exceed 100, a hospital shall be arranged on board. The hospital shall be well lit and well ventilated, insulated from the rooms that are intended for the crew and the passengers and be located at a place in the ship suitable and appropriate for this purpose where the inconvenience caused by noise and vibrations is as little as possible.

2 The hospital shall have four beds and, in addition if the number of persons on board exceeds 120, one bed for every further 60 persons or part thereof.

3 The total floor area less the space taken up for beds shall be at least 1.1 m^2 for each person that the room is intended for; there shall, however, be reasonable space for stretcher transport and access to the beds.

4 The beds shall be made of a material with a hard, smooth surface that does not corrode, their internal dimensions shall be at least 1.98 m x 0.8 m, and they shall be arranged so that they are easily accessible. The beds may not be placed on top of each other.

5 Next to each bed, there shall be a pushbutton with a wire connection ringing a bell located at a suitable place.

6 Adjoining the hospital, there shall be:

.1 A special room for storage of medicine (pharmacy).

.2 An operating room (possibly the pharmacy) or another room the size of which is sufficient to set up an operating table that is accessible from all sides.

.3 A bathroom that complies with the provisions of regulation 21, paragraph 5.

.4 A toilet with a wash basin for each of the hospital wards.

.5 A ventilation arrangement that complies with the requirements of regulation 6.

.6 In ships engaged in voyages of rather short duration and where medical help may be expected, the Danish Maritime Authority may permit deviations from the above provisions.

Regulation 30 Disabled persons

1 Where practicable, appropriate measures shall be implemented on the basis of the following guidelines to ensure that there is safe access for disabled persons to all passenger ships and all high-speed passenger craft which are used for public transport, and whose keel was laid or which is at a similar stage of construction on or after 1 October 2004:

.1 IMO's Circular 735 (MSC/735) of 24 June 1996 Recommendation on the design and operation of passenger ships to respond to elderly and disabled persons' needs, must be followed.

.2 The ship shall be constructed and equipped in such a way that a disabled person may easily and safely board or disembark and is ensured access to the various decks either with or without the aid of ramps, lifting platforms or elevators. Signs shall be erected referring to such access facilities adjacent to the other entrances of the ship and at other appropriate locations throughout the ship.

.3 Signs intended to guide passengers on the ship shall be accessible and easy to read for disabled persons (including persons with sensory disabilities) and shall be erected in central locations.

.4 There shall be means on board to visually and verbally communicate messages concerning, for example, delays, changes to sailing plans and services on board for disabled persons with different forms of reduced mobility.

.5 Alarm systems and buttons shall be accessible to and shall be able to warn all disabled persons with a sensory disability and persons with a mental disability.

.6 Railings, corridors and passageways, door openings and doors shall be accessible to a person in a wheelchair. Elevators, car decks, passenger saloons, facilities and toilets shall be designed so as to be accessible in a reasonable manner and provided to a reasonable extent for disabled persons.

2 The Danish Maritime Authority collaborates with and is a member of organisations which represent disabled persons

concerning the implementation of the guidelines in regulation 30.1.

3 On rebuilding of passenger ships and high-speed craft which are used for public transport and whose keel was laid or which is at a similar stage of construction prior to 1 October 2004, the guidelines in regulation 30.1 shall be used where they are financially reasonable and feasible.

Chapter B III B
2004

Technical regulation on the construction and equipment, etc. of ships

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Life-saving appliances and arrangements

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C H A P T E R I I I

Life-saving appliances and arrangements

Part B Requirements for ships and life-saving appliances

SECTION 1 – PASSENGER SHIPS AND CARGO SHIPS

Regulation 6 Communications

1 Paragraph 2 applies to all passenger ships and to all cargo ships of 300 gross tonnage and upwards. *Paragraph 2 shall also apply to cargo ships with a gross tonnage below 300, but with a length of 15 m or more or with a scantling number of 100 or more.*

2 Radio life-saving appliances

2.1 Two-way VHF radiotelephone apparatus

2.1.1 At least three two-way VHF radiotelephone apparatus shall be provided on every passenger ship and on every cargo ship of 500 gross tonnage and upwards. At least two two-way VHF radiotelephone apparatus shall be provided on every cargo ship of less than 500 gross tonnage. *In cargo ships engaged in domestic trade, at least one two-way VHF apparatus shall be provided.* Such apparatus shall conform to performance standards not inferior to those adopted by the IMO[1]. If a fixed two-way VHF radiotelephone apparatus is fitted in a survival craft it shall conform to performance standards not inferior to those adopted by the IMO[2)].

2.2 Radar transponders

At least one radar transponder shall be carried on each side of every passenger ship and of every cargo ship of 500 gross tonnage and upwards. At least one radar transponder shall be carried on either side of every cargo ship with a gross tonnage of under 500. Radar transponders shall conform to performance standards not inferior to those adopted by the IMO[3)]. The radar

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2) Refer to the Performance standards for survival craft two-way VHF radiotelephone apparatus adopted by the IMO by resolution A.809(19), as it may be amended, annex 1 or annex 2 as applicable.

3) Refer to the Performance standards for survival craft radar transponders for use in search and rescue operations adopted by the IMO by resolution A.802(19), as it may be amended.

transponders[4)] shall be stowed in such locations that they can be rapidly placed in any survival craft other than liferafts required by regulation 31.1.4. Alternatively, one radar transponder shall be stowed in each survival craft other than those required by regulation 31.1.4. On ships that are carrying at least two radar transponders and equipped with free-fall lifeboats, one of the radar transponders shall be stowed in a free-fall lifeboat and the other shall be located in the immediate vicinity of the navigation bridge so that it can be utilised on board and is ready for transfer to any of the other survival craft.

3 Distress flares

Not less than 12 rocket parachute flares, complying with the requirements of section 3.1 of the Code, shall be carried and be stowed on or near the navigating bridge *in such a way that they are protected as much as possible against humidity. The flares shall be replaced in accordance with the instructions of the manufacturer but not later than at the earliest opportunity after 4 years from the date of manufacture.*

4 On-board communications and alarm systems

4.1 An emergency means comprised of either fixed or portable equipment or both shall be provided for two-way communications between emergency control stations, muster and embarkation stations and strategic positions on board.

4.2 A general alarm system complying with the requirements of paragraph 7.2.1 of the Code shall be provided and shall be used for summoning passengers and crew to muster stations and to initiate the actions included in the muster list. The system shall be supplemented by either a public address system complying with the requirements of paragraph 7.2.2 of the Code or other suitable means of communication. Entertainment sound systems shall be automatically turned off when the general alarm system is activated.

4.3 On passenger ships, the general alarm system shall be audible on all open decks.

4.4 On ships fitted with a marine evacuation system, communication between the embarkation station and the platform or the survival craft shall be ensured.

5 Public address systems on passenger ships

[4)] One of these radar transponders may be the radar transponder required in regulation IV/7.1.3.

5.1 In addition to the requirements of regulation II-2/40.5 or regulation II-2/41-2 and paragraph 4.2, all passenger ships shall be provided with a public address system. With respect to passenger ships constructed before 1 July 1997, the requirements of paragraphs 5.2 and 5.4, subject to the provisions of paragraph 5.5, shall apply not later than the date of the first periodical survey after 1 July 1997.

5.2 The public address system shall be clearly audible above the ambient noise in all spaces, prescribed by paragraph 7.2.2.1 of the Code and shall be provided with an override function controlled from one location on the navigation bridge and such other places on board as the Administration deems necessary, so that all emergency messages will be broadcast even if any loudspeaker in the spaces concerned has been switched off, the volume has been turned down or the public address system is used for other purposes.

5.3 On ships constructed on or after 1 July 1997:

.1 the public address system shall have at least two loops, which shall be adequately separated throughout their length and have two separate and independent amplifiers; and

.2 the public address system and its performance standards shall be approved by the Administration having regard to the recommendations adopted by the Organisation[5)].

5.4 The public address system shall be connected to the emergency source of electrical power required by regulation II-1/42.2.2.

5.5 Ships constructed before 1 July 1997, which are already fitted with the public address system approved by the Administration which complies substantially with those required by sections 5.2 and 5.4 and paragraph 7.2.2.1 of the Code are not required to replace their system.

Regulation 7 Personal life-saving appliances

1 Lifebuoys

1.1 Lifebuoys complying with the requirements of paragraph 2.1.1 of the Code shall be:

.1 so distributed as to be readily available on both sides of the ship and as far as practicable on all open decks extending to

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[5)] Refer to MSC/Circ.808 Recommendation on performance standards for public address systems on passenger ships, including cabling

the ship's side; at least one shall be placed in the vicinity of the stern; and

.2 so stowed as to be capable of being rapidly cast loose, and not permanently secured in any way.

1.2 At least one lifebuoy on each side of the ship shall be fitted with a buoyant lifeline complying with the requirements of paragraph 2.1.4 of the Code equal in length to not less than twice the height at which it is stowed above the water line in the lightest seagoing condition, or 30m, whichever is the greater.

1.3 Not less than one half of the total number of lifebuoys shall be provided with lifebuoy self-igniting lights complying with the requirements of paragraph 2.1.2 of the Code; not less than two of these shall also be provided with lifebuoy self-activating smoke signals complying with the requirements of paragraph 2.1.3 of the Code and be capable of quick release from the navigation bridge. *Smoke signals shall be replaced in accordance with the instructions of the manufacturer but not later than at the earliest opportunity after 4 years from the date of manufacture.* Lifebuoys with lights and those with lights and smoke signals shall be equally distributed on both sides of the ships and shall not be the lifebuoys provided with lifelines in compliance with the requirements of paragraph 1.2.

1.4 Each lifebuoy shall be marked in block capitals of the Roman alphabet with the name and port of registry of the ship on which it is carried.

2 Lifejackets

2.1 A lifejacket complying with the requirements of paragraph 2.2.1 or 2.2.2 of the Code shall be provided for every person on board the ship and, in addition:

.1 a number of lifejackets suitable for children equal to at least 10% of the number of passengers on board shall be provided or such greater number as may be required to provide a lifejacket for each child;

.2 a sufficient number of lifejackets shall be carried for persons on watch and for use at remotely located survival craft stations. The lifejackets that are carried for persons on watch shall be placed on the bridge, in the engine control room and at all manned watch station.

2.2 Lifejackets shall be so placed as to be readily accessible and their position shall be plainly indicated. Where, due to the particular arrangements of the ship, the lifejackets provided in compliance with the requirements of paragraph 2.1 may become inaccessible,

alternative provisions shall be made to the satisfaction of the Administration, which may include an increase in the number of lifejackets to be carried.

2.3 Lifejackets for use in totally enclosed lifeboats, except free-fall lifeboats, shall not impede entry into the lifeboat or seating, including operation of the seat belts in the lifeboat.

2.4 Lifejackets selected for free-fall lifeboats, and the manner in which they are carried or worn shall not interfere with entry into the lifeboat or operation of the lifeboat.

3 Immersion suits and anti-exposure suits

3.1 An immersion suit, complying with the requirements of section 2.3 of the Code or an anti-exposure suit complying with section 2.4 of the Code, of an appropriate size, shall be provided for every person assigned to crew the rescue boat or assigned to the marine evacuation system party. If the ship is constantly engaged on voyages in warm climates where, in the opinion of the Administration, thermal protection is unnecessary, this protective clothing need not be carried.

Regulation 8 Muster list and emergency instructions

1 This regulation applies to all ships.

2 Clear instructions to be followed in the event of an emergency shall be provided for every person on board. In the case of passenger ships, these instructions must be drawn up in the language or languages required by the ship's flag State and in the English language.

3 Muster lists and emergency instructions complying with the requirements of regulation 37 shall be exhibited in conspicuous places throughout the ship including the navigation bridge, engine-room and crew accommodation spaces.

4 Illustrations and instructions in appropriate languages shall be posted in passenger cabins and be conspicuously displayed at muster stations and other passenger spaces to inform passengers of

.1 their muster station;

.2 the essential actions they must take in an emergency; and

.3 the method of donning lifejackets.

Regulation 9 Operating instructions

1 This regulation applies to all ships.

2 Posters or signs shall be provided on or in the vicinity of survival craft and their launching controls and shall:

.1 illustrate the purpose of controls and the procedures for operating the appliance and give relevant instructions or warnings;

.2 be easily seen under emergency lighting conditions; and

.3 use symbols in accordance with the recommendations of the Organisation[6)].

Regulation 10 Manning of survival craft and supervision

1 This regulation applies to all ships.

2 There shall be a sufficient number of trained persons on board for mustering and assisting untrained persons.

3 There shall be a sufficient number of crew members, who may be deck officers or certificated persons, on board for operating the survival craft and launching arrangements required for abandonment by the total number of persons on board.

4 A deck officer or certificated person shall be placed in charge of each survival craft to be used. However, the Administration, having due regard to the nature of the voyage, the number of persons on board and the characteristics of the ship, may permit persons practised in the handling and operation of liferafts to be placed in charge of liferafts in lieu of persons qualified as above. A second-in-command shall also be nominated in the case of lifeboats.

5 The person in charge of the survival craft shall have a list of the survival craft crew and shall see that the crew under his command are acquainted with their duties. In lifeboats, the second-in-command shall also have a list of the lifeboat crew.

6 Every motorised survival craft shall have a person assigned who is capable of operating the engine and carrying out minor adjustments.

7 The master shall ensure the equitable distribution of persons referred to in paragraphs 2, 3 and 4 among the ship's survival craft.

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6) Refer to the Symbols related to life-saving appliances and arrangements adopted by the IMO by resolution A.760(18), as amended by resolution MSC. 82(70).

Regulation 11 Survival craft muster and embarkation arrangements

1 Lifeboats and liferafts for which approved launching appliances are required shall be stowed as close to accommodation and service spaces as possible.

2 Muster stations shall be provided close to the embarkation stations. Each must station shall have sufficient space to accommodate all persons assigned to muster at that station, but at least 0.35 m^2 per person.

3 Muster and embarkation stations shall be readily accessible from accommodation and work areas.

4 Muster and embarkation stations shall be adequately illuminated by lighting supplied from the emergency source of electrical power required by regulation II-1/42 or II-1/43.

5 Alleyways, stairways and exits giving access to the muster and embarkation stations shall be lighted. Such lighting shall be capable of being supplied by the emergency source of electrical power required by regulation II-1/ 42 or II-1/43. Additionally and as part of the marking required by regulation II-2/28.1.10, routes to muster stations shall be indicated with the muster station symbol, intended for that purpose, in accordance with the recommendations of the Organisation[7)].

6 Davit-launched and free-fall survival craft muster and embarkation stations shall be so arranged as to enable stretcher cases to be placed in survival craft.

7 An embarkation ladder complying with the requirements of paragraph 6.1.6 of the Code extending, in a single length, from the deck to the waterline in the lightest seagoing condition under unfavourable conditions of trim of up to 10° and with the ship listed up to 20° either way shall be provided at each launching station or at every two adjacent launching stations. However, the Administration may permit such ladders to be replaced by approved devices to afford access to the survival craft when waterborne, provided that there shall be at least one embarkation ladder on each side of the ship. Other means of embarkation enabling descent to the water in a controlled manner may be permitted for the liferafts required by regulation 31.1.4.

[7)] Refer to the Symbols related to life-saving appliances and arrangements and to the Guidelines for the evaluation, testing and application of low-location lighting on passenger ships adopted by the IMO by resolutions A.760(18), as amended through resolution MSC 82(70), and A.752(18) respectively.

8 Where necessary, means shall be provided for bring the davit-launched survival craft against the ship's side and holding them alongside so that persons can be safely embarked.

Regulation 12 Launching stations

Launching stations shall be in such positions as to ensure safe launching having particular regard to clearance from the propeller and steeply overhanging portions of the hull and so that, as far as possible, survival craft, except survival craft specially designed for free-fall launching, can be launched down the straight side of the ship. If positioned forward, they shall be located abaft the collision bulkhead in a sheltered position and, in this respect, the Administration shall give special consideration to the strength of the launching appliance.

Regulation 13 Stowage of survival craft

1 Each survival craft shall be stowed:

.1 so that neither the survival craft nor its stowage arrangements will interfere with the operation of any other survival craft or rescue boat at any other launching station;

.2 as near to the water surface as is safe and practicable. A rescue boat or davit-launched liferaft shall be stowed in such a position that the survival craft in the embarkation position is not less than 2 m above the waterline with the ship in the fully loaded condition under unfavourable conditions of trim of up to 10° and listed up to 20° either way, or to the angle at which the ship's weather deck edge becomes submerged, whichever is less;

.3 in a state of continuous readiness so that two crew members can carry out preparations for embarkation and launching in less than 5 minutes:

.4 fully equipped as required by this chapter and the Code;

.5 as far as practicable in a secure and sheltered position and protected from damage by fire and explosion. In particular, rescue boats and liferafts, other than the liferafts required by regulation 31.1.4, shall not be stowed on or above a cargo tank, slop tank or other tank containing explosives or hazardous cargoes .

2 Lifeboats for lowering down the ship's side shall be stowed as far forward of the propeller as practicable. On cargo ships of 80 m in length and upwards, but less than 120 m in length, each lifeboat shall be so stowed that the after end of the lifeboat is not less than the length of the lifeboat forward of the propeller. On cargo ships of 120 m in length and upwards and passenger ships of 80 m in length and upwards, each lifeboat shall be so stowed that the after end of the lifeboat is not less than 1.5 times the length of the lifeboat forward of the propeller. Where appropriate, the ship shall be so arranged that lifeboats, in their stowed positions, are protected from damage by heavy seas.

3 Lifeboats shall be stowed attached to launching appliances.

4.1 Each liferaft shall be stowed with its painter permanently attached to the ship.

4.2 Each liferaft or group of liferafts shall be stowed with a float-free arrangement as prescribed in paragraph 4.1.6 of the Code, so that each floats freely to the surface, and if inflatable, inflate automatically when the ship sinks.

4.3 Liferafts shall be so stowed as to permit manual release of one liferaft or container at a time from their securing arrangements.

4.4 Paragraphs 4.1 and 4.2 do not apply to liferafts required by regulation 31.1.4.

5 Davit-launched liferafts shall be stowed within reach of the lifting hooks, unless some means of transfer is provided which is not rendered inoperable within the limits of trim and list prescribed in paragraph 1.2 or by ship motion or power failure.

6 Liferafts intended for throw-overboard launching shall be so stowed as to be readily transferable for launching on either side of the ship unless liferafts of the aggregate capacity required by regulation 31.1 are stowed on each side of the ship.

Regulation 14 Stowage of rescue boats

Rescue boats shall be stowed:

.1 in a state of permanent readiness for launching in not more than 5 minutes;

.2 in a position suitable for launching and recovery;

.3 so that neither the rescue boat nor its stowage arrangements will interfere with the operation of any survival craft at any other launching station;

.4 if it is also a lifeboat, in compliance with the requirements of regulation 13.

Regulation 15 Stowage of marine evacuation systems

1 The side of the ship must not have any openings between marine evacuation systems, embarkation stations and the waterline in the lightest seagoing condition and means shall be provided for protecting the system against any projections.

2 Marine evacuation systems shall be in such positions as to ensure safe launching having particular regard to clearance of the system from the propeller and steeply overhanging portions of the hull and so that, as far as practicable, the system can be launched down the straight side of the ship.

3 Each marine evacuation system shall be stowed so that neither the passage nor the platform, nor its stowage or operational arrangements will interfere with the use of any other life-saving appliances at any other launch station.

4 Where appropriate, the ship shall be arranged so that marine evacuation systems in the stowed position are protected from damage by high waves.

