

1998 No. 1012

MERCHANT SHIPPING

SAFETY

The Merchant Shipping
(Fire Protection: Large Ships)
Regulations 1998

<i>Made</i>	- - - -	<i>7th April 1998</i>
<i>Laid before Parliament</i>		<i>20th April 1998</i>
<i>Coming into force</i>		<i>11th May 1998</i>



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The Secretary of State, after consulting the persons referred to in section 86(4) of the Merchant Shipping Act 1995(a), in exercise of the powers conferred by section 85(1)(a) and (b), (3), (5) to (7) and section 86(1) of that Act, and of all other powers enabling him in that behalf, hereby makes the following Regulations—

PART I

PRELIMINARY

Citation, commencement, interpretation, application, exemption and revocation

Citation and commencement

1.—(1) These Regulations may be cited as the Merchant Shipping (Fire Protection: Large Ships) Regulations 1998 and shall come into force on 11th May 1998.

Interpretation

(2) In these Regulations the following expressions have the following meanings respectively, unless the context otherwise requires—

“‘A’ Class division” means a bulkhead or part of a deck which is—

- (a) constructed of steel or other equivalent material;
- (b) suitably stiffened;
- (c) so constructed as to be capable of preventing the passage of smoke and flame to the end of the 60 minute standard fire test; and
- (d) so insulated where necessary with suitable non-combustible materials that if the division is exposed to a standard fire test the average temperature on the unexposed side of the division shall not increase more than 139°C above the initial temperature nor shall the temperature at any one point, including any joint, rise more than 180°C above the initial temperature within the time listed below—

“A-60” standard, 60 minutes;

“A-30” standard, 30 minutes;

“A-15” standard, 15 minutes;

“A-0” standard, 0 minutes;

“accommodation spaces” means—

- (a) public spaces;
- (b) corridors and lobbies;
- (c) stairways;
- (d) lavatories;
- (e) cabins;
- (f) offices;
- (g) hospitals;
- (h) hairdressing salons;
- (i) pantries not containing cooking appliances;
- (j) lockers;
- (k) games and hobbies’ rooms; and
- (l) spaces similar to any of the foregoing and trunks to such spaces allocated to passengers or crew;

“approved” means approved by the Secretary of State or, in relation to any equipment or arrangement mentioned in Merchant Shipping Notice MSN 1645 by any persons specified in that Notice in relation to such equipment or arrangement;

(a) 1995 c.21; sections 85 and 86 were amended by the Merchant Shipping and Maritime Securities Act 1997 (c.28), section 8.

“‘B’ Class division” means a bulkhead, part of a deck, ceiling or lining which is—

- (a) so constructed as to be capable of preventing the passage of flame to the end of the first 30 minutes of the standard fire test;
- (b) so constructed as to provide an insulation standard such that, if the division is exposed to a standard fire test, the average temperature on the unexposed side of the division shall not increase more than 139°C above the initial temperature, nor shall the temperature at any one point, including any joint, rise more than 225°C above the initial temperature within the time listed below—
 - “B-15” standard, 15 minutes;
 - “B-0” standard, 0 minutes; and
- (c) constructed of suitable non-combustible materials and all materials whose use is necessary for or ancillary to its construction and erection shall be non-combustible, with the exception that combustible veneers may be permitted provided that they meet the requirements of regulations 62, 80, or 97;

“bulkhead deck” means the uppermost deck up to which transverse watertight bulkheads are carried;

“‘C’ Class division” means a bulkhead, ceiling or lining which is constructed of suitable non-combustible materials not being an ‘A’ Class division or a ‘B’ Class division;

“cargo area” means that part of the ship which contains—

- (a) the cargo tanks, slop tanks and cargo pump rooms; and
- (b) the following spaces when they are adjacent to the cargo tanks; namely, pump rooms other than cargo pump rooms, cofferdams, ballast spaces and void spaces;

and extends fore and aft between the forward end of the most forward of those tanks or other spaces and the after end of the aftermost of those tanks or other spaces and athwartships over the whole breadth of the ship; and the deck area over that part of the ship;

“cargo ship” means any ship which is not a passenger ship;

“cargo control station” means a space from which the loading, discharging or transferring of any cargo may be controlled;

“cargo pump room” means a room in which any pumps used for loading, discharging or transferring cargoes are located;