Regulation 16 Survival craft launching and recovery arrangements

1 Unless expressly provided otherwise, launching and embarkation appliances complying with the requirements of section 6.1 of the Code shall be provided for all survival craft except those which are:

.1 boarded from a position on deck less than 4.5 m above the waterline in the lightest seagoing condition and which either has a mass of not more than 185 kg; or

.2 boarded from a position on deck less than 4.5 m above the waterline in the lightest seagoing condition, and which are stowed for launching directly from the stowed position under unfavourable conditions of trim of up to 10° and list of up to 20° either way, or

.3 carried in excess of the survival craft for 200% of the total number of persons on board the ship and which have a mass of not more than 185 kg; or

4 carried in excess of the survival craft for 200% of the total number of persons on board the ship, are stowed for launching directly from the stowed position under

unfavourable conditions of trim of up to 10° and list of up to 20° either way, or

.5 provided for use in conjunction with a marine evacuation system in compliance with the requirements of section 6.2 of the Code and stowed for launching directly from the stowed position under unfavourable conditions of trim of up to 10° and list of up to 20° either way.

2 Each lifeboat shall be provided with an appliance which is capable of launching and recovering the lifeboat. In addition, there shall be provisions for hanging-off the lifeboat to free the release gear for maintenance.

3 Launching and recovery arrangements shall be such that the appliance operator on the ship is able to observe the survival craft at all times during launching and for lifeboats *and rescue boats* during recovery.

4 Only one type of release mechanism shall be used for similar survival craft carried on board the ship.

5 Preparation and handling of survival craft at any one launching station shall not interfere with the prompt preparation of any other survival craft or rescue boat at any other station.

6 Falls, where used, shall be long enough for the survival craft to reach the water with the ship in its lightest seagoing condition, under unfavourable conditions of trim of up to 10° and list of up to 20° either way.

7 During preparation and launching, the survival craft, its launching appliance, and the area of water into which it is to be launched shall be adequately illuminated by lighting supplied from the emergency source of electrical power required by regulation II-1/42 or II-1/43.

8 Means shall be available to prevent any discharge of water on to survival craft during abandonment.

9 If there is a danger of the survival craft being damaged by the ship's stabilizer wings, means shall be available, powered by an emergency source of energy, to bring the stabilizer wings inboard; indicators operated by an emergency source of energy shall be available on the navigating bridge to show the position of the stabilizer wings.

10 If partially enclosed lifeboats complying with the requirements of paragraph 4.5 of the Code are carried, a davit span shall be provided, fitted with not less than two lifelines of sufficient length to reach the water with the ship in its lightest seagoing

condition, under unfavourable conditions of trim of not less than 10° and list of up to 20° either way.

Regulation 17 Rescue boat embarkation, launching and recovery arrangements

1 The rescue boat embarkation and launching arrangements shall be such that the rescue boat can be boarded and launched in the shortest possible time.

2 If the rescue boat is one of the ship's survival craft, the embarkation arrangements and launching station shall comply with the requirements of regulations 11 and 12.

3 Launching arrangements shall comply with the requirements of regulation 16. However, all rescue boats shall be capable of being launched, where necessary utilizing painters, with the ship making headway at speeds up to 5 knots in calm water.

4 Recovery of the rescue boat shall not be more than 5 minutes in a moderate wind when loaded with its full complement of persons and equipment. If the rescue boat is also a lifeboat, such recovery shall be possible when loaded with its lifeboat equipment and the approved rescue boat complement of at least six persons.

5 Embarkation and recovery arrangements for rescue boats shall allow a stretcher to be handled in a safe and effective manner. If heavy fall blocks constitute a danger, strops shall be provided for use in recovering the boat in bad weather.

Regulation 18 Line-throwing appliances

A line-throwing appliance complying with the requirements of section 7.1 of the Code shall be provided. *The rockets shall be replaced in accordance with the instructions of the manufacturer but not later than at the earliest opportunity after 4 years from the date of manufacture. Ships with a gross tonnage below 250 shall not be required to carry line-throwing appliances.*

Regulation 19 Emergency training and drills

1 This regulation applies to all ships.

2 Familiarity with safety installations and practice musters

2.1 Each member of the crew with assigned emergency duties shall be familiar with these duties before the voyage begins.

2.2 On a ship engaged on a voyage where passengers are scheduled to be on board for more than 24 hours, musters of the passengers shall take place within 24 hours after their embarkation. Passengers shall be instructed in the use of the lifejackets and the action to take in an emergency.

2.3 Whenever new passengers board, a passenger safety briefing shall be given immediately prior to sailing or immediately after sailing. The briefing shall include the instructions required by regulations 8.2 and 8.4 and shall be made by means of an announcement in one or more languages understood by the passengers. The announcement shall be made on the ship's public address system or by other equivalent means which can be heard at least by the passengers who have not yet heard it during the voyage. The briefing may be included in the muster required by paragraph 2.2 if the muster is held immediately upon departure. Information cards, posters or video programmes displayed on the ship's video displays may be used to supplement the briefing, but may not be used to replace the announcements.

3 Drills

3.1 Drills shall, as far as practicable, be conducted as if there were a real emergency.

3.2 Each member of the crew shall participate in at least one abandon ship drill and one fire drill every month. The drills of the crew shall take place within 24 hours of the ship leaving a port if more than 25% of the crew have not participated in abandon ship and fire drills on board that particular ship in the previous month. These drills shall be held before sailing when a ship enters service for the first time following a major rebuild or when a new crew has been engaged. The Administration may accept other arrangements that are at least equivalent for those classes of ship for which this is impracticable.

3.3 Abandon ship drill

3.3.1 Each abandon ship drill shall include:

.1 summoning of passengers and crew to muster stations with the alarm required by regulation 6.4.2 followed by an evacuation announcement on the public address system or other communication system, which ensures that they are made aware of the order to abandon ship;

.2 reporting to stations and preparing for the duties described in the muster list;

.3 checking that passengers and crew are suitably dressed;

.4 checking that lifejackets are correctly donned;

.5 lowering of at least one lifeboat after any necessary preparation for launching;

.6 starting and operating the lifeboat engine;

.7 operation of davits used for launching liferafts;

.8 a mock search and rescue of passengers trapped in their staterooms; and

.9 a drill in the use of the radio life-saving appliances.

3.3.2 Different lifeboats shall, as far as practicable, be lowered in compliance with the requirements of paragraph 3.3.1.5 at successive drills.

3.3.3 With the exception of the regulations in paragraphs 3.3.4 and 3.3.5, each lifeboat shall be launched with its assigned operating crew and manoeuvred in the water at least once every three months during an abandon ship drill.

3.3.4 Lowering into the water, rather than launching of a life-boat arranged for free-fall launching, is acceptable where free-fall launching is impracticable provided the lifeboat is free-fall launched with its assigned operating crew aboard and manoeuvred in the water at least once every six months. However, in cases where it is impracticable, the Administration may extend this period to 12 months provided that arrangements are made for simulated launching which will take place at intervals of not more than six months.

3.3.5 The Administration may allow ships operating on short international voyages not to launch lifeboats on one side if their berthing arrangements in port and their trading patterns do not permit launching of lifeboats on that side. However, all such lifeboats shall be lowered at least once every three months and launched at least annually.

3.3.6 As far as is reasonable and practicable, rescue boats other than lifeboats which are also rescue boats, shall be launched at least each month with their assigned crew aboard and manoeuvred in the water. In all cases, this requirement shall be complied with at least once every three months.

3.3.7 If lifeboat and rescue boat launching drills are carried out with the ship making headway, such drills shall, because of the

dangers involved, be practised in sheltered waters only and under the supervision of an officer experienced in such drills [8)].

3.3.8 If a ship is fitted with marine evacuation systems, drills shall include exercising of the procedures required for the deployment of such a system up to the point immediately preceding actual deployment of the system. This aspect of drills should be augmented by regulation instruction using the on-board training aids required by regulation 35.4. Additionally, every system party member shall, as far as practicable, be further trained by participation in a full deployment of a similar system into water, either on board a ship or ashore, at intervals of not longer than two years, but in no case longer than three years. This training can be associated with the deployments required by regulation 20.8.2.

3.3.9 The emergency lighting for musters and abandonment shall be tested during each abandon ship drill.

3.4 Fire drills

3.4.1 Fire drills shall be planned in such a way that due consideration is given to regular practice in the various emergencies that may occur depending on the type of ships and the cargo.

3.4.2 Each fire drill shall include:

.1 reporting to stations and preparing for the duties described in the muster list required by regulation 8;

.2 starting of a fire pump, using at least the two required jets of water to show that the system is in proper working order;

.3 checking of fireman's outfit and other personal rescue equipment;

.4 checking of relevant communication equipment;

.5 checking the operation of watertight doors, fire doors, fire dampers and the main inlets and outlets of ventilation systems in the drill area; and

.6 checking the necessary arrangements for subsequent abandoning of the ship.

3.4.3 The equipment used during drills shall immediately be brought back to its full operational condition and any faults and defects

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[8)] Refer to the Guidelines on training for the purpose of launching lifeboats and rescue boats from ships making headway through the water adopted by the IMO by resolution A.624(15).

discovered during the drills shall be remedied as soon as possible.

4 On-board training and instructions

4.1 On-board training in the use of the ship's life-saving appliances, including survival craft equipment and fire-extinguishing equipment, shall be given as soon as possible but not later than two weeks after a crew member joins the ship. However, if the crew member is on a regularly scheduled rotating assignment to the ship, such training shall be given not later than two weeks after the time of first joining the ship. Instructions in the use of the ship's fire-extinguishing equipment, life-saving appliances and in rescue at sea shall be given at the same interval as the drills. Individual instruction may cover different parts of the ship's life-saving and fire-extinguishing equipment, but all the ship's life-saving and fire-extinguishing equipment must be covered within any period of two months.

4.2 Each member of the crew shall be given instructions which shall include but not necessarily be limited to:

.1 operation and use of the ship's inflatable liferafts;

.2 problems of hypothermia, first-aid treatment of hypothermia and other appropriate first-aid procedures;

.3 special instructions necessary for use of the ship's life-saving appliances in severe weather and severe sea conditions; and

.4 operation and use of fire-extinguishing appliances.

4.3 On-board training in the use of davit-launched liferafts shall take place at intervals of not more than four months on every ship fitted with such appliances. Whenever practicable this shall include the inflation and lowering of a liferaft. This liferaft may be a special liferaft intended for training purposes only, which is not part of the ship's life-saving equipment; such a special liferaft shall be conspicuously marked.

5 Records

The date when musters are held, details of abandon ship drills and fire drills, drills of other life-saving appliances and on board training shall be recorded in *the Survey Book or in the Instructions for the maintenance of life-saving appliances*. If a full muster, drill or training session is not held at the appointed time, an entry shall be made in the *Survey Book* stating the circumstances and the extent of the muster, drill or training session held.

Regulation 20 Operational readiness, maintenance and inspections

1 This regulation applies to all ships. The requirements of paragraphs 3.2 and 6.2 shall be complied with, as far as is practicable, on ships constructed before 1 July 1986.

2 Operational readiness

Before the ship leaves port and at all times during the voyage, all life-saving appliances shall be in working order and ready for immediate use.

3 Maintenance

3.1 Maintenance, testing and inspection of life-saving appliances shall be carried out on the basis of the guidelines developed by the Organisation[13)] and in such a way that the reliability of these life-saving appliances is ensured.

3.2 Instructions for on-board maintenance of life-saving appliances complying with the requirements of regulation 36 shall be provided and maintenance shall be carried out accordingly.

3.3 The Administration may accept, in lieu of the instructions required by paragraph 3.2, a shipboard planned maintenance programme which includes the requirements of regulation 36.

4 Maintenance of falls

4.1 Falls used in launching shall be turned end for end at intervals of not more than 30 months, and be renewed when necessary due to deterioration of the falls or at intervals of not more than five years, whichever is the earlier. *With regard to stainless steel falls, it is permitted that wires of AISI 316 quality or better provided with steel cores are replaced after no more than 15 years from the date stated on the wire certificate. The wire shall be turned end for end or displaced lengthwise at intervals not exceeding 30 months in order that a "new" piece of wire will lie over blocks and sheaves. The lifetime of taleroid splices may not exceed 5 years. If inspection reveals mechanical damage, corrosion or other defects, the wire shall be replaced immediately.*

4.2 The Administration may accept in lieu of the "end for ending" required paragraph 4.1, periodic inspection of the falls and their renewal whenever necessary due to deterioration or at intervals of not more than 4 years, whichever one is earlier.

[13)] Refer to MSC/Circ.1093, Guidelines for periodic servicing and maintenance of lifeboats, launching appliances and on-load release gear.

5 Spares and repair equipment

Spares and repair equipment shall be provided for life-saving appliances and their components which are subject to excessive wear or consumption and need to be replaced regularly.

6 Weekly inspection

The following tests and inspections shall be carried out weekly and an inspection report shall be entered in the logbook:

.1 all survival craft, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use. The inspection shall include, but not be limited to, the condition of the hooks and the manner in which they are attached to the rescue boat and a check to ensure that the on-load release gear is completely reset;

.2 all engines in lifeboats and rescue boats shall be run for a total period of not less than three minutes provided the ambient temperature is above the minimum temperature required for starting the engine. During this period of time, it should be demonstrated that the gear box and gear box train work satisfactorily. If the special characteristics of a rescue boat's outboard motor would not allow it to be run other than with its propeller submerged for a period of three minutes, it should be run for such period as is prescribed in the manufacturer's handbook. In special cases, the Administration may waive this requirement for ships constructed before 1 July 1986; and

.3 rescue boats, except for free-fall launched rescue boats, on cargo ships shall be moved from their stowed position without anyone on board and if the weather so permits in order to demonstrate that the launching appliances operate satisfactorily; and

.4 the general alarm shall be tested.

7 Monthly inspections

7.1 All rescue boats, except free-fall launched rescue boats, shall be swung over the ship's side without anyone on board.

7.2 Inspection of the life-saving appliances, including lifeboat equipment, shall be carried out monthly using the checklist required by regulation 36.1 to ensure that they are complete and in good order. A report of the inspection shall be entered in the *Survey Book or in the Instructions for the maintenance of life-saving appliances.*

8 Servicing of inflatable liferafts, inflatable lifejackets, marine evacuation systems and inflated rescue boats [14)]

[14)] For ships covered by the Harmonised System for Survey and Certification (HSSC), the servicing intervals for inflatable liferafts, inflatable lifejackets, marine evacuation

8.1 Every inflatable liferaft, inflatable lifejacket, and marine evacuation system shall be serviced:

.1 at intervals not exceeding 12 months. However, in cases where this is not practicable, the Administration may extend this period to 17 months;

.2 at an approved servicing station which is competent to service them, maintains proper servicing facilities and uses only properly trained personnel[9)]:

.3 documentation of the latest inspection shall be kept on board;

.4 in Denmark, in Greenland and on the Faeroes, servicing must only be carried out by persons or servicing stations also approved by the Danish Maritime Authority.

8.2 Rotational deployment of marine evacuation systems

In addition to or in conjunction with the servicing intervals of marine evacuation systems required by paragraph 8.1, each marine evacuation system should be deployed from the ship on a rotational basis at intervals to be agreed by the Administration, provided that each system is deployed at least once every six years.

8.3 An administration which approves new and novel inflatable life-saving arrangements pursuant to regulation 4 may allow for longer servicing intervals on the following conditions:

8.3.1 The new and novel life-saving arrangement has proved to maintain the same standard, as required by testing procedure, during extended service intervals.

8.3.2 The life-saving system shall be checked on board by authorised persons in accordance with paragraph 8.1.1.

8.3.3 Servicing at intervals of not more than five years shall be carried out in accordance with the recommendations of the Organisation[10)].

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systems, inflatable rescue boats, hydrostatic launch relays and satellite EPIRBs may follow the intervals for annual, periodic and renewal surveys prescribed in the 1988 SOLAS Protocol notwithstanding the conditions in regulations III/20.8, III/20.9 and IV/15.9 of the 1974 SOLAS Convention, with later amendments, see IMO MSC/Circ.955 of 23 June 2000.

9) Refer to the Recommendation on conditions for the approval of servicing stations for inflatable liferafts adopted by the IMO by resolution A.761(18) and amended through resolution MSC.55(66).

8.4 All repairs and maintenance of inflated rescue boats shall be carried out in accordance with the manufacturer's instructions. Emergency repairs may be carried out on board the ship; however, permanent repairs shall be effected at an approved servicing station.

8.5 An Administration which permits extension of liferaft service intervals in accordance with paragraph 8.3 shall notify the Organisation of such action in accordance with regulation I/5(b).

9 Periodic servicing of hydrostatic release units

Hydrostatic release units, with the exception of disposable hydrostatic release units, shall be serviced:

.1 at intervals not exceeding 12 months. However where this is impracticable, the Administration may extend this period to 17 months;

.2 at a servicing station which is competent to service them, maintains proper servicing facilities and uses only trained personnel;

.3 documentation of the latest service shall be kept on board; and

.4 in Denmark, in Greenland and on the Faeroes, servicing may only be effected by servicing stations which are also approved by the Danish Maritime Authority.

10 Marking of stowage locations

Containers, brackets, racks and other similar stowage locations for life-saving equipment shall be marked with symbols in accordance with the recommendations of the Organisation[11)] indicating the devices stowed in that location. If more than one device is stowed in that location, the number of devices shall also be indicated.

11 Periodic servicing of launching appliances and equipment and on-load release gear

11.1 Launching appliances:

.1 shall be serviced in accordance with instructions for on-board maintenance as required by regulation 36;

[10)] Refer to the Recommendation on conditions for the approval of servicing stations for inflatable liferafts adopted by the IMO by resolution A.761(18) as amended by MSC.55(66).

[11)] Refer to the Symbols related to life-saving appliances and arrangements adopted by the IMO by resolution A.760(18) and Resolution MSC. 82(70).

.2 shall be subjected to a thorough examination during annual surveys as required by regulation I/7 or I/8 according to use; and

.3 shall upon completion of the examination in .2 be subjected to a dynamic test of the winch brake at maximum retardation. The load to be used shall be the mass of the rescue boat without any persons on board. The test shall however be carried out with a load of 1.1 times the maximum capacity of the winch at least every five years.

11.2 Lifeboat on-load release gear shall be:

.1 maintained in accordance with instructions for on-board maintenance as required by regulation 36;

.2 subjected to a thorough examination and test during the annual survey required by regulation I/7 and I/8 by properly trained personnel familiar with the system; and

.3 operationally tested with a load of 1.1 times the total mass of the lifeboat when loaded its full complement of persons and equipment whenever the release gear is overhauled. Such overhauling and test shall be carried out at least once every five years. [15)]

[15)] Refer to the Recommendation on testing of life-saving appliances adopted by the IMO by resolution A.689(17). For life-saving appliances installed on board on or after 1 July 1999, refer to the Revised Recommendation on testing of life-saving appliances adopted by the IMO's Maritime Safety Committee by resolution MSC.81(70).

SECTION II – PASSENGER SHIPS
(Additional requirements)

Regulation 21 Survival craft and rescue boats

1 Survival craft

1.1 Passenger ships engaged on international voyages which are not short international voyages shall carry:

.1 partially or totally enclosed lifeboats complying with the requirements of section 4.5 or 4.6 of the Code on each side of the ship of such aggregate capacity as will accommodate not less than 50% of the total number of persons on board. The Administration may permit the substitution of lifeboats by liferafts of equivalent capacity provided that there shall never be less than sufficient lifeboats on each side of the ship to accommodate 37.5% of the total number of persons on board. The liferafts shall comply with the requirements of section 4.2 or 4.3 of the Code and shall be served by launching appliances equally distributed on each side of the ship; and

.2 in addition, inflatable or rigid liferafts complying with the requirements of section 4.2 or 4.3 of the Code of such aggregate capacity as will accommodate at least 25% of the total number of persons on board. These liferafts shall be served by at least one launching appliance on each side which may be those provided in compliance with the requirements of paragraph 1.1.1 or equivalent approved appliances capable of being used on both sides. However, stowage of these liferafts need not comply with the requirements of regulation 13.5.

1.2 Passenger ships engaged on short international voyages and complying with the special standards of subdivision prescribed by regulation II-1/6.5 shall carry:

.1 partially or totally enclosed lifeboats complying with the requirements of section 4.5 or 4.6 of the Code, as far as practicable equally distributed on each side of the ship and of such aggregate capacity as will accommodate at least 30% of the total number of persons on board and inflatable or rigid liferafts complying with the requirements in section 4.2 or 4.3 of the Code of such aggregate capacity that, together with the lifeboat capacity, the survival craft will accommodate the total number of persons on board. The liferafts shall be served by launching appliances equally distributed on each side of the ship; and

.2 in addition, inflatable or rigid liferafts complying with the requirements of section 4.2 or 4.3 of the Code of such aggregate capacity as will accommodate at least 25% of the total number of persons on board. These liferafts shall be served by at least one launching appliance on each side which may be those provided in compliance with the requirements of paragraph 1.2.1 or equivalent approved appliances capable of being used on both sides. However, stowage of these liferafts need not comply with the requirements of regulation 13.5.

1.3 Passenger ships engaged on short international voyages and not complying with the special standards of subdivision prescribed by regulation II-1/6.5 shall carry survival craft complying with the requirements of paragraph 1.1.

1.4 All survival craft required to provide for abandonment by the total number of persons on board shall be capable of being launched with their full complement of persons and equipment within a period of 30 minutes from the time the abandon ship signal is given.

1.5 In lieu of meeting the requirements of paragraph 1.1, 1.2 or 1.3, passenger ships of less than 500 gross tonnage where the total number of persons on board is less than 200, may comply with the following:

.1 they shall carry on each side of the ship, inflatable or rigid liferafts complying with the requirements of section 4.2 or 4.3 of the Code and of such aggregate capacity as will accommodate the total number of persons on board;

.2 unless the liferafts required by paragraph 1.5.1 are stowed in a position providing for easy side-to-side transfer at a single open deck level, additional liferafts shall be provided so that the total capacity available on each side will accommodation 150% of the total number of persons on board;

.3 if the rescue boat required by paragraph 2.2 is also a partially or totally enclosed lifeboat complying with the requirements of section 4.5 or 4.6 of the Code, it may be included in the aggregate capacity required by paragraph 1.5.1, provided that the total capacity available on either side of the ship is at least 150% of the total number of persons on board; and

.4 in the event of any one survival craft being lost or rendered unserviceable, there shall be sufficient survival craft available for use on each side of the ship, including those which are stowed in a position providing for easy side-to-

side transfer at a single open deck level, to accommodate the total number of persons on board.

1.6 A marine evacuation system or systems complying with section 6.2 of the Code may be substituted for the equivalent capacity of liferafts and launching appliances required by paragraph 1.1.1 or 1.2.1.

2 Rescue boats

2.1 Passenger ships of 500 gross tonnage and over shall carry at least one rescue boat complying with the requirements of section 5.1 of the Code on each side of the ship.

2.2 Passenger ships of less than 500 gross tonnage shall carry at least one rescue boat complying with the requirements in section 5.1 of the Code.

2.3 A lifeboat may be accepted as a rescue boat provided it also complies with the requirements for a rescue boat.

3 Marshalling of liferafts

3.1 The number of lifeboats and rescue boats shall be sufficient to ensure that in providing for abandonment by the total number of persons on board not more than six liferafts need be marshalled by each lifeboat or rescue boat.

3.2 The number of lifeboats and rescue boats that are carried on passenger ships engaged on short international voyages and complying with the special standards of subdivision prescribed by regulation II-1/6.5 shall be sufficient to ensure that in providing for abandonment by the total number of persons on board not more than nine liferafts need be marshalled by each lifeboat or rescue boat.

Regulation 22 Personal life-saving appliances

1 Lifebuoys

1.1 A passenger ship shall carry not less than the number of lifebuoys complying with the requirements of regulation 7.1 and section 2.1 of the Code prescribed in the following table:

Length of ship in metres	Minimum number of lifebuoys
Under 60	8
60 and under 120	12
120 and under 180	18
180 and under 240	24
240 and over	30

1.2 Notwithstanding regulation 7.1.3, passenger ships of under 60 m in length shall carry not less than six lifebuoys provided with self-igniting lights.

2 Lifejackets

2.1 In addition to the lifejackets required by regulation 7.2, every passenger ship shall carry lifejackets for not less than 5% of the total number of persons on board. These lifejackets shall be stowed in conspicuous places on deck or at muster stations.

2.2 Where lifejackets for passengers are stowed in staterooms which are located remotely from direct routes between public spaces and muster stations, the additional lifejackets for these passengers required under regulation 7.2.2 shall be stowed either in the public spaces, the muster stations, or on direct routes between them. The lifejackets shall be stowed so that their distribution and donning does not impede orderly movement to muster stations and survival craft embarkation stations.

3 Lifejacket lights

3.1 On all passenger ships each lifejacket shall be fitted with a light complying with the requirements of paragraph 2.2.3 of the Code.

3.2 Lights fitted on lifejackets on board prior to 1 July 1998 and not complying fully with paragraph 2.2.3 of the Code may be accepted by the Administration until the lifejacket light would normally be replaced or until the first periodical survey after 1 July, which ever is the earliest.

4 Immersion suits and thermal protective aids

4.1 All passenger ships shall carry for each lifeboat on the ship at least three immersion suits complying with the requirements of section 2.3 of the Code and, in addition, a thermal protective aid complying with the requirements of section 2.5 of the Code for every person to be accommodated in the lifeboat and not

provided with an immersion suit. *Passenger ships operating in Greenland, Arctic and comparable waters shall, for each person on board, carry an immersion suit complying with the requirements of paragraph 2.3 of the Code. During the period from 1 May to 30 September passenger ships may, however, undertake individual voyages without carrying immersion suits for all persons on board on the condition that the persons who are not provided with immersion suits are provided with thermal protective aids.* These immersion suits and thermal protective aids need not be carried:

.1 for persons to be accommodated in totally or partially enclosed lifeboats; or

.2 if the ship is constantly engaged on voyages in warm climates where, in the opinion of the Administration, they are unnecessary.

4.2 The provisions of paragraph 4.1.1 also apply to partially or totally enclosed lifeboats not complying with the requirements of section 4.5 or 4.6 of the Code, provided they are carried on ships constructed before 1 July 1986.

Regulation 23 Survival craft and rescue boat embarkation arrangements

1 On passenger ships, survival craft embarkation arrangements shall be designed for:

.1 all lifeboats to be boarded and launched either directly from the stowed position or from an embarkation deck both not both;

.2 davit-launched liferafts to be boarded and launched from a position immediately adjacent to the stowed position or from a position to which, in compliance with the requirements of regulation 13.5, the lifeboat is transferred prior to launching.

2 Rescue boat arrangements shall be such that the rescue boat can be boarded and launched directly from the stowed position with the number of persons assigned to crew the rescue boat on board. Notwithstanding the requirements of paragraph 1.1, if the rescue boat is also a lifeboat and the other lifeboats are boarded and launched from an embarkation deck, the arrangements shall be such that the rescue boat can also be boarded and launched from the embarkation deck.

Regulation 24 Stowage of survival craft

The stowage height of a survival craft on a passenger ship shall take into account the requirements of regulation 13.1.2, the escape provisions of regulation II-2/28, the size of the ship, and the weather conditions likely to be encountered in its intended area of operation. For a davit-launched survival craft, the height of the davit head with the survival craft in embarkation position shall, as far as practicable, not exceed 15 m to the waterline when the ship is in its lightest seagoing condition.

Regulation 25 Muster stations

Every passenger ship shall, in addition to complying with the requirements of regulation 11 have muster stations which shall:

.1 be in the vicinity of, and permit ready access for the passengers to, the embarkation stations unless in the same location; and

.2 have ample room for marshalling and instruction of the passengers, but at least 0.35m^2 per passenger.

Regulation 26 Additional requirements for ro-ro passenger ships

1 This regulation applies to all ro-ro passenger ships. Ro-ro passenger ships constructed:

.1 on or after 1 July 1998 shall comply with the requirements of paragraphs 2.3, 2.4, 3.1, 3.2, 3.3, 4 and 5;

.2 on or after 1 July 1986 and before 1 July 1998 shall comply with the requirements of paragraph 5 not later than the first periodical survey after 1 July 1998 and with the requirements of paragraphs 2.3, 2.4, 3 and 4 not later than the first periodical survey after 1 July 2000; and

.3 before 1 July 1986 shall comply with the requirements of paragraph 5 not later than the first periodical survey after 1 July 1998 and with the requirements of paragraphs 2.1, 2.2, 2.3, 2.4, 3 and 4 not later than the first periodical survey after 1 July 2000.

.4 before 1 July 2004 shall comply with the requirements of paragraphs 2.5 not later than the first survey on or after this date.

2 Liferafts

2.1 The ro-ro passenger ship's liferafts shall be served by marine evacuation systems complying with the requirements of section 6.2 of the Code or launching appliances complying with the requirements of paragraph 6.1.5 of the Code, equally distributed on each side of the ship.

2.2 Every liferaft on ro-ro passenger ships shall be provided with float-free stowage arrangements complying with the requirements of regulation 13.4.

2.3 Every liferaft on ro-ro passenger ships shall be of a type fitted with a boarding ramp complying with the requirements of paragraph 4.2.4.1 or 4.3.4.1 of the Code.

2.4 Every liferaft on ro-ro passenger ships shall either be automatically self-righting or be a canopied reversible liferaft which is stable in a seaway and is capable of operating safely whichever way up it is floating. Alternatively, the ship shall carry automatically self-righting liferafts or canopied reversible liferafts, in addition to its normal complement of liferafts, of such aggregate capacity as will accommodate at least 50% of the persons not accommodated in lifeboats. This additional liferaft capacity shall be determined on the basis of the difference between the total number of persons on board and the number of persons accommodated in lifeboats. Every such liferaft shall be approved by the Administration having regard to the recommendations adopted by the Organisation[13)].

2.5 Liferafts on ro-ro passenger ships shall be equipped with radar transponders,[16)] so that there is one transponder for every four liferafts. The transponder shall be placed inside the liferaft, so that its antenna is situated more than 1 m above the surface of the sea when the liferaft is unfolded. In the case of canopied reversible liferafts, the transponder shall however be arranged so that survivors can reach it and erect it immediately. Each transponder shall be so arranged that it can be erected manually when the liferaft is unfolded. Containers for liferafts with transponders must be clearly marked.

3 Fast rescue boats

3.1 At least one of the rescue boats on a ro-ro passenger ship shall be a fast rescue boat approved by the Administration having regard to the recommendations adopted by the Organisation[13)].

3.2 Each fast rescue boat shall be served by a suitable launching appliance approved by the Administration. When approving such launching appliances, the Administration shall take into account that the fast rescue boat is intended to be launched and retrieved even under severe adverse weather conditions, and also shall have regard to the recommendations adopted by the Organisation[13)].

3.3 At least two crews of each fast rescue boat shall be trained and drilled regularly having regard to the Seafarers Training, Certification and Watchkeeping (STCW) Code and

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13) Refer to the Recommendation for canopied reversible liferafts, automatically self-righting liferafts and fast rescue boats, including testing on ro-ro passenger ships adopted by the IMO by MSC/Circ. 809.

16) Refer to the Performance standards for survival craft radar transponders for use in search and rescue operations, as adopted by the Organisation by resolution A.802(19).

recommendations adopted by the Organisation[14)], including all aspects of rescue, handling, manoeuvring, operating these craft in various conditions, and righting them after capsize.

3.4 In the case where the arrangement or size of a ro-ro passenger ship, constructed before 1 July 1997, is such as to prevent the installation of the fast rescue boat required by paragraph 3.1, the fast rescue boat may be installed in place of an existing lifeboat which is accepted as a rescue boat or, in the case of ships constructed prior to 1 July 1986, boats for use in emergency, provided that all of the following conditions are met:

.1 the fast rescue boat installed is served by a launching appliance complying with the provisions of paragraph 3.2;

.2 the capacity of the survival craft lost by the above substitution is compensated by the installation of liferafts capable of carrying at least an equal number of persons served by the lifeboat replaced; and

.3 such liferafts are served by the existing launching applicants or marine evacuation systems.

4 Means of rescue [15)]

4.1 Each ro-ro passenger ship shall be equipped with efficient means for rapidly recovering survivors from the water and transferring survivors from rescue units or survival craft to the ship.

4.2 The means of transfer of survivors to the ship may be part of a marine evacuation system, or may be part of a system designed for rescue purposes.

4.3 If the slide of a marine evacuation system is intended to provide the means of transfer of survivors to the deck of the ship, the slide shall be equipped with handlines or ladders to aid in climbing up the slide.

5 Lifejackets

5.1 Notwithstanding the requirements of regulations 7.2 and 22.2, a sufficient number of lifejackets shall be stowed in the vicinity of the muster stations so that passengers do not have to return to their cabins to collect their lifejackets.

[14)] Refer to the Recommendation on training requirements for crews of fast rescue boats, as adopted by the Organisation by resolution A.771(18) and to section A-VI/2, table A-VI/2-2 Specification of the minimum standard of competence in fast rescue boats of the Seafarers' Training, Certification and Watchkeeping (STCW) Code.

[15)] Refer to the Recommendation on means of rescue on ro-ro passenger ships, MSC/Circ.810.

5.2 In ro-ro passenger ships, each lifejacket shall be fitted with a light complying with the requirements of paragraph 2.2.3 of the Code.

Regulation 27 Information on passengers

1 All persons on board all passenger ships shall be counted prior to departure.

2 Details of persons who have declared a need for special care or assistance in emergency situations shall be recorded and communicated to the master prior to departure.

3 In addition, not later than 1 January 1999, the names and gender of all persons on board, distinguishing between adults, children and infants, shall be recorded for search and rescue purposes.

4 The information required by paragraphs 1, 2 and 3 shall be kept ashore and made readily available to search and rescue services when needed.

5 Administrations may exempt passenger ships from the requirements of paragraph 3, if the scheduled voyages of such ships render it impracticable for them to prepare such records.

Regulation 28 Helicopter landing and pick-up areas

1 All ro-ro passenger ships shall be provided with a helicopter pick-up area approved by the Administration having regard to the recommendations adopted by the Organisation[16)].

2 Ro-ro passenger ships of 130 m in length and upwards, constructed on or after 1 July 1999, shall be fitted with a helicopter landing area approved by the Administration having regard to the recommendations adopted by the Organisation[17)].

Regulation 29 Decision support system for masters of passenger ships

1 This regulation applies to all passenger ships. Passenger ships constructed before 1 July 1997 shall comply with the requirements of this regulation not later than the date of the first periodical survey after 1 July 1999.

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16) Refer to the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual).

17) Refer to the Recommendation on helicopter landing areas on ro-ro passenger ships adopted by the IMO by MSC/Circ. 895.

2 In all passenger ships, a decision support system for emergency management shall be provided on the navigation bridge.

3 The system shall, as a minimum, consist of a printed emergency plan or plans[18]. All foreseeable emergency situations shall be identified in the emergency plan or plans, including, but not limited to, the following main groups of emergencies:

.1 fire;

.2 damage to ship;

.3 pollution;

.4 unlawful acts threatening the safety of the ship and the security of its crew and passengers;

.5 personnel accidents;

.6 cargo-related accidents; and

.7 emergency assistance to other ships.

4 The emergency procedures established in the emergency plan or plans shall provide decision support to masters for handling any combination of emergency situations.

5 The emergency plan or plans shall have a uniform structure and be easy to use. Where applicable, the actual loading condition as calculated for the passenger ship's voyage stability shall be used for damage control purposes.

6 In addition to the printed emergency plan or plans, the Administration may also accept the use of a computer-based decision support system on the navigation bridge which provides all the information contained in the emergency plan or plans, procedures, checklists, etc., which is able to present a list of recommended actions to be carried out in foreseeable emergencies.

Regulation 30 Drills

1 This regulation applies to all passenger ships.

2 On passenger ships, an abandon ship drill and fire drill shall take place weekly. The entire crew need not be involved in every drill, but each crew member must participate in an abandon ship

[18] Refer to the IMO's International Safety Management (ISM) Code, Chapter 8, and Guidelines for structure of an integrated system for shipboard emergency plans adopted by the IMP by resolution A.852.

drill and a fire drill each month as required in regulation 19.3.2. Passengers shall be strongly encouraged to attend these drills.

SECTION III – CARGO SHIPS
(Additional requirements)

Regulation 31 Survival craft and rescue boats

1 Survival craft

1.1 Cargo ships shall carry:

.1 one or more totally enclosed lifeboats complying with the requirements of section 4.6 of the Code of such aggregate capacity on each side of the ship as will accommodate the total number of persons on board; and

.2 in addition, one or more inflatable or rigid liferafts, complying with the requirements of section 4.2 or 4.3 of the Code, stowed in a position providing for easy side-to-side transfer at a single open deck level, and of such aggregate capacity as will accommodate the total number of persons on board. If the liferaft or liferafts are not stowed in a position providing for easy side-to-side transfer at a single open deck level, the total capacity available on each side shall be sufficient to accommodate the total number of persons on board.

1.2 In lieu of meeting the requirements of paragraph 1.1, cargo ships may carry:

.1 one or more free-fall lifeboats, complying with the requirements of section 4.7 of the Code, capable of being free-fall launched over the stern of the ship of such aggregate capacity as will accommodate the total number of persons on board; and

.2 in addition, one or more inflatable or rigid liferafts complying with the requirements of section 4.2 or 4.3 of the Code, on each side of the ship, of such aggregate capacity as will accommodate the total number of persons on board. The liferafts on at least one side of the ship shall be served by launching appliances.

1.3 In lieu of meeting the requirements of paragraph 1.1 or 1.2, cargo ships of less than 85 m in length other than oil tankers, chemical tankers and gas carriers *with a gross tonnage of 500 or more*, may comply with the following:

.1 they shall carry on each side of the ship, one or more inflatable or rigid liferafts complying with the requirements of section 4.2 or 4.3 of the Code and of such aggregate

capacity as will accommodate the total number of persons on board.

.2 unless the liferafts required by paragraph 1.3.1 are stowed in a position providing for easy side-to-side transfer at a single open deck level, additional liferafts shall be provided so that the total capacity available on each side will accommodate 150% of the total number of persons on board.

.3 if the rescue boat required by paragraph 2 is also a totally enclosed lifeboat complying with the requirements of section 4.6 of the Code, it may be included in the aggregate capacity required by paragraph 1.3.1, provided that the total capacity available on either side of the ship is at least 150% of the total number of persons on board; and

.4 in the event of any one survival craft being lost or rendered unserviceable, there shall be sufficient survival craft available for use on each side, including any which are stowed in a position providing for easy side-to-side transfer at a single open deck level, to accommodate the total number of persons on board.

1.4 Cargo ships where the horizontal distance from the extreme end of the stem or stern of the ship to the nearest end of the closest survival craft is more than 100 m, shall carry, in addition to the liferafts required by paragraphs 1.1.2 and 1.2.2, a liferaft stowed as far forward or aft, or one as far forward and another as far aft, as is reasonable and practicable. Such liferaft or liferafts may be securely fastened so as to permit manual release and need not be of the type which can be launched from an approved launching device. *The liferaft shall be so stowed that it may be transferred to either side of the ship. Such arrangements shall be made that the raft may be launched without the necessity of lifting it over rails or bulwarks. There shall also be emergency lighting at the place where the raft is stowed. A portable safety lamp of an approved type may be used for this purpose. The release line – the painter – shall be secured to the place where the raft is stowed in such a way that it may be easily released for attachment to the place where the raft may be launched.*

1.5 With the exception of the survival craft referred to in regulation 16.1.1, all survival craft required to provide for abandonment by the total number of persons on board shall be capable of being launched with their full complement of persons and equipment within a period of 10 minutes from the time the abandon ship signal is given.