“cargo spaces” are all spaces used for cargo including cargo oil tanks, slop tanks and trunks to such spaces;

“Category A tanker” and “Category A combination carrier” means a tanker, or as the case may be, a combination carrier constructed or adapted to carry crude oil and petroleum products having a closed flashpoint not exceeding 60°C the Reid vapour pressure of which is below that of atmospheric pressure, and liquids having a similar fire hazard and the keel of which—

- (a) was laid, or which was at a similar stage of construction, on or after 1st February 1975; or
- (b) was laid, or was at a similar stage of construction, before 1st February 1975 but was completed after 31st December 1978;

“central control station” means a control station in which the following control and indicator functions are centralised—

- (a) fixed fire detection and alarm system;
- (b) automatic sprinklers, fire detection and alarm system;
- (c) fire door indicator panel;
- (d) fire door closure;
- (e) watertight door indicator panel;
- (f) watertight door closure;
- (g) ventilation fans;
- (h) general/fire alarm;

(i) communication systems including telephones; and

(j) microphone to public address system;

“chemical tanker” means a tanker constructed or adapted and used for the carriage in bulk of any liquid product of a flammable nature listed in Chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;

“closed ro-ro cargo space” means a ro-ro cargo space which is not an open ro-ro space and not a weather deck;

“Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk” means the 1993 edition of the Code so entitled, published by the International Maritime Organization;

“Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk” means the 1983 edition of the Code so entitled, published by the International Maritime Organization;

“Code of Safe Practice for Solid Bulk Cargoes” means the 1991 edition of the Code so entitled, published by the International Maritime Organization;

“combination carrier” means a tanker designed to carry oil or alternatively solid cargoes in bulk;

“continuous ‘C’ Class ceiling or lining” means a ‘C’ Class division forming a ceiling or lining which terminates only at an ‘A’ or ‘B’ Class division;

“continuously manned central control station” means a central control station which is continuously manned by a responsible member of the crew;

“control room” means a room either within or outside a propulsion machinery space from which propulsion machinery and boilers may be controlled;

“control stations” means spaces in which radio or main navigating equipment, or the emergency source of power, or the central fire recording equipment, or fire control equipment, or fire-extinguishing installations are located or a control room located outside a propulsion machinery space;

“crude oil” means any oil 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;

“dangerous goods” means dangerous goods defined as such in the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997(a); and any reference to a particular class of dangerous goods is a reference to that class of dangerous goods as defined in those Regulations;

“deadweight” means 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;

“EEA Agreement” means the Agreement on the European Economic Area signed at Oporto on 2nd May 1992(b) as adjusted by the Protocol signed at Brussels on 17th May 1993(c);

“EEA State” means a State which is a Contracting Party to the EEA Agreement;

“equivalent material” as used in the expression “steel or other equivalent material” means any non-combustible material which, by itself or due to insulation provided, has structural and integrity properties equivalent to steel at the end of an appropriate fire test;

“gas carrier” means a tanker constructed or adapted and used for the carriage in bulk of any liquefied gas or certain other substances of a flammable nature listed in Chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk;

(a) S.I. 1997/2367.

(b) Cm 2073.

(c) Cm 2183.

“gas safe space” is a space into which the entry of hydrocarbon gases or other gases of a flammable or toxic nature has been restricted;

“Guidelines for Inert Gas Systems” means the 1994 edition of the publication “Inert Gas Systems” published by the International Maritime Organization;

“IMO Resolution” means a Resolution of that description issued by the International Maritime Organization;

“International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk” means the 1994 edition of the Code so entitled published by the International Maritime Organization;

International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk” means the 1983 edition of the Code so entitled, published by the International Maritime Organization;

“International Maritime Dangerous Goods Code” means the 1994 consolidated edition of the Code of that name published by the International Maritime Organization as amended by Amendment No. 28-96;

“length” in relation to a registered ship means registered length, and in relation to an unregistered ship means the length from the fore part of the stem to the aft side of the head of the stern post or, if no stern post is fitted to take the rudder, to the fore side of the rudder stock at the point where the rudder passes out of the hull;

“lightweight” means the displacement of a ship in tonnes without cargo, oil fuel, lubricating oil, ballast water, fresh water in tanks or stores and passengers and crew and their effects;