1.6 Chemical tankers and gas carriers carrying cargoes emitting toxic vapours or gases[19)], shall carry, in lieu of totally enclosed lifeboats complying with the requirements of section 4.6 of the Code, lifeboats with a self-contained air support system complying with the requirements of section 4.8 of the Code.

1.7 Oil tankers, chemical tankers and gas carriers *with a gross tonnage over 500* carrying cargoes having a flashpoint not exceeding 60° C (closed-cup test) shall carry, in lieu of totally enclosed lifeboats complying with the requirements of section 4.6 of the Code, fire-protected lifeboats complying with the requirements of section 4.9 of the Code..

2 Rescue boats

Cargo ships *with a gross tonnage of 100 or more* shall carry at least one rescue boat complying with the requirements of section 5.1 of the Code. A lifeboat may be accepted as a rescue boat, provided that it also complies with the requirements for a rescue boat.

3 In addition to their lifeboats, all cargo ships *with a gross tonnage of 500 or more* constructed before 1 July 1986 shall carry:

.1 one or more liferafts capable of being launched on either side of the ship and of such aggregate capacity as will accommodate the total number of persons on board. The liferaft or liferafts shall be equipped with a lashing or an equivalent means of securing the liferaft which will automatically release it from a sinking ship; and

.2 where the horizontal distance from the extreme end of the stem or stern of the ship to the nearest end of the closest survival craft is more than 100 m, in addition to the liferafts required by paragraph 3.1, a liferaft stowed as far forward or aft, or one as far forward and another as far aft, as is reasonable and practicable. Notwithstanding the requirements of paragraph 3.1, such liferaft or liferafts may be securely fastened so as to permit manual release.

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19) Refer to the products for which emergency escape respiratory protection is required in chapter 17 of the International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code) adopted by the Maritime Safety Committee by resolution MSC.4(48) and in chapter 19 of the International Code for the Construction and Equipment of Ships carrying Liquefied Gases in Bulk (IGC Code), adopted by the Maritime Safety Committee by resolution MSC.5(48).

Regulation 32 Personal life-saving appliances

1 Lifebuoys

1.1 Cargo ships shall carry not less than the number of lifebuoys complying with the requirements of regulation 7.1 and section 2.1 of the Code prescribed in the following table:

Length of ship in metres	Minimum number of lifebuoys
15 and under 30	*4*
30 and under 50	*6*
50 and under 100	8
100 and under 150	10
150 and under 200	12
200 and over	14

1.2 Self-igniting lights for lifebuoys on tankers required by regulation 7.1.3 shall be of an electric battery type.

2 Lifejacket lights

2.1 This paragraph applies to all cargo ships.

2.2 On cargo ships, each lifejacket shall be fitted with a lifejacket life complying with the requirements of section 2.2.3 of the Code.

2.3 Lights fitted on lifejackets on board cargo ships prior to 1 July 1998 and not fully complying with paragraph 2.2.3 of the Code may be accepted by the Administration until the lifejacket light would normally be replaced or until the first periodical survey after 1 July 2001.

3 Immersion suits and thermal protective aids (applicable until 1 July 2006)

3.1 This paragraph applies to all cargo ships.

3.2 Cargo ships shall carry for each lifeboat on the ship at least three immersion suits complying with the requirements of section 2.3 of the Code or, if the Administration considers it necessary and practicable, one immersion suit complying with the requirements of section 2.3 of the Code for every person on board the ship; however, the ship shall carry in addition to the thermal protective aids required by paragraphs 4.1.5.1.24, 4.4.8.31 and 5.1.2.2.13 of the Code, thermal protective aids complying with the requirements of section 2.5 of the Code for persons on board not provided with immersion suits. *Ships operating in Greenland,*

Arctic and comparable waters shall, for each person on board, carry an immersion suit complying with the requirements of section 2.3 of the Code. These immersion suits and thermal protective aids need not be required if the ship:

.1 has totally enclosed lifeboats on each side of the ship of such aggregate capacity as will accommodate the total number of persons on board; or

.2 has totally enclosed lifeboats capable of being launched by free-fall over the stern of the ship of such aggregate capacity as will accommodate the total number of persons on board and which are boarded and launched directly from the stowed position, together with liferafts on each side of the ship of such aggregate capacity as will accommodate the total number of persons on board; or

.3 in constantly engaged on voyages in warm climates where, in the opinion of the Administration, immersion suits are unnecessary.

3.3 Cargo ships complying with the requirements of regulation 31.1.3 shall carry immersion suits complying with the requirements of section 2.3 of the Code for every person on board unless the ship:

.1 has davit-launched liferafts; or

.2 has liferafts served by equivalent approved appliances capable of being used on both sides of the ship and which do not require entry into the water to board the liferaft; or

.3 is constantly engaged on voyages in warm climates where, in the opinion of the Administration, immersion suits are unnecessary.

3.3a *Cargo ships below 1600 tons, constructed before 1 July 1986, exempted from the requirement to carry lifeboats on more detailed conditions (the equivalent system) and in which the life rafts cannot be launched with an approved launching appliance capable of lowering the rafts when loaded, shall carry immersion suits complying with the requirements of paragraph 2.3 for each person on board the ship.*

3.4 The immersion suits required by this regulation may be used to comply with the requirements of regulation 7.3.

3.5 The totally enclosed lifeboats referred to in paragraphs 3.2.1 and 3.2.2 carried on cargo ships constructed before 1 July 1986 need not comply with the requirements of section 4.6 of the Code.

3 Immersion suits (applicable from 1 July 2006)

3.1 This paragraph applies to all cargo ships. Cargo ships constructed before 1 July 2006 shall comply with paragraphs 3.2 to 3.5 not later than the first inspection of safety equipment on or after 1 July 2006.

3.2 An immersion suit shall be provided complying with the requirements in section 2.3 of the Code for all persons on board the ship. However, these suits are not required for ships other than bulk carriers, as defined in regulation IX/1, provided the ship is constantly engaged on voyages in warm climates, where in the opinion of the Administration, immersion suits are unnecessary.

3.3 If a ship's watch or work stations are located remotely from the location or locations where the immersion suits are normally stowed, additional immersion suits shall be provided at these locations for the number of persons who are normally on watch or work at these stations.

3.4 Immersion suits shall be located so that they are readily accessible and their position shall be clearly marked.

3.4 Immersion suits required by this regulation may be used to comply with the requirements of regulation 7.3

Regulation 33 Survival craft embarkation and launching

1 Cargo ship survival craft embarkation arrangements shall be so designed that lifeboats can be boarded and launched directly from the stowed position and davit-launched liferafts can be boarded and launched from a position immediately adjacent to the stowed position or from a position to which the liferaft is transferred prior to launching in compliance with the requirements of regulation 13.5.

2 On cargo ships of 20,000 gross tonnage and upwards, lifeboats shall be capable of being launched, where necessary utilising painters, with the ship making headway at speeds up to 5 knots in calm water.

SECTION IV – LIFE-SAVING APPLIANCES AND ARRANGEMENTS REQUIREMENTS

Regulation 34 Use of the LSA Code

1 All life-saving appliances and arrangements shall comply with the applicable requirements of the Code.

SECTION V – MISCELLANEOUS

Regulation 35 Training manual and on-board training aids

1 This regulation applies to all ships.

2 A training manual complying with the requirements of paragraph 3 shall be provided in each crew mess room and recreation room or in each crew cabin.

3 The training manual, which may comprise several volumes, shall contain instructions and information, in easily understood terms illustrated wherever possible, on the life-saving appliances provided in the ship and on the best methods of survival. Any part of such information may be provided in the form of audio-visual aids in lieu of the manual. The following shall be explained in detail:

.1 donning of lifejackets, immersion suits and anti-exposure suits,

.2 muster at the assigned stations;

.3 boarding, launching, and clearing the survival craft and rescue boats, including, where applicable, use of marine evacuation systems;

.4 method of launching from within the survival craft;

.5 release from the launching appliances;

.6 methods and use of devices for protection in launching areas, where appropriate;

.7 illumination in launching areas;

.8 use of all survival equipment;

.9 use of all detection equipment;

.10 with the assistance of illustrations, the use of radio;

.11 use of drogues;

.12 use of engine and accessories;

.13 recovery of survival craft and rescue boats including stowage and securing;

.14 hazards of exposure and the need for warm clothing;

.15 best use of the survival craft facilities in order to survive;

.16 methods of retrieval, including the use of helicopter rescue gear (slings, baskets, stretchers), breeches-buoy and shore life-saving apparatus and the ship's line-throwing apparatus;

.17 all other functions contained in the muster list and emergency instructions;

.18 instructions for emergency repair of the life-saving appliances.

4 Every ship fitted with a marine evacuation system shall be provided with on-board training aids in the use of the system *(e.g. instruction books and videotapes).*

Regulation 36 Instructions for on-board maintenance

Instructions for on-board maintenance of life-saving appliances shall be easily understood, illustrated wherever possible, and, as appropriate, shall including the following for each appliance:

.1 a checklist for use when carrying out the inspections required by regulation 20.7;

.2 maintenance and repair instructions;

.3 schedule of periodic maintenance;

.4 diagram of lubrication points with the recommended lubricants;

.5 list of replaceable parts (spare parts list);

.6 list of sources of spare parts; and

.7 log for records of inspections and maintenance.

Regulation 37 Muster list and emergency instructions

1 The muster list shall specify details of the general emergency alarm prescribed by section 7.2 of the Code and also action to be taken by crew and passengers when this alarm is sounded. The muster list shall also specify how the order to abandon ship will be given.

2 Each passenger ship shall have procedures in place for locating and rescuing passengers trapped in their staterooms.

3 The muster list shall show the duties assigned to the different members of the crew including:

.1 closing of the watertight doors, fire doors, valves, scuppers, sidescuttles, skylights, portholes and other similar openings in the ship;

.2 equipment of the survival craft and other life-saving appliances;

.3 preparation and launching of survival craft;

.4 general preparations of other life-saving appliances;

.5 muster of passengers;

.6 use of communication equipment;

.7 manning of fire parties to deal with fires; and

.8 special duties assigned in respect to the use of fire-fighting equipment and installations.

4 The muster list shall specify which officers are assigned to ensure that life-saving and fire appliances are maintained in good condition and are ready for immediate use.

5 The muster list shall specify substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions.

6 The muster list shall show the duties assigned to members of the crew in relation to passengers in case of emergency. These duties shall include:

.1 warning the passengers;

.2 seeing that they are suitably clad and have donned their lifejackets correctly;

.3 assembling passengers at muster stations;

.4 keeping order in the passageways and on the stairways and generally controlling the movements of the passengers; and

.5 ensuring that a supply of blankets is taken to the survival craft.

7 The muster list shall be prepared before the ship proceeds to sea. After the muster list has been prepared, if any change takes place in the crew which necessitates an alteration in the muster list, the master shall either revise the list or prepare a new list.

8 The format of the muster list used on passenger ships shall be approved. *A copy of the muster list shall be submitted to the Danish Maritime Authority for approval.*

Chapter B XXI (1)
1 September 2004

Technical regulation on construction and equipment, etc. of ships

C H A P T E R X X I

Regulations for the prevention of pollution by oil from ships

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C H A P T E R X X I

Regulations for the prevention of pollution by oil from ships

Part I General regulations

Regulation 1 Definitions

The following definitions are used in this chapter:

1 "Oil" means any form of mineral oil, including crude oil, fuel oil, sludge, oil refuse and refined products (other than petrochemicals, which are subject to the provisions of Annex II of the MARPOL Convention). The definition also covers the substances referred to in Appendix I, without limiting this definition.

2 "Oily mixture" means a mixture with any oil content.

3 "Oil fuel" means any oil used as fuel in connection with the propulsion and auxiliary machinery of the ship in which such oil is carried.

4 "Oil tanker" means a ship constructed or adapted primarily to carry oil in bulk in its cargo spaces and includes combination carriers and any "chemical tanker" as defined in Annex II of the MARPOL Convention when it is carrying a cargo or part cargo of oil in bulk.

5 "Combination carrier" means a ship designed to carry either oil or solid cargoes in bulk.

6 Subject to the provisions in section 26 below, "new ship" means a ship:

a) for which the building contract is placed after 31 December 1975, or

b) in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction after 30 June 1976, or

c) the delivery of which is after 31 December 1979, or

d) which has undergone a major conversion:

1) for which the contract is placed after 31 December 1975, or

2) in the absence of a contract, the construction work of which is begun after 30 June 1976, or

3) which is completed after 31 December 1979.

7 "Existing ship" means a ship which is not a new ship.

8 a) "Major conversion" means a conversion of an existing ship:

1) which substantially alters the dimensions or carrying capacity of the ship; or

2) which changes the type of the ship; or

3) the intent of which in the opinion of the Administration is substantially to prolong its life; or

4) which otherwise so alters the ship that, if it were a new ship, it would become subject to relevant provisions of this chapter not applicable to it as an existing ship.

b) Notwithstanding the provisions of subparagraph a) of this paragraph, conversion of an existing oil tanker of 20,000 tons deadweight and above to meet the requirements of regulation 13 shall not be deemed to constitute a major conversion for the purposes of this chapter.

c) Notwithstanding the provisions of subparagraph a) of this paragraph, conversion of an existing oil tanker to meet the requirements of regulation 13F or 13G shall not be deemed to constitute a major conversion for the purpose of this chapter.

9 "Nearest land". The term "from the nearest land" means from the baseline from which the territorial sea of the territory in question is established in accordance with international law, except that, for the purposes of the MARPOL Convention "from the nearest land" off the north-eastern coast of Australia shall mean a line drawn from a point on the coast of Australia in latitude 11° S, longitude 142° 08' E to a point in latitude 10° 35' S, longitude 141° 55' E,

thence to a point latitude 10° 00' S, longitude 142° 00' E,

thence to a point latitude 9° 10' S, longitude 143° 52' E,

thence to a point latitude 9° 00' S, longitude 144° 30' E,

thence to a point latitude 13° 00' S, longitude 144° 00' E,

thence to a point latitude 15° 00' S, longitude 146° 00' E,

thence to a point latitude 18° 00' S, longitude 147° 00' E,

thence to a point latitude 21° 00' S, longitude 153° 00' E,

thence to a point latitude on the coast of Australia in latitude 24° 42' S, longitude 153° 15' E.

10 "Special area" means a sea area where for recognised technical reasons in relation to its oceanographical and ecological

condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution by oil is required. Special areas shall include those listed in regulation 10.

11 "Instantaneous rate of discharge of oil content" means the rate of discharge of oil in litres per hour at any instant divided by the speed of the ship in knots at the same instant.

12 "Tank" means an enclosed space which is formed by the permanent structure of a ship and which is designed for the carriage of liquid in bulk.

13 "Wing tank" means any tank adjacent to the side shell plating.

14 "Centre tank" means any tank inboard of a longitudinal bulkhead.

15 "Slop tank" means a tank specifically designated for the collection of drainings, tank washings and other oily mixtures.

16 "Clean ballast" means the ballast in a tank which since oil was last carried therein, has been so cleaned that effluent therefrom if it were discharged from a ship which is stationary into clean calm water on a clear day would not produce visible traces of oil on the surface of the water or on adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. If the ballast is discharged through an oil discharge monitoring and control system approved by the Administration, evidence based on such a system to the effect that the oil content of the effluent did not exceed 15 parts per million shall be determinative that the ballast was clean, notwithstanding the presence of visible traces.

17 "Segregated ballast" means the ballast water introduced into a tank which is completely separated from the cargo oil and oil fuel system and which is permanently allocated to the carriage of ballast or to the carriage of ballast or cargoes other than oil or noxious substances as variously defined in the Annexes of the MARPOL Convention.

18 "Length" (L) means 96% of the total length on a waterline at 85% of the least moulded depth measured from the top of the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, on which the length is measured parallel to the designed waterline. The length (L) shall be measured in metres.

19 "Forward and after perpendiculars" shall be taken at the forward and after ends of the length (L). The forward perpendicular shall coincide with the foreside of the stem on the waterline on which the length is measured.

20 "Amidships" is at the middle of the length (L).

21 "Breadth" (B) means the maximum breadth of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship of any other material. The breadth (B) shall be measured in metres.

22 "Deadweight" (DW) means the difference in metric tons between the displacement of a ship in water of a specific gravity of 1.025 at the load waterline corresponding to the assigned summer freeboard and the lightweight of the ship.

23 "Lightweight" means a the displacement of a ship in metric tons without cargo, fuel, lubricating oil, ballast water, fresh water and feed water in tanks, consumable stores, and passengers and crew and their effects.

24 "Permeability" of a space means the ratio of the volume within that space which is assumed to be occupied by water to the total volume of that space.

25 "Volume" and "Area" in a ship shall be calculated in all cases to moulded lines.

26 Notwithstanding the provisions of paragraph 6 of this regulation, for the purposes of regulations 13, 13B, 13E and 18(4) of this chapter, "new oil tanker" means an oil tanker:

a) for which the building contract is placed after 1 June 1979; or

b) in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction after 1 January 1980; or

c) the delivery of which is after 1 June 1982; or

d) which has undergone a major conversion

1) for which the contract is placed after 1 June (*1979*); or

2) in the absence of a contract, the construction of which (*is begun after 1 January 1980; or*)

3) which is completed after 1 June 1982.

except that, for oil tankers of 70,000 tons deadweight and above, the definition in paragraph 6 of this regulation shall apply for the purposes of regulation 13(1).

27 Notwithstanding the provisions of paragraph 7, for the purposes of regulations 13, 13 A-D and 18(5) and 18(6)(c) of this chapter, "existing oil tanker" means an oil tanker which is not "new" as defined in paragraph 26.

28 "Crude oil" means any liquid hydrocarbon mixture occurring naturally in the earth whether or not treated to render it suitable for transportation and includes:

a) crude oil from which certain distillate fractions may have been removed; and

b) crude oil to which certain distillate fractions may have been added.

29 "Crude oil tanker" means an oil tanker engaged in the trade of carrying crude oil.

30 "Product carrier" means an oil tanker engaged in the trade of carrying oil other than crude oil.

31 "Anniversary date" means the day and the month of each year which will correspond to the date of expiry of the International Oil Pollution Prevention Certificate.

Regulation 2 Application

1 Unless expressly provided otherwise, the provisions of this chapter apply to all ships.

2 In ships other than oil tankers fitted with cargo spaces which are constructed and utilised to carry oil in bulk of an aggregate capacity of 200 m^3 or more, the requirements of regulations 9, 10, 14, 15(1), (2) and (3), 18, 20 and 24(4) for oil tankers shall also apply to the construction and operation of those spaces, except that where such aggregate capacity is less than 1,000 m^3, the requirements of regulation 15(4) may apply in lieu of regulation 15(1), (2) and (3).

3 Where a cargo subject to the provisions of Annex II of the MARPOL Convention is carried in a cargo space of an oil tanker, the appropriate requirements of this chapter shall also apply.

4 a) Any hydrofoil, air-cushion vehicle and other new type of vessel (near-surface craft, submarine craft, etc.) whose constructional features are such as to render the application of any of the provisions in parts II and II relating to construction and equipment unreasonable or impracticable may be exempted by the Administration from such provisions, provided that the construction and equipment of that ship provides adequate protection against pollution by oil, having regard to the service for which it is intended.

b) Particulars of any such exemption granted by the Administration shall be indicated in the Certificate referred to in regulation 5.

c) The Administration which allows any such exemption shall, as soon as possible, but not more than 90 days thereafter, communicate to the Organisation particulars of same and the reasons therefor, which the Organisation shall circulate to the Parties to the Convention for their information and appropriate action, if any.

Regulation 3 Equivalents

1 The Administration may allow any fitting, material, appliance or apparatus to be fitted in a ship as an alternative to that required by this chapter if such fitting, material, appliance or apparatus is at least as effective as that required by this chapter. This authority of the Administration shall not extend to substitution of operational methods to effect the control of discharge of oil as equivalent to those design and construction features which are prescribed in this chapter.