“machinery space” means a space which contains propulsion 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 where the context so admits, any trunk to such a space;

“machinery spaces of Category A” means a machinery space which contains—

- (a) internal combustion type machinery used either for main propulsion purposes, or for other purposes where such machinery has in the aggregate a total power output of not less than 375 kilowatts; or
- (b) any oil-fired boiler or oil-fired unit; and any trunk to such a space;

“main vertical zones” means the main vertical zones into which the hull, superstructure and deck houses of a ship are divided in accordance with regulation 54; except that in the case of ships constructed on or after 1st October 1994, main vertical zones are taken to be those sections into which the hull, superstructure and deck houses are divided by “A” Class divisions, the mean length and width of which on any deck does not in general exceed 40 m;

“Maritime and Coastguard Agency” means the Maritime and Coastguard Agency, an Executive Agency of the Department of the Environment, Transport and the Regions;

“Merchant Shipping Notice” means a Notice described as such and issued by the Maritime and Coastguard Agency;

“MSC Circular” or “MSC Resolution” means a Circular or Resolution of that description issued by the Maritime Safety Committee of the International Maritime Organization;

“non-combustible material” means material which when heated to a temperature of 750°C neither flames for longer than 10 seconds duration, nor raises either its internal temperature or the temperature of the test furnace more than 50°C above 750°C when tested in accordance with British Standard Specification 476: Part 4: 1970, and the expression “combustible material” shall be construed accordingly;

“oil-fired boiler” means any boiler wholly or partly fired by liquid fuel;

“oil-fuel unit” means the equipment used for the preparation of oil fuel for delivery to an oil-fired boiler or equipment used for the preparation for delivery of heated oil to an internal combustion engine, and includes any pressure pumps, filters and heaters dealing with oil at a pressure more than 1.8 kPa;

“open ro-ro cargo spaces” means ro-ro cargo spaces which are open at both ends, or open at one end and provided with adequate natural ventilation effective over the entire length through permanent openings in the side plating or deck head;

“open ship” means a ship in which all the passenger accommodation is completely open to the elements and is not fitted with a weathertight or watertight deck or structure above the waterline;

“passenger ship” means a ship carrying more than 12 passengers;

“periodical survey” means a periodical survey within the meaning of regulation 4(b) of the Merchant Shipping (Survey and Certification) Regulations 1995(a);

“pleasure vessel” means—

- (a) any vessel which at the time it is being used is—
 - (i) (a) in the case of a vessel wholly owned by an individual or individuals used only for the sport or pleasure of the owner or the immediate family or friends of the owner; or
 - (b) in the case of a vessel owned by a body corporate, used only for sport or pleasure and on which the persons are employees or officers of the body corporate, or their immediate family or friends; and
 - (ii) on a voyage or excursion which is one for which the owner does not receive money for or in connection with operating the vessel or carrying any person, other than as a contribution to the direct expenses of the operation of the vessel incurred during the voyage or excursion; or
- (b) any vessel wholly owned by or on behalf of a members’ club formed for the purpose of sport or pleasure which, at the time it is being used, is used only for the sport or pleasure of members of that club or their immediate family; and for the use of which any charges levied are paid into club funds and applied for the general use of the club; and
- (c) in the case of any vessel referred to in paragraphs (a) or (b) above no other payments are made by or on behalf of users of the vessel, other than by the owner.

In this definition “immediate family” means in relation to an individual, the husband or wife of the individual, and a relative of the individual or the individual’s husband or wife, and “relative” means brother, sister, ancestor or lineal descendant;

“public spaces” includes halls, dining rooms, bars, smoke rooms, lounges, recreation rooms, nurseries, libraries, cinemas, sale shops and similar permanently enclosed spaces allocated to passengers or crew;

“Reid vapour pressure” means the vapour pressure of a liquid as determined by laboratory testing in a standard manner in the Reid apparatus;

“relevant standard of a member State other than the United Kingdom”, in relation to a reference to an International Standard or a British Standard, means—

- (a) a relevant standard or code of practice of a national standards body or equivalent body of a member State other than the United Kingdom; or
- (b) a relevant international standard recognised for use in a member State other than the United Kingdom; or
- (c) a relevant specification acknowledged for use as a standard by a public authority of a member State other than the United Kingdom;

being a standard, code of practice or specification which provides, in use, levels of safety, suitability and fitness for purpose equivalent to those provided by the International Standard or the British Standard;

“rooms containing furniture and furnishings of restricted fire risk” means rooms in which—

- (a) all case furniture such as desks, wardrobes, dressing tables, bureaux, and dressers, are constructed entirely of approved non-combustible materials, except that a combustible veneer not exceeding 2 millimetres may be used on the finished surface of such furniture;
- (b) all free-standing furniture such as chairs, sofas and tables are constructed with frames of non-combustible materials;

(a) S.I. 1995/1210, to which there are amendments not relevant to these Regulations.

- (c) all draperies, curtains and other suspended textile materials have qualities of resistance to the propagation of flame in accordance with the requirement of Type B performance of British Standard 5867: Part 2: 1980;
- (d) all surface floor coverings have qualities of resistance to the propagation of flame to the satisfaction of the Secretary of State; and
- (e) the upholstered parts of furniture have qualities of resistance to the ignition and propagation of flame to the satisfaction of the Secretary of State;

“ro-ro cargo spaces” means spaces not normally subdivided in any way and extending to either a substantial length or the entire length of the ship in which goods (packaged or in bulk), in or on rail or road cars, vehicles (including road or rail tankers), trailers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles can be loaded and unloaded normally in a horizontal direction;

“ro-ro passenger ship” means a passenger ship with ro-ro cargo spaces or special category spaces;

“sailing ship” means a ship provided with sufficient sail area for navigation under sails alone, whether or not fitted with mechanical means of propulsion;

“service spaces” include galleys, pantries containing cooking appliances, laundries, drying rooms, lockers and store rooms, paint rooms, baggage rooms, mail and specie rooms, workshops (other than those forming part of machinery spaces) and similar spaces and trunks to such spaces;

“similar stage of construction” means the stage at which construction identifiable with a specific ship begins; and assembly of that ship has commenced comprising at least 50 tonnes or one per cent of the estimated mass of all structural material, whichever is less;

“special category space” means any enclosed space above or below the bulkhead deck intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion, into and from which such vehicles can be driven and to which passengers have access;

“standard fire test” means a test in which a specimen of the relevant “A” Class or “B” Class division, having an exposed surface area of not less than 4.65 square metres and a bulkhead height or deck length of 2.44 metres, resembling as closely as possible the intended construction and included where appropriate at least one joint, is exposed in a test furnace to a series of time-temperature relationships defined by a smooth curve drawn through the following temperature points measured above the initial furnace temperature—

At the end of the first 5 minutes,	556°C;
At the end of the first 10 minutes,	659°C;
At the end of the first 15 minutes,	718°C;
At the end of the first 30 minutes,	821°C;
At the end of the first 60 minutes,	925°C;

“suitable” in relation to material means approved by the Secretary of State as suitable for the purpose for which it is used;

“surface spread of flame” means the surface spread of flame classified as Class 1 or Class 2 within the meaning of British Standard 476: Part 7: 1971;

“tanker” means a cargo ship constructed or adapted for the carriage in bulk of liquid cargoes of a flammable nature;

“tons” means gross tons and a reference to tons—

- (a) in relation to a ship having alternative gross tonnages under paragraph 13 of Schedule 5 of the Merchant Shipping (Tonnage) Regulations 1982(a), permitted to be used pursuant to regulation 12(1) of the Merchant Shipping (Tonnage) Regulations 1997(b), is a reference to the larger of those tonnages; and

(a) S.I. 1982/841, to which there are amendments not relevant to these Regulations.

(b) S.I. 1997/1510.

(b) in relation to a ship having its tonnage determined both under Part II and regulation 12(2) of those 1997 Regulations is a reference to its gross tonnage as determined under regulation 12(2);

“water seal” means an arrangement or device using water, to prevent the back flow of gases or vapours from cargo tanks into gas safe spaces;

“weather deck” means a deck completely exposed to the weather from above and at least two sides.