2 The Administration which allows a fitting, material, appliance or apparatus, as an alternative to that required by this chapter shall communicate to the Organisation for circulation to the Parties to the Convention particulars thereof, for their information and appropriate action, if any.

Regulation 4 Survey

1 Every oil tanker of 150 tons gross tonnage and above, and every other ship of 400 tonnes gross tonnage and above shall be subject to the surveys specified below:

a) An initial survey before the ship is put in service or before the Certificate required under regulation 5 is issued for the first time, which shall include a complete survey of its structure, equipment, systems, fittings, arrangements and material in so far as the ship is covered by this chapter. This survey shall be such as to ensure that the structure, equipment, systems, fittings, arrangements and material fully comply with the requirements of this chapter.

b) A renewal survey at intervals specified by the Administration, but not exceeding five years, except where regulation 8(2), 8(5), 8(6) or 8(7) is applicable. The renewal survey shall be such as to ensure that the structure, equipment, systems, fittings, arrangements and material fully comply with the requirements of this chapter.

c) An intermediate survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the Certificate's issue. The survey shall be carried out simultaneously with one of the annual surveys specified in paragraph 1(d) of this regulation. The survey shall ensure that the equipment and associated pump and piping systems, including oil discharge monitoring and control systems, crude oil washing systems, oily-water filtering systems, fully comply with the applicable requirements of this chapter and are in good working order. Such intermediate surveys shall be endorsed on the Certificate issued under regulation 5 or 6.

d) An annual survey within three months before or after each anniversary date of the Certificate's issue, including a general inspection of the structure, equipment, systems, fittings, arrangements and material referred to in paragraph 1(a) of this regulation to ensure that they have been maintained in accordance with paragraph 4 of this regulation and that they remain satisfactory for the service for which the ship is intended. Such annual surveys shall be endorsed on the Certificate issued under regulation 5 or 6.

e) An additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in paragraph 4 of this regulation or whenever any important repairs or renewals are made. The surveys shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory and that the ship complies in all respects with the requirements of this chapter.

2 The Administration shall establish appropriate measures for ships which are not subject to the provisions of paragraph 1 to ensure that the applicable provisions of this chapter are complied with.

3 a) Surveys of ships as regards the enforcement of the provisions of this chapter shall be carried out by officers of the Administration. The Administration may, however, entrust the surveys either to surveyors nominated for the purpose or to organisations recognised by it.

b) An Administration nominating surveyors or recognising organisations to conduct surveys and servicing as set forth in subparagraphs (a) and (b) shall, as a minimum, empower any nominated surveyor or recognised organisation to:

1) require repairs to a ship; and

2) carry out surveys, if requested by the appropriate authorities of a port State.

The Administration shall notify the Organisation of the specific responsibilities and conditions of the authority delegated to the nominated surveyors or recognised organisations, for circulation to Parties to the Convention for the information of their officers.

c) When a nominated surveyor or recognised organisation determines that the condition of the ship or its equipment does not correspond substantially with the particulars of the Certificate or is such that the ship is not fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment, such surveyor or Organisation shall immediately ensure that corrective action is taken and shall

in due course notify the Administration. If such corrective action is not taken the Certificate should be withdrawn and the Administration shall be notified immediately. If the ship is in a port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or a recognised organisation has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organisation any necessary assistance to carry out their obligations under this regulation. When applicable, the Government of the state Port concerned shall take such steps as will ensure that the ship shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the nearest appropriate repair yard available without presenting an unreasonable threat of harm to the marine environment.

d) In every case, the Administration concerned shall fully guarantee the completeness and efficiency of the survey and shall undertake to ensure the necessary arrangements to satisfy this obligation.

4 a) The condition of the ship and its equipment shall be maintained to conform with the provisions of this chapter to ensure that the ship in all respects will remain fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment.

b) After any survey of a ship under paragraph 1 has been completed, no change shall be made in the structure, equipment, systems, fittings, arrangements or material covered by the survey, without the sanction of the Administration, except the direct replacement of such equipment and fittings.

c) Whenever an accident occurs to a ship or a defect is discovered which substantially affects the integrity of the ship or the efficiency or completeness of its equipment covered by this chapter the master or owner of the ship shall report at the earliest opportunity to the Administration, the recognised organisation or the nominated surveyor responsible for issuing the relevant certificate, who shall cause investigations to be initiated to determine whether a survey as required by paragraph 1 of this regulation is necessary. If the ship is in a port of another Party, the master or owner shall also report immediately to the appropriate authorities of the port State and the nominated or recognised organisation shall ascertain that such report has been made.

Regulation 5 Issue of Certificate

1 An International Oil Pollution Prevention Certificate shall be issued, after a survey in accordance with regulation 4 to any oil tanker of 150 tons gross tonnage and above and any other ships of 400 tons gross tonnage and above which are engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to the Convention.

2 Such Certificate shall be issued or endorsed either by the Administration or by any persons or organisation duly authorised by it. In every case the Administration assumes full responsibility for the Certificate.

3 Notwithstanding any other provisions of the amendments to this chapter adopted by the Marine Environment Protection Committee (MEPC) by resolution MEPC. 39(29), any International Oil Pollution Prevention Certificate, which is current when these amendments enter into force, shall remain valid until it expires under the terms of this chapter prior to the amendments entering into force.

Regulation 6 Issue or endorsement of a Certificate by another Government

1 The Government of a Party to the Convention may, at the request of the Administration, cause a ship to be surveyed and, if satisfied that the provisions of this chapter are complied with, shall issue or authorise the issue of an International Oil Pollution Prevention Certificate to the ship in accordance with this chapter.

2 A copy of the Certificate and a copy of the survey report shall be transmitted as soon as possible to the requesting Administration.

3 A Certificate so issued shall contain a statement to the effect that it has been issued at the request of the Administration and it shall have the same force and receive the same recognition as the Certificate issued under regulation 5.

4 No International Oil Pollution Prevention Certificate shall be issued to a ship which is entitled to fly the flag of a State which is not a Party.

Regulation 7 Form of Certificate

The International Oil Pollution Prevention Certificate shall be drawn up in a form corresponding to the model given by the Organisation. If the language used is neither English nor French, the text shall include a translation into one of these languages.

Regulation 8 Duration and validity of Certificate

1 An International Oil Pollution Prevention Certificate shall be issued for a period specified by the Administration, which shall not exceed five years.

2 a) Notwithstanding the requirements of paragraph 1 of this regulation, when the renewal survey is completed within three months before the expiry date of the existing Certificate, the new Certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing Certificate.

b) When the renewal survey is completed after the expiry date of the existing Certificate, the new Certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing Certificate.

c) When the renewal survey is completed more than three months before the expiry date of the existing Certificate, the new Certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.

3 If a Certificate is issued for a period of less than five years, the Administration may extend the validity of the Certificate beyond the expiry date to the maximum period specified in paragraph 1 of this regulation, provided that the surveys referred to in regulation 4(1)(c) and 4(1)(d) in this chapter applicable when a Certificate is issued for a period of five years are carried out as appropriate.

4 If a renewal survey has been completed and a new Certificate cannot be issued or placed on board the ship before the expiry date of the existing Certificate, the person or Organisation authorised by the Administration may endorse the existing Certificate and such a Certificate shall be accepted as valid for a further period which shall not exceed five months from the expiry date.

5 If a ship at the time when a Certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the Certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No Certificate shall be extended for a period longer than three months, and a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new Certificate. When the renewal survey is completed, the new Certificate shall be valid to a date not exceeding five years from

the date of expiry of the existing Certificate before the extension was granted.

6 A Certificate issued to a ship engaged on short voyages which has not been extended under the foregoing provisions may be extended by the Administration for a period of up to one month from the date of expiry stated on it. When the renewal survey is completed, the new Certificate shall be valid to a date not exceeding five years from the date of expiry of the existing Certificate before the extension was granted.

7 In special circumstances, as determined by the Administration, a new Certificate need not be dated from the date of expiry of the existing Certificate as required by paragraph 2(b), 5 or 6 of this regulation. In these special circumstances, the new Certificate shall be valid to a date not exceeding five years from the date of completion of the renewal survey.

8 If an annual or intermediate survey is completed before the period specified in regulation 4, then:

a) the anniversary date shown on the Certificate shall be amended by endorsement to a date which shall not be more than three months later that the date on which the survey was completed,

b) the subsequent annual or intermediate survey required by regulation 4 of this chapter shall be completed at the intervals prescribed by that regulation using the new anniversary date,

c) the expiry date may remain unchanged provided one or more annual or intermediate surveys are carried out so that the maximum intervals between the surveys prescribed by regulation 4 of this chapter are not exceeded.

9 A Certificate issued under regulation 5 or 6 of this chapter shall cease to be valid in any of the following cases:

a) if the relevant surveys are not completed within the periods specified under regulation 4(1) of this chapter;

b) if the Certificate is not endorsed in accordance with regulation 4(1)(c) or 4(1)(d) of this chapter;

c) upon transfer of the ship to the flag of another State. A new Certificate shall only be issued when the Government issuing the new Certificate is fully satisfied that the ship is in compliance with the requirements of regulation 4(4)(b) and 4(4)(b). In the case of a transfer between Parties, if requested within three months after the transfer has taken place, the Government of the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the Certificate carried by the ship

before the transfer and, if available, copies of the relevant survey reports.

Regulation 8A Port State control on operational requirements[17)]

1 A ship when in a port or an offshore terminal of another Party may be subject to inspection by a person duly authorised by such Party where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of pollution by oil.

2 In the circumstances given in paragraph 1, the Party shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this Annex.

3 Procedures relating to port State control in article 5 of the MARPOL Convention shall apply to this regulation.

17) Refer to the procedures for the control of operational requirements in connection with ship safety and pollution prevention introduced by the IMO by resolution A.742(18).

4 Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational requirements provided for in the MARPOL Convention.

Part II Requirements for control of operational pollution

Regulation 9 Control of discharge of oil

1 Subject to the provisions of regulations 10 and 11 and paragraph 2 of this regulation, any discharge into the sea of oil or oily mixtures from ships to which this chapter applies shall be prohibited except when all of the following conditions are satisfied:[18)]

a) for an oil tanker, except as provided for in subparagraph (b) of this paragraph:

1) the tanker is not within a special area;

2) the tanker is more than 50 nautical miles from the nearest land;

3) the tanker is making headway;

4) the instantaneous discharge of oil content does not exceed 30 litres per nautical mile;

5) the total quantity of oil discharged into the sea does not exceed for existing tankers 1/15,000 of the total quantity of the particular cargo of which the residue formed a part, and for new tankers 1/30,000 of the total quantity of the particular cargo of which the residue formed a part; and

6) the tanker has in operation an oil discharge monitoring and control system and a slop tank arrangement as required by regulation 15.

b) from a ship of 400 tons gross tonnage and above other than an oil tanker and from machinery space bilges excluding cargo pump-room bilges of an oil tanker unless mixed with oil cargo residue:

1) the ship is not within a special area;

2) the ship is proceeding *en route*;

[18)] This does not apply to Danish territorial waters, where any form of oil discharge is prohibited, see § 9 of Act No. 130 of 9 April 1980 on the protection of the marine environment.

3) the oil content of the effluent without dilution does not exceed 15 parts per million; and

4) the ship has in operation equipment as required by regulation 16.

2 In the case of a ship of less than 400 tons gross tonnage other than an oil tanker whilst outside the special area, the Administration shall ensure that it is equipped as far as practicable and reasonable with installations to ensure the storage of oil residues on board and their discharge to reception facilities or into the sea in compliance with the requirements of paragraph 1(b).

3 Wherever visible traces of oil are observed on or below the surface of the water in the immediate vicinity of the ship or its wake, Governments of Parties to the Convention should, to the extent that they are reasonably able to do so, promptly investigate the facts bearing on the issue of whether there has been a violation of the provisions of this regulation or regulation 10. The investigation should include, in particular, the wind and sea conditions, the track and speed of the ship, other possible sources of the visible traces in the vicinity, and any relevant oil discharge records.

4 The provisions of paragraph 1 do not apply to the discharge of clean or segregated ballast or unprocessed oily mixtures which without dilution have an oil content not exceeding 15 parts per million and which do not originate from cargo pump-room bilges and are not mixed with oil cargo residues.

5 No discharge into the sea shall contain chemicals or other substances in quantities which are hazardous to the marine environment or chemicals or other substances introduced for the purpose of circumventing the conditions of discharge specified in this regulation.

6 The oil residues which cannot be discharged into the sea in compliance with paragraphs 1, 2 and 4 shall be retained on board or discharged to reception facilities.

7 In the case of a ship, referred to in regulation 16(6), not fitted with equipment as required by regulation 16(1) or 16(2), paragraph 1(b) of this regulation will not apply until 6 July 1998 or the date on which the ship is fitted with such equipment, whichever is the earlier. Until this date any discharge of oil or oily mixtures from such a ship shall be prohibited except when all of the following conditions are satisfied:

a) the oily mixture does not originate from the cargo pump-room bilges;

b) the oily mixture is not mixed with oil cargo residues;

c) the ship is not within a special area;

d) the ship is more than 12 nautical miles from the nearest land;

e) the ship is proceeding *en route*;

f) the oil content of the effluent is less than 100 parts per million; and

g) the ship has in operation oily-water separating equipment of a design approved by the Administration, taking into account the specifications recommended by the Organisation[19)].

Regulation 10 Methods for the prevention of oil pollution from ships while operating in special areas

1 For the purpose of this chapter, the special areas are the Mediterranean Sea area, the Baltic Sea area, the Black Sea area, the Red Sea area, the "Gulfs area", the Gulf of Aden area, the Antarctic area and the North-West European waters, which are defined as follows:

a) The Mediterranean Sea area means the Mediterranean proper including the gulfs and seas therein with the boundary between the Mediterranean and the Black Sea constituted by the 41° N parallel and bounded to the west by the Straits of Gibraltar at the meridian of 5° 36' V.

b) The Baltic Sea area means the Baltic Sea proper with the Gulf of Bothnia, the Gulf of Finland and the entrance to the Baltic Sea bounded by the parallel of Skagen in the Skagerrak at 57° 44.8' N.

c) The Black Sea area means the Black Sea proper with the boundary between the Mediterranean and the Black Sea constituted by the parallel 41° N.

d) The Red Sea area means the Red Sea proper including the Gulfs of Suez and Aqaba, bounded at the south by the rhumb line between Ras si Ane (12° 8.5' N, 43° 19.6' E) and Husn Murad (12° 0.4' N, 43° 30.2' E).

e) The Gulfs area means the sea area located north-west of the rhumb line between Ras al Hadd (22° 30' N, 59° 48' E) and Ras al Fasteh (25° 0.4' N, 61° 25' E).

f) The Gulf of Aden means the sea area between the Red Sea and the Arabian Sea bounded to the west by the rhumb line between Ras si Ane (12° 28.5' N, 43° 19.6' E) and Husn Murad (12° 40.4' N, 43° 30.2' E) and to the east by the

19) Refer to the Recommendation on International Performance and Test Specifications for Oily Water Separating Equipment and Oil Content Meters, approved by the Organisation by resolution A.393(X).

rhumb line between Ras Asir (11˚ 50' N, 51˚ 16.9' E) and Ras Fartak (15˚ 35' N, 52˚ 13.8' E).

g) The Antarctic area means the area south of latitude 60˚ S.

h) The North-West European waters include the North Sea and its approaches, the Irish Sea and its approaches, the Celtic Sea, the English Channel and its approaches and part of the North-East Atlantic immediately to the west of Ireland.. The area is bounded by lines joining the following points:

i) 48˚ 27'N on the French coast

ii) 48˚ 27'N, 6˚ 25'V

iii) 49˚ 52'N, 7˚ 44'V

iv) 50˚ 30'N, 12˚ V

v) 56˚ 30'N, 12˚ V

vi) 62˚ N, 3˚ V

vii) 62˚ N on the Norwegian coast

viii) 57˚ 44.8'N on the Danish and Swedish coasts

2 a) Subject to the provisions of regulation 11, an discharge into the sea of oil or oily mixture from any oil tanker and any ship of 400 tons gross tonnage and above other than an oil tanker shall be prohibited while in a special area. In respect of the Antarctic area, any discharge into the sea of oil or oily mixture is prohibited.

b) Any discharge into the sea of oil or oily mixtures from a ship of less than 400 tons gross tonnage, other than an oil tanker, is prohibited while in a special area, except when the oil content of the effluent without dilution does not exceed 15 parts per million.

3 a) The provisions of paragraph 2 shall not apply to the discharge of clean or segregated ballast.

b) The provisions of paragraph 2(a) shall not apply to the discharge of processed bilge water from machinery spaces, provided that all of the following conditions are satisfied:

1) the bilge water does not originate from cargo pump-room bilges;

2) the bilge water is not mixed with oil cargo residues;

3) the ship is making headway.

4) the oil content of the effluent without dilution does not exceed 15 parts per million.

5) the ship has in operation oil filtering equipment complying with regulation 16(5); and

6) the filter system is equipped with a stopping device which will ensure that the discharge is automatically stopped if the oil content exceeds 15 parts per million.

4 a) No discharge into the sea shall contain chemicals or other substances in quantities or concentrations which are hazardous to the marine environment or chemicals or other substances introduced for the purpose of circumventing the conditions of discharge in this regulation.

b) The oil residues which cannot be discharged into the sea in compliance with paragraph 2 or 3 shall be retained on board or discharged to reception facilities.

5 Nothing in this regulation shall prohibit a ship on a voyage only part of which is in a special area from discharging outside the special area in accordance with regulation 9.

6 Whenever visible traces of oil are observed on or below the surface of the water in the immediate vicinity of the ship or its wake, Governments of Parties to the Convention should, to the extent that they are reasonably able to do so, promptly investigate the facts bearing on the issue of whether there has been a violation of the provisions of this regulation or regulation 9. The investigation should include, in particular, the wind and sea conditions, the track and speed of the ship, other possible sources of the visible traces in the vicinity, and any relevant oil discharge records.

7 Reception facilities within special areas:

a) Mediterranean Sea, Black Sea and Baltic Sea areas:

1) The Government of each Party to the Convention of the coastline of which borders on any given special area undertakes to ensure that not later than 1 January 1977 all oil loading terminals and repair ports within the special area are provided with facilities adequate for the reception and treatment of all the dirty ballast and tank washing water from oil tankers. In addition all ports within the special area shall be provided with adequate reception facilities for other residues and oily mixtures from all ships. Such facilities shall have adequate capacity to meet the needs of the ships using them without causing undue delay.

2) The Government of each Party having under its jurisdiction entrances to seawater courses with low depth contour which might require a reduction of draught by the discharge of ballast undertakes to ensure the provision of the facilities referred to in paragraph (a)(1), but with the proviso that ships required to discharge slops or dirty ballast could be subject to some delay.

3) During the period between the entry into force of the present Convention (if earlier than 1 January 1977) and 1 January 1977 ships while navigating the special areas shall comply with the requirements of regulation 9. However, Parties the coastlines of which border any of the special areas under this subparagraph may establish a date earlier than 1 January 1977, but after the date of entry in force of the present Convention, from which the requirements of this regulation in respect of the special areas in question shall take effect:

1) if all the reception facilities required have been provided by the date so established; and

2) provided that the Parties concerned notify the Organisation of the date so established at least six months in advance, for circulation to other Parties.

4) After 1 January 1977, or the date established in accordance with subparagraph (a)(3) if earlier, each Party shall notify the Organisation for transmission to the Contracting Governments of all cases where the facilities are alleged to be inadequate.

b) Red Sea area, Gulfs area, Gulf of Aden area and North-West European waters:

1) The Government of each Party the coastline of which borders on the special areas undertakes to ensure that as soon as possible all oil loading terminals and repair ports within these special areas are provided with facilities adequate for the reception and treatment of all the dirty ballast and tank washing water from tankers. In addition, all ports within the special area shall be provided with adequate reception facilities for other residues and oily mixtures from all ships. Such facilities shall have adequate capacity to meet the needs of the ships using them without causing undue delay.