(3) Any reference in these Regulations to—

- (a) the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;
- (b) the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk;
- (c) the Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk;
- (d) the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk;
- (e) the International Maritime Dangerous Goods Code;
- (f) the Code of Safe Practice for Solid Bulk Cargoes;
- (g) the Guidelines for Inert Gas Systems;
- (h) a British Standard or an International Standard;
- (i) a Merchant Shipping Notice;
- (j) any other specified Code or Guidelines; or
- (k) an IMO Resolution;

shall include—

- (i) a reference to any document amending that publication which is considered by the Secretary of State to be relevant from time to time and is specified in a Merchant Shipping Notice; and
- (ii) with respect to a reference to an International Standard or a British Standard, a reference to a relevant standard of an EEA State other than the United Kingdom.

(4) In these Regulations—

- (a) a reference to a ship constructed on or after a specified date is a reference to a ship the keel of which is laid or which is at a similar stage of construction on or after that date;
- (b) a reference to a ship constructed before a specified date is a reference to a ship the keel of which is laid or which is at a similar stage of construction before that date; and
- (c) where the reference to a ship so constructed is to be understood as being or including a reference to a passenger ship, the reference includes a reference to a ship which satisfies both the following requirements, that is to say—
 - (i) that the keel of the ship was laid or that the ship was at a similar stage of construction before the specified date; and
 - (ii) that the ship, not being a passenger ship before that date, is converted to a passenger ship, such conversion commencing on or after that date.

(5) Any approval in whatever form given in pursuance of these Regulations shall be given in writing and shall specify the date on which it takes effect and the conditions (if any) on which it is given.

(6) In these Regulations—

- (a) a reference to a numbered regulation is, unless otherwise stated, a reference to the regulation of that number in these Regulations;
- (b) a reference in a regulation to a numbered paragraph is, unless otherwise stated, a reference to the paragraph of that number in that regulation; and
- (c) where a sub-heading refers to “requirements” or to “additional requirements” for certain ships, the text following such a sub-heading in that regulation (or

until the next such sub-heading in that regulation) shall (unless the context otherwise requires) relate only to such ships.

Application

- (7) (a) (i) Subject to sub-paragraphs (b) and (c) below and to (8)(b), these Regulations apply:
- (aa) to United Kingdom ships of Classes I, II, Class II(A) of 21.34m in length or over, and Classes VII, VII(A), VII(T), VIII, VIII(A), VIII(T), VIII(A)(T), IX, IX(A), IX(A)(T), XI and XII of 500 tons or over, wherever they may be;
 - (bb) to other such ships while they are within United Kingdom waters, when engaged on international voyages;
 - (cc) to other such ships when not engaged on international voyages, while they are within United Kingdom national waters; and
 - (dd) where any requirement of the Regulations relates to ships constructed on or after a certain date, then, to the extent the Secretary of State deems reasonable and practicable, the requirement shall also apply in respect of any major repairs, alterations and modifications commenced on or after the date to ships constructed before that date;
- (b) in the case of ships constructed before 1st October 1994 carrying more than 36 passengers, of Classes I, II and Class II(A) of 21.34 m in length or over which undergo repairs, alterations, modifications or outfitting, any materials introduced into such ships by reason of such repairs, alterations, modifications or outfitting shall comply with the requirements with regard to such material prescribed for such ships constructed on or after 1st October 1994;
- (c) these Regulations shall not apply to—
- (i) fishing vessels;
 - (ii) high-speed craft to which the Merchant Shipping (High-Speed Craft) Regulations 1996(a) apply;
 - (iii) the following non-United Kingdom ships—
 - (aa) troopships;
 - (bb) ships not propelled by mechanical means;
 - (cc) a ship by reason of her being within the United Kingdom or the territorial water thereof if she would not have been therein but for stress of weather or any other circumstances that neither the master owner or charterer (if any) could have prevented.

Exemptions

- (8) (a) The Secretary of State may grant exemptions from all or any of the provisions of these Regulations (as may be specified in the exemption) for classes of cases or individual cases on such terms (if any) as he may so specify and may, subject to giving reasonable notice, alter or cancel any such exemption.
- (b) Except as provided for in regulation 51, every ship to which these Regulations apply constructed before 26th May 1965, shall be exempt from the provisions of these Regulations to the extent and on the conditions specified in Schedule 1 in Merchant Shipping Notice MSN 1670: provided that such passenger ships carrying more than 36 passengers shall comply—
- (i) with the provisions of regulations 11(6) and (7), and;
 - (ii) with the provisions of regulation 7(1), by 1st October 2000.