2) The Government of each Party having under its jurisdiction entrances to seawater courses with low depth contour which might require a reduction of draught by the discharge of ballast undertakes to ensure the provision of the facilities referred to in paragraph (b)(1), but with the proviso that ships required to discharge slops or dirty ballast could be subject to some delay.

3) Each Party concerned shall notify the Organisation of the measures taken pursuant to provisions of subparagraph (b(1) and (2). Upon receipt of sufficient notifications the organisation shall establish a date from which the requirements of this regulation in respect of the area in question shall take effect.

   The Organisation shall notify all Parties of the date so established no less than twelve months in advance of that date.

4) During the period between the entry into force of the present Convention and the date so established, ships while navigating in the special area shall comply with the requirements of regulation 9.

5) After such date oil tankers loading in ports in these special areas where such facilities are not yet available shall also fully comply with the requirements of this regulation. However, oil tankers entering these special areas for the purpose of loading shall make every effort to enter the area with only clean ballast on board.

6) After the date on which the requirements for the special area in question take effect, each Party shall notify the Organisation for transmission to the Parties concerned of all cases where the facilities are alleged to be inadequate.

7) At least the reception facilities as prescribed in regulation 12 shall be provided by 1 January 1977 or

one year after the date of entry into force of the present Convention, whichever occur later.

8) Notwithstanding the provisions in paragraph 7), the following rules apply to the Antarctic area:

a) The Government of each Party to the Convention at whose ports ships depart *en route* to or arrive from the Antarctic area undertakes to ensure that as soon as practicable adequate facilities are provided for the reception of all sludge, dirty ballast, tank washing water, and other oily residues and mixtures from all ships, without causing undue delay, and according to the needs of the ships using them.

b) The Government of each Party to the Convention shall ensure that all ships entitled to fly its flag, before entering the Antarctic area, are fitted with a tank or tanks of sufficient capacity on board for the retention of all sludge, dirty ballast, tank washing water and other oily residues and mixtures while operating in the area and have concluded arrangements to discharge such oily residues at a reception facility after leaving the area.

Regulation 11 Exceptions

Regulations 9 and 10 shall not apply to:

a) the discharge into the sea of oil or oily mixture necessary for the purpose of securing the safety of a ship or saving life at sea; or

b) the discharge into the sea of oil or oily mixture resulting from damage to a ship or its equipment:

1) provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimising the discharge; and

2) except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result; or

c) the discharge into the sea of substances containing oil, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimise the damage from pollution. Any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated the discharge will occur.

Regulation 12 Reception facilities

1 Subject to the provisions of regulation 10, the Government of each Party undertakes to ensure the provision at oil loading terminals, repair ports, and in other ports in which ships have oily residues to discharge, of facilities for the reception of such residues and oily mixtures as remain from oil tankers and other ships adequate to meet the needs of the ships using them without causing undue delay to ships.

2 Reception facilities in accordance with paragraph 1 shall be provided in:

a) all ports and terminals in which crude oil is loaded into oil tankers where such tankers have immediately prior to arrival completed a ballast voyage of not more than 72 hours or not more than 1,200 nautical miles;

b) all ports and terminals in which oil other than crude oil in bulk is loaded at an average quantity of more than 1,000 metric tons per day;

c) all ports having ship repair or tank cleaning facilities;

d) all ports and terminals which handle ships provided with the sludge tank(s) required by regulation 17,

e) all ports intended to receive oily bilge waters and other residues, which cannot be discharged in accordance with regulation 9; and

f) all loading ports for bulk cargoes in respect of oil residues from combination carriers which cannot be discharged in accordance with regulation 9.

3 The capacity for the reception facilities shall be as follows:

a) Crude oil loading terminals shall have sufficient reception facilities to receive oil and oily mixtures which cannot be discharged in accordance with the provisions of regulation 9(1)(a) from all oil tankers on voyages as described in paragraph 2(a).

b) Loading ports and terminals referred to in paragraph 2(b) of this regulation shall have sufficient reception facilities to receive oil and oily mixtures which cannot be discharged in accordance with the provisions of regulation 9(1)(a) from oil tankers which load oil other than crude oil in bulk.

c) All ports having ship repair yards or tank cleaning facilities shall have sufficient reception facilities to receive all residues and oil mixtures which remain on board for disposal from ships prior to entering such yards or facilities.

d) All facilities provided in ports and terminals under paragraph 2(d) shall be sufficient to receive all residues

retained according to regulation 17 from all ships that may reasonable be expected to call at such ports and terminals.

e) All facilities provided in ports and terminals under this regulation shall be sufficient to receive oily bilge waters and other residues which cannot be discharged in accordance with regulation 9.

f) The facilities provided in loading ports for bulk cargoes shall take into account the special problems of combination carriers as appropriate.

4 The reception facilities prescribed in paragraphs 2 and 3 shall be made available no later than one year from the date of entry into force of the present Convention or by 1 January 1977, whichever occurs later.

5 Each Party shall notify the Organisation for transmission to the Parties concerned of all cases where the facilities provided under this regulation are alleged to be inadequate.

Regulation 13 Oil tankers with segregated ballast tankers, dedicated clean ballast tanks and crude oil washing

Subject to the provisions of regulations 13C and 13D, oil tankers shall comply with the requirements of this regulation.

New oil tankers of 20,000 tons deadweight and above

1 Every new crude oil tanker of 20,000 tons deadweight and above and every new product carrier of 30,000 tons deadweight and above shall be provided with segregated ballast tanks and shall comply with paragraph 2, 3 and 4 or 5 as appropriate.

2 The capacity of the segregated ballast tanks shall be so determined that the ship may operate safely on ballast voyages without recourse to the use of cargo tanks for water ballast except as provided for in paragraphs 3 or 4. In all cases, however, the capacity of segregated ballast tanks shall be at least such that, in any ballast condition at any part of the voyage, including the conditions consisting of lightweight plus segregated ballast only, the ship's draughts and trim can meet each of the following requirements:

a) the moulded draft amidships (dm) in metres (without taking into account any ship's deformation) shall not be less than dm = 2.0 + 0.02 L;

b) the draughts at the forward and after perpendiculars shall correspond to those determined by the draught amidships (dm), as specified in subparagraph (a) in association with the trim by the stern of not greater than 0.015 L; and

c) in any case the draught at the after perpendicular shall not be less than that which is necessary to obtain full immersion of the propeller(s).

3 Ballast water must not be transported in cargo tanks, except:

a) on those rare voyages when weather conditions are so severe that, in the opinion of the master, it is necessary to carry additional ballast water in cargo tanks for the safety of the ship; and

b) in exceptional cases where the particular character of the operation of an oil tanker renders it necessary to carry ballast water in excess of the quantity required under paragraph 2, provided that such operation of the oil tanker falls under the category of exceptional cases as established by the Organisation. Such additional ballast water shall be processed in accordance with regulation 15 and discharged in accordance with regulation 9 and an entry shall be made in the Oil Record Book referred to in regulation 20.

4 In the case of new crude oil tankers, the additional ballast permitted in paragraph 3 shall be carried in cargo tanks only if such tanks have been crude oil washed in accordance with regulation 13B before departure from an oil unloading port or terminal.

5 Notwithstanding the provisions of paragraph 2, the segregated ballast conditions for oil tankers less than 150 metres in length shall be to the satisfaction of the Administration.

6 Every new crude oil tanker of 20,000 tons deadweight and above shall be fitted with a cargo tank cleaning system using crude oil washing. The Administration shall undertake to ensure that the system fully complies with the requirements of regulation 13B within one year after the tanker was first engaged in the trade of carrying crude oil or by the end of the third voyage carrying crude oil suitable for crude oil washing. Unless such oil tanker carries crude oil which is not suitable for crude oil washing, the oil tanker shall operate the system in accordance with the requirements of regulation 13 B.

Existing crude oil tankers of 40,000 tons deadweight and above

7 Subject to the provisions of paragraphs 8 and 9, every existing crude oil tanker of 40,000 tons deadweight and above shall be provided with segregated ballast tanks and shall comply with the requirements of paragraphs 2 and 3 from the date of entry into force of this chapter.

8 Existing crude oil tankers referred to in paragraph 7 may, in lieu of being provided with segregated ballast tanks, operate with a cargo tank cleaning procedure using crude oil washing in accordance with regulation 13B, unless the crude oil tanker is intended to carry crude oil which is not suitable for crude oil washing.

9 Existing crude oil tankers referred to in paragraphs 7 or 8 may, in lieu of being provided with segregated ballast tanks or operating with a cargo tank cleaning procedure using crude oil washing, operate with dedicated clean ballast tanks in accordance with the provisions of regulation 13A for the following period:

a) for crude oil tankers of 70,000 tons deadweight and above, until two years after the date of entry into force of this chapter; and

b) for crude oil tankers of 40,000 tons deadweight and above but below 70,000 tons deadweight, until four years after the date of entry into force of this chapter.

Existing product carriers of 40,000 tons deadweight and above

10 From the date of entry into force of this chapter, every existing product carrier of 40,000 tons deadweight and above shall be provided with segregated ballast tanks and shall comply with the requirements of paragraphs 2 and 3 or, alternatively, operate with dedicated clean ballast tanks in accordance with regulation 13A.

An oil tanker qualified as a segregated ballast oil tanker

11 Any oil tanker which is not required to be provided with segregated ballast tanks in accordance with paragraphs 1, 7 or 10 may, however, be qualified as a segregated ballast tanker, provided that it complies with the requirements of paragraphs 2 and 3, or paragraph 5, as appropriate.

Regulation 13 A Requirements for oil tankers with dedicated clean ballast tanks

1 An oil tanker operating with dedicated clean ballast tanks in accordance with the provisions of regulation 13(9) or (10) shall have adequate tank capacity, dedicated solely to the carriage of clean ballast as defined in regulation 1(16) to meet the requirements of regulation 13(2) and (3).

2 The arrangements and operational procedures for dedicated clean ballast tanks shall comply with the requirements established by the Administration. Such requirements shall contain at least all the provisions of the Specifications for Oil Tankers with Dedicated Clean Ballast Tanks adopted by the International Conference on Tanker Safety and Pollution Prevention, 1978, in resolution 14 and as may be revised by the Organisation.

3 Every oil tanker operating with dedicated clean ballast tanks shall be equipped with an oil content meter, approved by the Administration on the basis of specifications recommended by the Organisation[20)], to enable supervision of the oil content in ballast water being discharged. The oil content meter shall be installed no later than at the first scheduled shipyard visit of the tanker following the entry into force of this chapter. Until such time as the oil content meter is installed, it shall immediately before discharge of ballast be established by examination of the ballast water from dedicated tanks that no contamination with oil has taken place.[21)]

4 Every oil tanker operating with dedicated clean ballast tanks shall be provided with a Dedicated Clean Ballast Tank Operation Manual,[22)] detailing the system and specifying operational procedures. Such a Manual shall be to the satisfaction of the Administration and shall contain all the information set out in the Specifications referred to in paragraph 2. If an alteration

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20) Refer to the Revised specifications for oil tankers with dedicated clean ballast tanks adopted by the Organisation by resolution A.495 (XII)

21) Refer to the Recommendation on international performance and test specifications for oily-water separating equipment and oil content metres approved by the Organisation by resolution A. 393 (X).

22) See resolution A.495 (XII) for the standard format of the manual.

affecting the dedicated clean ballast tank system is made, the Operation Manual shall be revised accordingly.

Regulation 13 B Requirements for crude oil washing

1 Every crude oil washing system required to be provided in accordance with regulation 13(6) and (8) shall comply with the requirements of this regulation.

2 The crude oil washing installation and associated equipment and arrangements shall comply with the requirements established by the Administration. Such requirements shall contain at least all the provisions of the Specifications for the Design, Operation and Control of Crude Oil Washing Systems adopted by the International Conference on Tanker Safety and Pollution Prevention, 1978, in resolution 15, and as may be revised by the Organisation.[23)]

3 An inert gas system shall be provided in every cargo tank and slop tank in accordance with the appropriate regulations in Chapter II-2.

4 With respect to the ballasting of cargo tanks, sufficient cargo tanks shall be crude oil washed prior to each ballast voyage in order that, taking into account the tanker's trading pattern and expected weather conditions, ballast water is put only into cargo tanks which have been crude oil washed.

5 Every oil tanker operating with crude oil washing systems shall be provided with an Operations and Equipment Manual[24)] detailing the system and equipment and specifying operational procedures. Such a Manual shall be to the satisfaction of the Administration and shall contain all the information set out in the Specifications referred to in paragraph 2. If an alteration affecting the crude oil washing system is made, the Operations and Equipment Manual shall be revised accordingly.

[23)] Refer to the operation and control of crude oil washing systems in resolution A.446(XI), as amended by resolution A.496 (XII).

[24)] Refer to resolution MEPC. 3(XII), Standard format of the COW Manual.

Regulation 13 C Existing tankers engaged in specific trades

1 Subject to the provisions of paragraph 2, regulation 13(7) to (10) shall not apply to an existing oil tanker solely engaged in specific trades between:

a) ports or terminals within a State Party to the present Convention; or

b) ports or terminals of State Parties to the present Convention, where

1) the voyage is entirely within a special area as defined in regulation 10(1); or

2) the voyage is entirely within other limits designed by the Organisation.

2 The provisions of paragraph 1 shall only apply when the ports or terminals where cargo is loaded on such voyages are provided with reception facilities adequate for the reception and treatment of all the ballast and tank washing water from oil tankers using them and all the following conditions are complied with:

a) subject to the exceptions provided for in regulation 11, all ballast water, including clean ballast water, and tank washing residues are retained on board and transferred to the reception facilities and the appropriate entry in the required Oil Record Book is made and endorsed by the competent port State authority;

b) agreement has been reached between the Administration and the Governments of the port States referred to in subparagraph 1(a) or (b) concerning the use of an existing oil tanker for a specific trade;

c) the adequacy of the reception facilities in accordance with the relevant provisions at the ports or terminals referred to above, for the purpose of this regulation, is approved by the Governments of the State Parties to the MARPOL Convention within which such ports or terminals are situated; and

d) the International Oil Pollution Prevention Certificate is endorsed to the effect that the oil tanker is solely engaged in such specific trade.

Regulation 13 D Existing oil tankers having special ballast arrangements

1 Where an existing oil tanker is so constructed or operates in such a manner that it complies at all times with the draught and trim requirements set out in regulation 13(2) without recourse to the use of ballast water, it shall be deemed to comply with the

segregated ballast tank requirements referred to in regulation 13(7) provided that all of the following conditions are complied with:

a) operational procedures and ballast arrangements are approved by the Administration,

b) agreement is reached between the Administration and the port States Parties concerned when the draught and trim requirements are achieved through an operational procedure; and

c) the International Oil Pollution Prevention Certificate is endorsed to the effect that the oil tanker is operating with special ballast arrangements.

2 In no case shall ballast water be carried in oil tanks except on those rare voyages when weather conditions are so severe that, in the opinion of the master, it is necessary to carry additional ballast water in cargo tanks for the safety of the ship. Such additional ballast water shall be processed and discharged in compliance with regulation 9 and in accordance with the requirements of regulation 15, and entry shall be made in the Oil Record Book referred to in regulation 20.

3 An Administration which has endorsed a Certificate in accordance with subparagraph 1(c) shall communicate to the Organisation the particulars thereof for circulation to the Parties to the present Convention.

Regulation 13E Protective location of segregated ballast tanks

1 In every new crude oil tanker of 20,000 tons deadweight and above and every new product carrier of 30,000 tons deadweight and above, the segregated ballast tanks required to provide the capacity to comply with the requirements of regulation 13 which are located within the cargo tank length, shall be arranged in accordance with the requirements of paragraphs 2, 3 and 4 to provide a measure of protection against oil outflow in the event of grounding or collision.

2 Segregated ballast tanks and spaces other than oil tanks within the cargo tank length (L_t) shall be so arranged as to comply with the following requirement:

$$\sum PA_C + \sum PA_S \geq J\left[L_t(B + 2D)\right]$$

where PA_c = the side shell area in square metres for each segregated ballast tank or space other than an

oil tank based on projected moulded dimensions

PA_s = the bottom shell area in square metres for each such tank or space based on projected moulded dimensions

L_t = length in metres between the forward and after extremities of the cargo tanks

B = maximum breadth of the ship in metres as defined in regulation 1(21)

D = moulded depth in metres measured vertically from the top of the keel to the top of the freeboard deck beam at side amidships. In ships having rounded gunwales, the moulded depth shall be measured to the point of intersection of the moulded lines of the deck and side shell plating, the lines extending as through the gunwale were of angular design

J = 0.45 for oil tankers of 20,000 tons deadweight, 0.30 for oil tankers of 200,000 tons deadweight and above, subject to the provisions of paragraph 3. For intermediate values of deadweight the value of *J* shall be determined by linear interpolation.

Whenever symbols given in this paragraph appear in this regulation, they have the meaning as defined in this paragraph.

3 For tankers of 200,000 tons deadweight and above the value of *J* shall be reduced as follows:

$J_{reduced}$ = the greater of the following two values:

$$J - \left(\left(a - \frac{Oc + Os}{4\ OA} \right) \text{or } 0.2 \right)$$

where a = 0.25 for oil tankers of 200,000 tons deadweight

a = 0.40 for oil tankers of 300,000 tons deadweight

a = 0.50 for oil tankers of 420,000 tons deadweight and above.

For intermediate values of deadweight the value of *a* shall be determined by linear interpolation.

Oc = as defined in regulation 23(1)(a)

Os = as defined in regulation 23(1)(b)

Oa = the allowable oil outflow as required by regulation 24(2).

4 In the determination of PA_c and PA_s for segregated ballast tanks and spaces other than oil tanks the following shall apply:

a) the minimum width of each wing tank or space either of which extends for the full depth of the ship's side or from the deck to the top of the double bottom shall be not less than 2 metres. The width shall be measured inboard from the ship's side at right angles to the centre line. Where a lesser width is provided the wing tank or space shall not be taken into account when calculating the protecting area PA_c; and

b) the minimum vertical depth of each double bottom tank shall be B/15 or 2 metres, whichever is the lesser. Where a lesser depth is provided the bottom tank or space shall not be taken into account when calculating the protecting area PA_s.

The minimum width and depth of wing tanks and double bottom tanks shall be measured clear of the bilge area and, in the case of minimum width, shall be measured clear of any rounded gunwale area.

Regulation 13F Prevention of oil pollution in the event of collision or stranding

1 This regulation applies to oil tankers of 600 tons deadweight and above:

a) for which the building contract is placed on or after 6 July 1993, or

b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 6 January 1994, or

c) the delivery of which is on or after 6 July 1996, or

d) which have undergone a major conversion:

i) for which the contract is placed after 6 July 1993; or

ii) in the absence of a contract, the construction work of which is begun after 6 January 1994; or

iii) which is completed after 6 July 1996.

2 Every oil tanker of 5,000 tons deadweight and above shall:

a) in lieu of regulation 13E, as applicable, comply with the requirements of paragraph 3 unless it is subject to the provisions of paragraphs 4 and 5; and

b) comply, if applicable, with the requirements of paragraph 6.

3 The entire cargo length shall be protected by ballast tanks or spaces other than cargo and fuel oil tanks as follows:

a) Wing tanks or spaces

Wing tanks or spaces extend either for the full depth of the ship's side or from the top of the double bottom to the uppermost deck, disregarding a rounded gunwale where fitted. They shall be arranged such that the cargo tanks are located inboard of the moulded line of the side shell plating, nowhere less than the distance *w* which, as shown in Figure 1, is measured at any cross-section at right angles to the side shell, as specified below:

The smaller value of the following two values:

$$w = 0.5 + \frac{DW}{20{,}000} \text{ (metres) or } 2 \text{ metres}$$

The minimum value of w = 1 metre.

b) Double bottom tanks or spaces

At any cross-section the depth of each double bottom tank or space shall be such that the distance *h* between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating as shown in Figure 1 is not less than specified below:

The smaller of the following two values:

h = B/15 (metres) or 2.0 metres

The minimum value of *h* = 1.0 metre.

c) Turn of the bilge area or at locations without a clearly defined turn of the bilge

When the distances *h* and *w* are different, the distance *w* shall have preference at levels exceeding 1.5*h* above the baseline as shown in Figure 1.

d) The aggregate capacity of ballast tanks

On crude oil tankers of 20,000 tons deadweight and above and product carriers of 30,000 tons deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and afterpeak tanks shall not be less than the capacity of segregated ballast tanks necessary to meet the requirements of regulation 13. Wing tanks or spaces and double bottom tanks used to meet the requirements of regulation 13 shall be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder

bending stress, trim, etc. may be located anywhere within the ship.

e) Suction wells in cargo tanks

Section wells in cargo tanks may protrude into the double bottom below the boundary line defined by the distance *h* provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not less than 0.5*h*.

f) Ballast and cargo piping

Ballast piping and other piping such as sounding and vent piping to ballast tanks shall not pass through cargo tanks. Cargo piping and similar piping to cargo tanks shall not pass through ballast tanks. Exemptions to this requirements may be granted for short lengths of piping, provided that they are completely welded or equivalent.

4 a) Double bottom tanks or spaces as required by paragraph 3(b) may be dispensed with, provided that the design of the tanker is such that the cargo and vapour pressure exerted on the bottom shell plating forming a single boundary between the cargo and the sea does not exceed the external hydrostatic water pressure, as expressed by the following formula:

$$f \times h_c \times \rho_c \times g + 100\Delta p \leq d_n \times \rho_s \times g$$

where:

h_c = height of cargo in contact with the bottom shell plating in metres

ρ_c = maximum cargo density in t/m^3

d_n = minimum operating draught under any expected loading condition in metres

ρ_s = density of seawater in t/m^3

Δp = maximum set pressure of pressure/vacuum valves in bars

f = safety factor = 1.1

g = standard acceleration of gravity (9.81 m/s^2)

b) Any horizontal partition necessary to fulfil the above requirements shall be located at a height of not less than B/6 or 6 metres, whichever is the lesser, but not more than 0.6D above the baseline where D is the moulded depth amidships.

c) The location of wing tanks or spaces shall be as defined in paragraph 3(a) except that, below a level 1.5*h* above the

baseline where *h* is defined in paragraph 3(b), the cargo tank boundary line may be vertical down to the bottom plating, as shown in Figure 2.

5 Other methods of design and construction of oil tankers may also be accepted as alternatives to the requirements prescribed in paragraph 3, provided that such methods ensure at least the same level of protection against oil pollution in the event of collision or stranding and are approved in principle by the Marine Environment Protection Committee based on guidelines developed by the Organisation.

6 For oil tankers of 20,000 tons deadweight and above the damage assumptions prescribed in regulation 25(2)(b) shall be supplemented by the following assumed bottom raking damage:

a) longitudinal extent:

i) ships of 75,000 tons deadweight and above: 0.6L measured from the forward perpendicular

ii) ships of less than 75,000 tons deadweight: 0.4L measured from the forward perpendicular

b) transverse extent: B/3 anywhere in the bottom

c) vertical extent: damage to the outer hull.

7 Oil tankers of less than 5,000 tons deadweight shall:

a) at least be fitted with double bottom tanks or spaces having such a depth that the distance *h* specified in paragraph 3(b) complies with the following:

h = B/15 (metres) with a minimum value of 0.76 metres,

in the turn of the bilge area and at locations without a clearly defined turn of the bilge, the cargo tank boundary line shall run parallel to the line of the midship flat bottom as shown in Figure 3; and

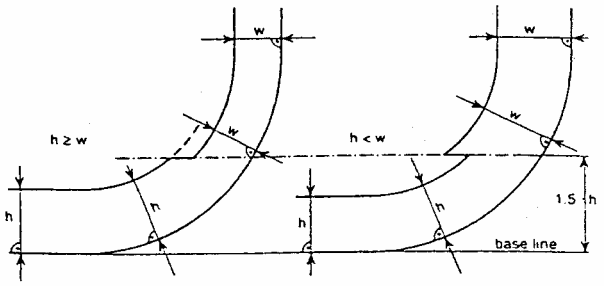
b) be provided with cargo tanks so arranged that the capacity of each cargo tank does not exceed 700 m^3 unless wing tanks or spaces are arranged in accordance with paragraph 3(a) complying with the following:

$$w = 0.4 + \frac{2.4DW}{20{,}000} \text{ (metres)}$$

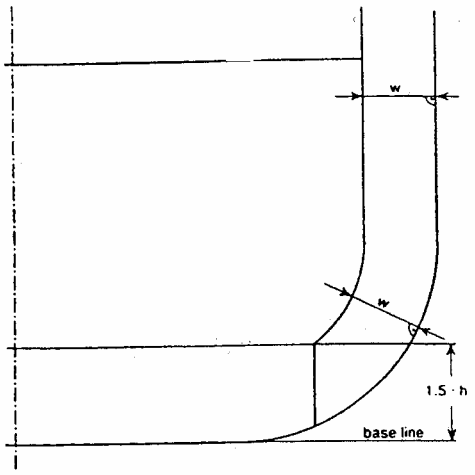
with a minimum value of $w = 0.76$ metres.

8 Oil shall not be carried in any space extending forward of a collision bulkhead located in accordance with regulation II-1/11 of the International Convention for the Safety of Life at Sea, 1974, as amended. An oil tanker that is not required to have a collision bulkhead in accordance with that regulation shall not carry oil in any space extended forward of the transverse plane perpendicular to the centreline that is located as if it were a collision bulkhead located in accordance with that regulation.

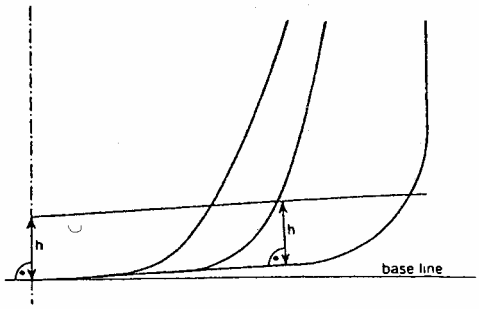
9 In approving the design and construction of oil tankers to be built in accordance with these provisions, Administrations shall have due regard to the general safety aspects including the need for the maintenance and inspection of wing and double bottom tanks or spaces.



Figur 1 - Lasttankenes grænselinier jf. stk. 3



Figur 2 - Lasttankenes grænselinier jf. stk. 4



Figur 3 - Lasttankenes grænselinier jf. stk. 7

Captions:

Figure 1 – Cargo tank boundary lines for the purpose of paragraph 3

Figure 2 – Cargo tank boundary lines for the purpose of paragraph 4

Figure 3 – Cargo tank boundary lines for the purpose of paragraph 7

Regulation 13G Prevention of oil pollution in the event of collision or stranding – Measures for existing tankers

1 Unless expressly provided otherwise, this regulation shall:

a) apply to oil tankers of 5,000 tons deadweight and above which are contracted, the keels of which are laid, or which are delivered before the date specified in regulation 13F(1);

b) not apply to oil tankers complying with regulation 13F which are contracted, the keels of which are laid, or are delivered before the date specified in 13F(1);

c) not apply to oil tankers covered by subparagraph (a) above which comply with regulation 13F(3)(a) and (b), regulation 13F(4), or regulation 13F(5), except for the requirement concerning the distance between the cargo tank boundaries and the ship side and bottom plating. In such cases, the distance to the side shall not be less than the distance specified in the International Bulk Chemical Code (the IBC Code) for type 2 cargo tank arrangements and the distance to the bottom protection shall comply with the provisions of regulation 13E(4)(b).

2 for the purpose of this regulation:

a) "Heavy diesel oil" means marine diesel oil, other than those distillates of which more than 50% by volume distils at a temperature not exceeding 340°C when tested by a method acceptable to the Organisation;[25)]

b) "Fuel oil" means heavy distillates or residues from crude oil or blends of such materials intended for use as a fuel for the production of heat or power of a quality equivalent to the specifications acceptable to the Organisation.[26)]

3 In this regulation, oil tankers are subdivided into the following categories:

a) "Category 1 oil tanker" is an oil tanker of 20,000 tons deadweight and above carrying crude oil, fuel oil, heavy diesel oil or lubricating oil as cargo or of 30,000 tons deadweight and above carrying types of oil other than those

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25) Refer to the American Society for Testing and Material's Standard Test Method (Designation D86).

26) Refer to the American Society for Testing and Material's Specification for Number Four Fuel Oil Design (Designation D396) or heavier.

referred to above as cargo which do not fulfil the requirements for new oil tankers as defined in regulation 1(26);

b) "Category 2 oil tanker" is an oil tanker of 20,000 tons deadweight and above carrying crude oil, fuel oil, heavy diesel oil or lubricating oil as cargo or of 30,000 tons deadweight and above carrying types of oil other than those referred to above which fulfil the requirements for new oil tankers as defined in regulation 1(26);

c) "Category 3 oil tanker" is an oil tanker of 5,000 tons deadweight and above, but under the deadweight that is specified in subparagraph (a) or (b).

4 An oil tanker that is covered by this regulation shall comply with the requirements of regulation 13F no later than 5 April 2005 or on the anniversary date of the ship's delivery in the year specified in the following table:

Oil tanker category	**Date or year**
Category 1	2005, 5 April, for ships delivered on or before 5 April.1982 2005 for ships delivered after 5 April 1982
Category 2 and Category 3	2005, 5 April for ships delivered on or before 5 April 1977 2005 for ships delivered after 5 April 1977 but before 1 January 1978 2006 for ships delivered in 1978 or 1979 2007 for ships delivered in 1980 or 1981 2008 for ships delivered in 1982 2009 for ships delivered in 1983 2010 for ships delivered in 1984 or later

5 Notwithstanding the provisions in paragraph 4, the Administration may allow a category 2 or category 3 oil tanker constructed with only a double bottom or double sides which is not used for the carriage of oil and which extends the full length of the cargo space or with a double hull which is not used for the carriage of oil and which extends the full length of the cargo space but which does not comply with the conditions for exemption from the provisions in paragraph 1(c) to continue operating after the date specified in paragraph 4 provided :

a) the ship was in traffic on 1 July 2001;

b) it has been demonstrated to the satisfaction of the Administration that the ship complies with the above requirements;

c) the above conditions for the ship remain unchanged; and

d) such continued operation ceases after the date on which the ship reaches 25 years from its date of delivery;

6 A category 2 or 3 oil tanker of 15 years or more from its delivery date shall comply with the provisions in the Condition Assessment Scheme (CAS), adopted by the Marine Environment Protection Committee by MEPC resolution 94(46) including the amendments which have been adopted and entered into force in accordance with Article 16 of the MARPOL Convention on procedures for amendments in annex to a chapter.

7 The Administration may allow a category 2 or 3 oil tanker to continue operating after the dates specified in paragraph 4 provided that in the opinion of the Administration the Condition Assessment Scheme (CAS) shows a satisfactory result and provided that such operation does not take place after the anniversary date of the ship's delivery in 2015 or after the ship's 25th anniversary day of the ship's delivery, whichever is earlier.

8 a) When the Administration in a State allows a ship which is entitled to sail under its flag to use paragraph 5 or allows, suspends, recalls or rejects the use of paragraph 7, it shall immediately thereafter notify the Organisation for circulation to the State Parties.

b) The State Parties are entitled to refuse entry to ports or offshore terminals under their jurisdiction for oil tankers that are sailing in accordance with the provisions in

i) paragraph 5 after the anniversary date of the ship's delivery in 2015; or

ii) paragraph 7

In such cases, the State in question shall notify the Organisation for circulation to the State Parties.

Regulation 13H Prevention of oil pollution from oil tankers carrying heavy grade oil as cargo

1 This regulation shall:

a) apply to oil tankers of 600 tons deadweight or above carrying heavy grade oil as cargo regardless of the date of delivery; and

b) not apply to oil tankers covered by subparagraph (a) above and which comply with regulation 13F(3)(a) and (b), or regulation 13F(4) or regulation 13F(5), except for the requirement concerning the distance between the cargo tank boundaries and the ship's side and bottom plating. In such cases, the distance to the side shall not be less than the distance specified in the International Bulk Chemical Code (the IBC Code) for type 2 cargo tank arrangements and the distance to the bottom protection shall comply with the provisions of regulation 13E(4)(b).

2 For the purposes of this regulation, "heavy grade oil" means:

a) crude oils having a density of 900 kg/m^3 at 15^{o}C;

b) fuel oils having either a density higher than 900 kg/m^3 at 15^{o}C or a kinematic viscosity higher than 180 mm^2/s at 50 ^{o}C;

c) bitumen, tar and their emulsions.

3 Oil tankers subject to this regulation covered by this regulation shall in addition to complying with the provisions of paragraphs 4 to 8 also comply with the relevant provisions in regulation 13G.

4 Oil tankers subject to this regulation shall having regard to the provisions in paragraphs 5, 6 and 7:

a) if the deadweight is 5,000 tons or above comply with the requirements of regulation 13F no later than 5 April 2005; or

b) if the deadweight is 600 tons or above but less than 5,000 tons, be fitted with a double bottom tank or space in accordance with the provisions in regulation 13F(7)(a) and in compliance of the requirements for the distance *w* referred to in regulation 13F(7)(b) no later than the anniversary date of the ship's delivery in 2008.

5 For oil tankers with a deadweight of 5,000 tons and above carrying heavy grade oil which were constructed with a double bottom or double sides which are not used for the carriage of oil and which extend the full length of the cargo space, or with a double hull which is not used for the carriage of oil and which extends the full length of the cargo space but which does not comply with the conditions for exemption from the provisions in

paragraph 1(b), the Administration may allow such ships to continue operating after the date specified in paragraph 4, provided that:

a) the ship was in operation on 4 December 2003;

b) it has been demonstrated to the satisfaction of the Administration that the ship complies with the above requirements;

c) the above conditions for the ship remain unchanged; and that

d) such operation ceases after the date on which the ship reaches 25 years after its date of delivery.

6 a) The Administration may allow an oil tanker of 500 tons deadweight or above carrying crude oil with a density at 15°C higher than 900 kg/m^3 but less than 945 kg/m^3 to continue in operation after the date specified in paragraph 4(a) provided that in the opinion of the Administration the Condition Assessment Scheme (CAS) referred to in regulation 13G(6) shows a satisfactory result having regard to the ship's size, age, area of operation and construction and provided that such operation ceases after the ship's 25th anniversary date of its delivery.

b) The Administration may allow an oil tanker of 600 tons deadweight or above but less than 5,000 tons carrying heavy grade oil to continue in operation after the date specified in paragraph 4(b), provided that in the opinion of the Administration the ship is suitable for this purpose having regard to the ship's size, age, area of operation and construction and provided that such operation ceases after the 25th anniversary date of its delivery.

7 An oil tanker of 600 tons deadweight or above carrying heavy grade oil may be exempted by the Administration from the provisions in this regulation if the oil tanker:

a) is either engaged on a voyage in an area under its jurisdiction or is operating as a floating storage unit for heavy grade oil within an area under its jurisdiction; or

b) is either engaged on a voyage in an area under the jurisdiction of another State Party or is operating as a floating storage unit for heavy grade oil under the jurisdiction of another State Party provided that the State Party under whose jurisdiction the oil tanker is in operation accepts such operation.

8) a) When the Administration in a State Party allows, suspends, recalls or refuses the use of paragraph 5, 6 or 7

in respect of a ship under its flag, it shall immediately inform the Organisation the circumstances thereof.

b) In accordance with the provisions of international law, the State Parties are entitled to refuse to allow an oil tanker operating in accordance with the provisions of paragraph 5 or 6 to call at ports or offshore terminals under their jurisdiction or to refuse to allow the transfer of heavy grade oil between ships in areas under their jurisdiction, except where it is necessary for a ship's safety or in order to save life at sea. In such cases, the State Party shall inform the Organisation of the circumstances for circulation to the State Parties.

Regulation 14 Segregation of oil and water ballast and carriage of oil in forepeak tanks

1 Except as provided in paragraph 2, in news ships of 4,000 tons gross tonnage and above other than oil tankers, and in new oil tankers of 150 tons gross tonnage and above, no ballast water shall be carried in any oil fuel tank.

2 Where abnormal conditions or the need to carry large quantities of oil fuel render it necessary to carry ballast water which is not a clean ballast in any oil fuel tank, such ballast water shall be discharged to reception facilities or into the sea in compliance with regulation 9 using the equipment specified in regulation 16(2) and an entry shall be made in the Oil Record Book to this effect.

3 All other ships shall comply with the requirements of paragraph 1 as far as is reasonable and practicable.

4 In a ship of 400 tons gross tonnage and above, for which the building contract is placed after 1 January 1982 or, in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction after 1 July 1982, oil shall not be carried in a forepeak tank or a tank forward of the collision bulkhead.

5 Other ships shall comply with the provision in paragraph 4 as far as is reasonable and practicable.

Regulation 15 Retention of oil on board

1 Subject to the provisions of paragraphs 5 and 6, oil tankers of 150 tons gross tonnage and above shall be provided with arrangements in accordance with the requirements of paragraphs 2 and 3, provided that in the case of existing tankers the requirements for oil discharge monitoring and control systems and slop tank arrangements shall apply three years after the date of entry into force of the MARPOL Convention.

2 a) Adequate means shall be provided for cleaning the cargo tanks and transferring the dirty ballast residue and tanks washings from the cargo tanks into a slop tank approved by the Administration. In existing oil tankers, any cargo tank may be designated as a slop tank.

b) In this system arrangements shall be provided to transfer the waste into a slop tank or combination of slop tanks in such a way that any effluent discharged into the sea will be such as to comply with the provisions of regulation 9.

c) The arrangements of the slop tank or combination of slop tanks shall have a capacity necessary to retain the slop generated by tank washings, oil residues and dirty ballast residues. The total capacity of the slop tank or tanks shall not be less than 3% of the oil carrying capacity of the ship, except that the Administration may accept:

1) 2% for such oil tankers where the tank washing arrangements are such that once the slop tank or tanks are charged with washing water, this water is sufficient for tank washing and, where applicable, for providing the driving fluid for eductors, without the introduction of additional water into the system,

2) 2% where segregated ballast tanks or dedicated clean ballast tanks are provided in accordance with regulation 13 or where a cargo tank cleaning system using crude oil washing is fitted in accordance with regulation 13B. The capacity may be further reduced to 1.5% for such oil tankers where the tank washing arrangements are such that once the slop tank or tanks are charged with washing water, this water is sufficient for tank washing and, where applicable, for providing the driving fluid for eductors without the introduction of additional water into the system,

3) 1% for combination carriers where oil cargo is only carried in tanks with smooth walls. This capacity may be further reduced to 0.8% where the tank washing arrangements are such that, once the slop tank or tanks

are charged with water, this water is sufficient for tank washing and, where applicable, for providing driving fluid for eductors, without the introduction of additional water into the system. New oil tankers of 70,000 tons deadweight and above shall be provided with at least two slop tanks.

d) Slop tanks shall be designed, particularly in respect of the position of inlets, outlets, baffles and weirs where fitted, so as to avoid excessive turbulence and entrainment of oil or emulsion with the water.

3 a) An oil discharge monitoring and control system approved by the Administration shall be fitted. In considering the design of the oil content meter to be incorporated into the system, the Administration shall have regard to the specification recommended by the Organisation[27)].