Revocation

- (9) The following Instruments are hereby revoked—
- (a) the Merchant Shipping (Fire Appliances) Regulations 1980(b);
 - (b) the Merchant Shipping (Fire Appliances) (Amendment) Regulations 1981(c);

(a) S.I. 1996/3188.
(b) S.I. 1980/544.
(c) S.I. 1981/574.

- (c) the Merchant Shipping (Fire Protection) Regulations 1984(a);
- (d) the Merchant Shipping (Fire Protection) (Amendment) Regulations 1985(b);
- (e) the Merchant Shipping (Fire Appliances) (Amendment) Regulations 1985(c);
- (f) the Merchant Shipping (Fire Protection) (Ships built before 25th May 1980) Regulations 1985(d);
- (g) the Merchant Shipping (Fire Protection and Fire Appliances) (Amendment) Regulations 1986(e);
- (h) the Merchant Shipping (Fire Protection) (Non-United Kingdom Ships) (Non-SOLAS) Rules 1986(f);
- (i) the Merchant Shipping (Fire Protection) (Amendment) Regulations 1992(g);
- (j) the Merchant Shipping (Fire Protection) (Non-United Kingdom) (Non-SOLAS Ships) (Amendment) Rules 1993(h);
- (k) the Merchant Shipping (Fire Appliances) (Amendment) Regulations 1993(i);
- (l) the Merchant Shipping (Fire Protection) (Amendment) Regulations 1993(j);
- (m) the Merchant Shipping (Fire Protection) (Ships built before 25th May 1980) (Amendment) Regulations 1993(k).

Classification of ships

2.—(1) For the purposes of these Regulations ships shall be arranged in Classes as follows—

Passenger Ships

- Class I Passenger ships engaged on voyages any of which are long international voyages;
- Class II Passenger ships engaged only on short international voyages;
- Class II(A) Passenger ships engaged on voyages of any kind other than international voyages;

Ships other than passenger ships

- Class VII Ships (other than ships of Classes I, VII(A), VII(T), XI and XII) engaged on voyages any of which are long international voyages;
- Class VII(A) Ships employed as fish processing or canning factory ships, and ships engaged in the carriage of persons employed in the fish processing or canning industries;
- Class VII(T) Tankers engaged on voyages any of which are long international voyages;
- Class VIII Ships (other than ships of Classes II, VIII(T), IX, XI and XII) engaged only on short international voyages;
- Class VIII(A) Ships (other than ships of Classes II(A) to VI(A) inclusive, VIII(A)(T), IX, IX(A), IX(A)(T), XI and XII) engaged on voyages which are not international voyages;
- Class VIII(T) Tankers engaged only on short international voyages;
- Class VIII(A)(T) Tankers engaged only on voyages which are not international voyages;

(a) S.I. 1984/1218.

(b) S.I. 1985/1193.

(c) S.I. 1985/1194.

(d) S.I. 1985/1218.

(e) S.I. 1986/1070.

(f) S.I. 1986/1248.

(g) S.I. 1992/2360.

(h) S.I. 1993/3161.

(i) S.I. 1993/3162.

(j) S.I. 1993/3163.

(k) S.I. 1993/3164.

Class IX	Tugs and tenders (other than ships of Classes II, II(A), III, VI and VI(A)) which proceed to sea but are not engaged on long international voyages;
Class IX(A)	Ships which do not proceed to sea;
Class IX(A)(T)	Tankers which do not proceed to sea;
Class XI	Sailing ships (other than ships of Class XII) which proceed to sea;
Class XII	Pleasure vessels (other than passenger ships) of 13.7 metres in length or over.

(2) (a) For the purposes of this regulation the following expressions have the following meanings—

“long international voyage” means a voyage from a port in one country to which the International Convention for the Safety of Life at Sea, 1974 (as amended) applies to a port in another country or conversely; and which is not a short international voyage;

“short international voyage” means an international voyage—

- (i) in the course of which a ship is not more than two hundred nautical miles from a port or place in which the passengers and crew could be placed in safety; and
- (ii) which does not exceed 600 nautical miles in distance between the last port of call in the country in which the voyage begins and the first port of destination. However for the purposes of this definition no account shall be taken of any deviation by a ship from her intended voyage due solely to stress of weather or any other circumstances that neither the master nor the owner nor the charterer (if any) of the ship could have prevented or forestalled;

“sea” does not include any waters of Category A, B, C or D;

“voyage” includes an excursion.