The system shall be fitted with a recording device to provide a continuous record of the discharge in litres per nautical mile and total quantity discharged, or the oil content and rate of discharge. This record shall be identifiable as to time and date and shall be kept for at least three years. The oil discharge monitoring and control system shall come into operation when there is any discharge of effluent into the sea and shall be such as will ensure that any discharge of oil mixture is automatically stopped when the instantaneous rate of discharge of oil exceeds that permitted by regulation 9(1)(a). Any failure of this monitoring and control system shall stop the discharge and be noted in the Oil Record Book.

A manually operated alternative shall be provided and may be used in the event of such failure, but the defective unit shall be made operable as soon as possible. The port State authority may allow the tanker with a defective unit to undertake one ballast voyage before proceeding to a repair port. The oil discharge monitoring and control system shall be designed and installed in compliance with the guidelines and specifications for oil discharge monitoring and control systems for oil tankers developed by the Organisation[28)]. The Administration may accept such specific arrangements as detailed in the Guidelines and Specifications.

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27) Refer to the Recommendation on international performance specifications for oily-water separating equipment and oil content meters adopted by the Organisation by resolution A. 393(X).

28) Refer to IMO's resolution A. 393(X) for ships built before 2 October 1986 and to resolution A. 586(14) for ships built after 2 October 1986.

b) Effective oil/water interface detectors approved by the Administration shall be provided for a rapid and accurate determination of the oil/water interface in slop tanks and shall be available for use in other tanks where the separation of oil and water is effected and from which it is intended to discharge effluent direct to the sea.

c) Instructions as to the operation of the system shall be in accordance with an operational manual approved by the Administration. They shall cover manual as well as automatic operations and shall be intended to ensure that at no time shall oil be discharged except in compliance with the conditions specified in regulation 9 [29)].

4 The requirements in paragraphs 1, 2 and 3 shall not apply to oil tankers of less than 150 tons gross tonnage, for which the control of discharge of oil under regulation 9 shall be effected by the retention of oil on board with subsequent discharge of all contaminated washings to reception facilities. The total quantity of oil and water used for washing and returned to a storage tank shall be recorded in the Oil Record Book. This total quantity shall be discharged to reception facilities unless adequate arrangements are made to ensure that any effluent which is allowed to be discharged into the sea is effectively monitored to ensure that the provisions of regulation 9 are complied with.

5 a) The Administration may waive the requirements of paragraphs 1, 2 and 3 for any oil tanker which engages exclusively on voyages both of 72 hours or less in duration and within 50 miles from the nearest land, provided that the oil tanker is engaged exclusively in trades between ports or terminals within a State Party to the present Convention. Any such waiver shall be subject to the requirement that the oil tanker shall retain on board all oily mixtures for subsequent discharge to reception facilities and to the determination by the Administration that facilities available to receive such oily mixtures are adequate.

b) The Administration may waive the requirements of paragraph 3 for oil tankers other than those referred to in subparagraph a) in cases where:

i) the tanker is an existing oil tanker of 40,000 tons deadweight or above, as referred to in regulation 13C(1), engaged in specific trades, and the conditions specified in regulation 13C(2) are complied with; or

[29)] Refer to Clean Seas Guide for Oil Tankers, published by the International Chamber of Shipping and Oil Companies International Marine Forum.

ii) the tanker is engaged exclusively in one or more of the following categories of voyages:

1) voyages within special areas; or

2) voyages within 50 nautical miles from the nearest land outside special areas where the tanker is engaged in:

aa) trades between ports or terminals of a State Party to the present Convention; or

bb) restricted voyages as determined by the Administration, and of 72 hours or less in duration provided that all of the following conditions are complied with:

1) all oily mixtures are retained on board for subsequent discharge to reception facilities,

2) for voyages specified in subparagraph (b)(ii)(2), the Administration has determined that adequate reception facilities are available to receive such oily mixtures in those oil loading ports or terminals the tanker calls at,

3) the International Oil Pollution Prevention Certificate, when required, is endorsed to the effect that the ship is exclusively engaged in one or more of the categories of voyages specified in subparagraphs (b)(ii)(1) and (b)(ii)(2)(bb); and

4) the quantity, time, and port of discharge are recorded in the Oil Record Book.

6 Where in the view of the Organisation equipment required by regulation 9(1)(a)(6) and specified in subparagraph 3(a) is not obtainable for the monitoring of discharge of light refined products (white oils), the Administration may waive compliance with such requirement, provided that discharge shall be permitted only in compliance with procedures established by the Organisation which shall satisfy the conditions of regulation 9(1)(a), except the obligation to have an oil discharge monitoring and control system in operation. The Organisation shall review the availability of equipment at intervals not exceeding 12 months.

7 The requirements of paragraphs 1 – 3 shall not apply to oily tankers carrying asphalt or other products subject to the provisions of this chapter, which through their physical properties inhibit effective product/water separation and monitoring, for which the control of discharge under regulation 9 shall be effected by the retention of residues on board with discharge of all contaminated washings to onshore reception facilities.

Regulation16 Oil discharge monitoring and control system and oil filtering equipment

1 Any ship of 400 tons gross tonnage and above but less than 10,000 tons gross tonnage shall be fitted with oil filtering equipment complying with paragraph 4 of this regulation. Any such ship which carries large quantities of oil fuel shall comply with paragraph 2 of this regulation or paragraph 1 of regulation 14.

2 Any ship of 10,000 tons gross tonnage and above shall be provided with oil filtering equipment, and with arrangements for an alarm and for automatically stopping any discharge of oil mixture when the oil content in the effluent exceeds 15 parts per million.

3 a) The Administration may waive the requirements of paragraphs 1 and 2 of this regulation for any ship engaged exclusively on voyages within special areas provided that all of the following conditions are complied with:

i) the ship is fitted with a holding tank having a volume adequate, to the satisfaction of the Administration, for the total retention on board of the oily bilge water;

ii) all oily bilge water is retained on board for subsequent discharge to onshore reception facilities,

iii) the Administration has determined that adequate reception facilities are available to receive such oily bilge water in a sufficient number of ports or terminals the ship calls at;

iv) the International Oil Pollution Prevention Certificate, when required, is endorsed to the effect that the ship is exclusively engaged on the voyages within special areas; and

v) the quantity, time, and port of the discharge are recorded in the Oil Record Book.

b) The Administration shall ensure that ships of less than 400 tons gross tonnage are equipped, as far as is practicable, to

retain on board oil or oily mixtures or discharge them in accordance with regulation 9(1)(b).

c) In order to comply with the requirements of subparagraph (b):

.1 new ships with a gross tonnage of less than 400 and existing ships with a gross tonnage of less than 400 but over 24 metres in length shall be fitted with:

.1.1 an onshore connection with a pump and an oil/water separation system and, where appropriate, alarm equipment which enables the treatment of the oily water from the machinery space bilges and the discharge of this water in compliance with the requirements of regulation 9 and 10 or with;

.1.2 a holding tank having a volume of at least 1 m^3 and pump and onshore connection such that the oily water from the machinery space bilges can be retained on board for subsequent discharge to onshore reception facilities or with;

.1.3 other systems as may be approved by the Danish Maritime Authority and an onshore connection with pump.

.1.4 All ships using centrifuges or similar for the treatment of oil fuels and lubricating oils shall be fitted with a sludge tank in compliance of regulation 17(3).

.1.5 Existing ships shall comply with the provisions no later than 2 October 1989.

.2 Existing ships under 24 metres in length shall as a minimum have installed arrangements (freeing ports) on the suction connection pieces of the discharge pipes to segregate water and oil and an arrangement to collect the oil and an associated retention capability.

4 Oil filtering equipment referred to in paragraph 1 of this regulation shall be of a design approved by the Administration and shall be such as will ensure that any oily mixture discharged into the sea after passing through the system has an oil content not exceeding 15 parts per million. In considering the design of such equipment, the Administration shall have regard to the specification recommended by the Organisation.[30)]

[30)] Refer to the Recommendation on International Performance and Test Specification for Oily Water Separating Equipment and Oil Content Meters adopted by the Organisation by resolution A.393(X) or Guidelines and specifications for pollution prevention equipment for machinery space bilges of ships, approved by the Organisation by resolution MEPC.60(33) or Revised guidelines and specifications for

5 Oil filtering equipment referred to in paragraph 2 of this regulation shall be of a design approved by the Administration and shall be such as will ensure that any oily mixture discharged into the sea after passing through the system or systems has an oil content not exceeding 15 parts per million. It shall be provided with alarm arrangements to indicate when this level cannot be maintained. The system shall also be provided with arrangements such as will ensure that any discharge of oily mixtures is automatically stopped when the oil content of the effluent exceeds 15 parts per million. In considering the design of such equipment and arrangements, the Administration shall have regard to the specification recommended by the Organisation.[31)]

6 For ships delivered before 6 July 1993 the requirements of this regulation shall apply by 6 July 1998, provided that these ships can operate with oily-water separating equipment (100 ppm equipment).

7 Guidelines on the minimum capacity of oil separators for the treatment of bilge water from machinery spaces:

Gross Tonnage (GT)	**Minimum Capacity (m^3/hour)**
200 - 400	0.25
400 - 1,600	0.5
1,600 - 4,000	1.0
4,000 - 15,000	2.5
15,000 and above	5.0

Large separator capacities may be necessary in ships with large, complex machinery spaces.

The capacity of oil separators that are also used for the treatment of ballast water shall in each individual case be approved by the Danish Maritime Authority.

pollution prevention equipment for machinery space bilges of ships, approved by the Organisation by resolution MEPC.107(49).

31) Refer to the Recommendation on International Performance and Test Specification for Oily Water Separating Equipment and Oil Content Meters, approved by the Organisation by resolution A.393(X), or Guidelines and specifications for pollution prevention equipment for machinery space bilges of ships, approved by the Organisation by resolution MEPC.60(33) or Revised guidelines and specifications for pollution prevention equipment for machinery space bilges of ships, approved by the Organisation by resolution MEPC.107(49).

Regulation 17 Tanks for oil residues (sludge)

1 Every ship of 400 tons gross tonnage and above shall be provided with a tank or tanks of adequate capacity, having regard to the type of machinery and length of voyage, to receive the oil residues (sludge) which cannot be dealt with otherwise in accordance with the requirements of these regulations, such as those resulting from the purification of fuel and lubricating oils and oil leakages in the machinery spaces.[32)]

2 In new ships, such ships shall be designed and constructed so as to facilitate their cleaning and the discharge of residues to reception facilities. Existing ships shall comply with this requirement as far as is reasonable and practicable.

3 Piping to and from sludge tanks shall have no direct connection overboard, other than the standard discharge connection referred to in regulation 19.[33)]

4 Minimum capacity for sludge tanks.

a) For ships not carrying ballast water in oil fuel tanks, the capacity of the sludge tank shall be calculated in accordance with the following formula:

$V_1 = K_1 \times C \times D\ (m^3)$

K_1 = 0.01 for ships using heavy grade oil fuel for propulsion, which is centrifuged on board or 0.005 for ships using diesel oil for propulsion or where the heavy grade fuel oil is not centrifuged on board.

C = Daily oil fuel consumption.

D = Maximum sailing time in days between ports where reception facilities are available, if this is not known, minimum 30.

b) For ships which are provided with equipment on board which is approved by the Danish Maritime Authority for the disposal of oil sludge, the capacity of the sludge tank V1 can be set to 1 m^3 for ships of 400 GT and above, and to 2 m^3 for ships of 4000 GT and above.

c) For ships carrying ballast water in oil fuel tanks, the capacity of the sludge tank shall be calculated in accordance with the following formula:

[32)] Refer to MEPC/circ. 235, Guidelines for Systems for Handling Oily Wastes in Machinery Spaces of Ships.

[33)] This paragraph was adopted at MEPC 31 and entered into force on 4 April 1993.

V_2 = $V_1 + K_2$ x B (m^3)

V_1 = Sludge tank capacity as specified in 1 or 2.

K_2 = 0.01 for ships using heavy grade oil fuel and 0.005 for ships using diesel oil.

B = Capacity of water ballast tanks which can also be used for oil fuel.

Regulation 18 Pumps, piping and discharge arrangements of oil tankers

1 In every oil tanker, a discharge manifold for connection to reception facilities for the discharge of dirty ballast water or oil contaminated water shall be located on the open deck of both sides of the ship.

2 In every oil tanker, pipelines for the discharge to the sea of ballast water or oil contaminated water from cargo tank areas which may be permitted under regulation 9 or regulation 10 shall be led to the open deck or to the ship's side above the waterline in the deepest ballast condition. Different piping arrangements to permit operation in the manner permitted in subparagraphs 6(a) - (e) may be accepted.

3 In new oil tankers means shall be provided for stopping the discharge into the sea of ballast water or oil contaminated water from cargo tank areas, other than those discharges below the waterline permitted under paragraph 6, from a position on the upper deck or above located so that the manifold in use referred to in paragraph 1 may be visually observed. Means for stopping the discharge need not be provided at the observation position if a positive communication system such as a telephone or radio system is provided between the observation position and the discharge control position.

4 Every new oil tanker required to be provided with segregated ballast tanks or fitted with a crude oil washing system shall comply with the following requirements:

a) the oil piping shall be designed and installed so that oil retention in the lines is minimised; and

b) means shall be provided to drain all cargo pumps and all oil lines at the completion of cargo discharge, where necessary by connection to a stripping device. The line and pump drains shall be capable of being discharged both ashore and to a cargo tank or a slop tank. For discharge ashore a special small diameter line shall be provided and shall be connected outboard of the ship's manifold valves.

5 Every existing crude oil tanker required to be provided with segregated ballast tanks, or to be fitted with a crude oil washing system, or to operate with dedicated clean ballast tanks, shall comply with the provisions of paragraph 4(b).

6 On every oil tanker the discharge of ballast water or oil contaminated water from cargo tank areas shall take place above the waterline, except as follows:

a) Segregated ballast and clean ballast may be discharged below the waterline:

1) in ports or at oil terminals,

2) at sea by gravity alone, provided that the surface of the ballast has been examined immediately before the discharge to ensure that no contamination with oil has taken place.

b) Existing oil tankers which, without modification, are not capable of discharging segregated ballast above the waterline may discharge segregated ballast below the waterline at sea, provided that the surface of the ballast water has been examined immediately before the discharge to ensure that no contamination with oil has taken place.

c) Existing oil tankers operating with dedicated clean ballast tanks which without modification are not capable of discharging ballast above the waterline, may discharge this ballast below the waterline provided that the discharge of the ballast water is supervised in accordance with regulation 13A(3).

d) On every oil tanker at sea, dirty ballast water or oil contaminated water from tanks in the cargo area, other than slop tanks, may be discharged by gravity below the waterline, provided that sufficient time has elapsed in order to allow oil/water separation to have taken place.

The ballast water shall also be examined immediately before the discharge with the detector described in regulation 15(3)(b), in order to ensure that the height of the interface is such that the discharge does not involve any increased risk of harm to the marine environment.

e) On existing oil tankers at sea, dirty ballast water or oil contaminated water from cargo tank areas may be discharged below the waterline as described in subparagraph (d) or in the following manner provided that:

1) a part of the flow of such water is led through permanent piping to a readily accessible location on the upper deck or above where it may be visually observed during the discharge operation; and

2) this system is in compliance with the requirements established by the Administration, which shall contain at least all the provisions of the Specifications for the Design, Installation and Operation adopted by the Organisation.

Regulation 19 Standard discharge connection

To enable pipes of reception facilities to be connected with the ship's discharge pipeline for residues from machinery bilges, both lines shall be fitted with a standard discharge connection in accordance with the following table:

Standard dimensions of flanges for discharge connections

Description	**Dimension**
Outside diameter	215 mm
Inner diameter	According to pipe outside diameter
Bolt circle diameter	183 mm
Slots in flange	6 holes 22 mm in diameter, equidistantly placed on a bolt circle of the above diameter, slotted to the flange periphery. The slot width to be 22 mm
Flange thickness	20 mm
Bolts and nuts	6, each of 20 mm in diameter and of suitable length

The flange is designed to accept pipes up to a maximum internal diameter of 125 mm and shall be of steel or other equivalent material having a flat face. This flange, together with a gasket of oil-proof material, shall be suitable for a service pressure of 6 kg/cm^2.

Regulation 20 Oil Record Book

1 Every oil tanker of 150 tons gross tonnage and above and every ship of 400 tons gross tonnage and above other than an oil tanker shall be provided with an Oil Record Book Part I (Machinery Space Operations). Every oil tanker of 150 tons gross tonnage and above shall also be provided with an Oil Record Book Part II (Cargo/Ballast Operations). The Oil Record Book(s), whether as a part of the ship's official log-book or otherwise, shall be in the form(s) specified by the Organisation. *The Oil Record Books shall be completed in accordance with the instructions in the Oil Record Books and the provisions in paragraphs 2 – 6 and paragraph 8.*

2 The Oil Record Book shall be completed on each occasion, on a tank-to-tank basis if appropriate, whenever any of the following operations take place in the ship:

a) for machinery space operations (all ships):

1) ballasting or cleaning of oil fuel tanks;

2) discharge of dirty ballast or cleaning water from tanks referred to under (1);

3) disposal of oily residues (sludge);

4) discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces;

b) for cargo/ballast operations (oil tankers):

1) loading of oil;

2) internal transfer of oil cargo during voyage;

3) unloading of oil cargo;

4) ballasting of cargo tanks and dedicated clean ballast tanks;

5) cleaning of cargo tanks including crude oil washing;

6) discharge of ballast except from segregated ballast tanks;

7) discharge of water from slop tanks;

8) closing of all applicable valves or similar devices after slop tank discharge operations;

9) closing of valves necessary for isolation of dedicated clean ballast tanks from cargo and stripping lines after slop tank discharge operations;

10) disposal of residues.

3 In the event of such discharge of oil or oily mixture as is referred to in regulation 11 or in the event of accidental or other exceptional discharge of oil not excepted by that regulation, a statement shall be made in the Oil Record Book of the circumstances of, and the reasons for, the discharge.

4 Each operation described in paragraph 2 shall be fully recorded without delay in the Oil Record Book so that all entries in the book appropriate to that operation are completed. Each completed operation shall be signed by the officer or officers in charge of the operations and each completed page shall be signed by the master of the ship. The entries in the Oil Record Book shall be in an official language of the State whose flag the ship is entitled to fly and, for ships holding an International Oil Pollution Prevention Certificate, in English or French. The entries in an official national language of the State whose flag the ship is entitled to fly shall prevail in case of a dispute or discrepancy.

5 The Oil Record Book shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned ships under tow, shall be kept on board the ship. It shall be preserved for a period of three years after the last entry has been made.

6 The competent authority of the Government of a Party to the Convention may inspect the Oil Record Book on board any ship to which this chapter applies while the ship is in its port or oil terminal and may make a copy of any entry in that book and may require the master of the ship to certify that the copy is a true copy of such entry. Any copy so made which has been certified by the master of the ship as a true copy of an entry in the ship's Oil Record Book shall be made admissible in any judicial proceedings as evidence of the facts stated in the entry. The inspection of an Oil Record Book and the taking of a certified copy by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

7 For oil tankers of less than 150 tons gross tonnage operating in accordance with regulation 15(4), an appropriate Oil Record Book should be developed by the Administration.

8 The Oil Record Books referred to above shall be completed clearly, and no sheet may be torn out. No entry which has been made may be erased, crossed out or made illegible in any other way. If it should become necessary to make a correction in the Oil Record Book, the correction shall be added as a comment.

Regulation 21 Special requirements for drilling rigs and other platforms

Fixed and floating drilling rigs when engaged in the exploration, exploitation and associated offshore processing of sea-bed mineral resources and other platforms shall comply with the requirements of this chapter applicable to ships of 400 tons gross tonnage and above other than oil tankers, except that:

a) they shall be equipped as far as practicable with the installations required in regulations 16 and 17,

b) they shall keep a record of all operations involving oil or oily mixture discharges, in a form approved by the Administration; and

c) subject to the provisions of regulation 11, the discharge into the sea of oil or oily mixture shall be prohibited except when the oil content of the discharge without dilution does not exceed 15 parts per million.