- (b) References to waters of Category A, B, C and D are references to waters categorised as such in Merchant Shipping Notice MSN 1504.

PART II

FIRE PREVENTION AND FIRE APPLIANCES

PASSENGER SHIPS

SHIPS OF CLASS I

Fire pumps, fire main, water service pipes, hydrants, hoses and nozzles

3.—(1) Every ship of Class I shall be provided with appliances whereby at least two jets of water can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated and any store room and any part of any cargo space when empty.

(2) Every ship of Class I of 4,000 tons or over shall be provided with at least three fire pumps operated by power and every such ship of under 4,000 tons shall be provided with at least two such pumps. Each pump shall be capable of delivering at least one jet of water simultaneously from each of any two hydrants, hoses and nozzles provided in the ship and shall comply with the requirements of regulation 38.

- (3) (a) In every ship of Class I of 1,000 tons or over the arrangement of the sea connections, pumps and the sources of power for operating them shall be such as will ensure that a fire in any one compartment will not put all the fire pumps out of action.
- (b) If in any ship of Class I of less than 1,000 tons a fire in any one compartment could put all the fire pumps out of the action there shall be provided, in a

position outside the machinery spaces, an independently driven power-operated emergency fire pump and its source of power and sea connection. Such a pump shall be capable of producing at least one jet of water simultaneously from each of any two hydrants and hoses through nozzles which comply with the requirements of regulation 40(5)(b), while simultaneously maintaining a pressure of at least 210 kPa at any hydrant in the ship.

(4) In every ship of Class I there shall be provided a fire main, water service pipes, hydrants, hoses and nozzles which shall be so arranged that they comply with the requirements of regulations 39 and 40 when all watertight doors and all doors in main vertical zone bulkheads are closed.

(5) In every ship of Class I at least one fire hose shall be provided for every hydrant fitted in compliance with these Regulations. Such hoses shall be used only for the purpose of extinguishing fires or for testing the fire-extinguishing appliances at fire drills and surveys.

(6) In every ship of Class I where in any machinery space of Category A, access is provided at a low level from an adjacent shaft tunnel, two hydrants fitted with hoses and nozzles shall be provided external to, but near the entrance to, that machinery space. Where such access is not provided from a tunnel but is provided from another space or spaces there shall be provided in one of those spaces two hydrants fitted with hoses and nozzles near the entrance to the machinery space of Category A. Such provisions need not be made when the tunnel or adjacent spaces are not part of an escape route.

(7) In every ship of Class I carrying more than 36 passengers, water from the fire main shall, as far as practicable, be kept immediately available by maintaining the pressure in the fire main or by providing an easily operable and readily accessible remote control for the fire pumps.

(8) In every ship of Class I carrying more than 36 passengers, all hose nozzles shall be of an approved dual-purpose type capable of producing a water-spray and a plain jet of water, and shall incorporate a shut-off facility.

(9) In every ship of Class I at least three water-fog applicators in addition to the nozzles required by these Regulations shall be provided in special category spaces.

(10) In every ship of Class I hydrants in machinery spaces shall be fitted with hoses having dual-purpose nozzles. Additionally, in respect of ships carrying more than 36 passengers, each machinery space of Category A shall be provided with at least two suitable water-fog applicators.

Additional requirements for ships constructed on or after 25th May 1980

(11) Notwithstanding paragraph (7) above, in every ship of Class I of 1,000 tons or over, the arrangement of fire pumps, fire mains and hydrants shall be such that at least one jet of water is immediately available from any one hydrant in an interior location. Arrangements shall also be made to ensure the continuation of the output of water by the automatic starting of a fire pump required by these Regulations.

(12) In every ship of Class I in every special category space and ro-ro cargo space the number of hydrants with hoses shall be so arranged that at least two jets of water each from a single length of hose, not emanating from the same hydrant, may reach any part of the space. Such hydrants shall be positioned near the accesses to the protected spaces.

Portable fire extinguishers in accommodation, cargo and service spaces

4.—(1) In every ship of Class I there shall be provided on each deck below the bulkhead deck a sufficient number of portable fire extinguishers so that at least two shall be readily available for use in every accommodation space, service space and control station between main vertical zones. In enclosed accommodation spaces, service spaces and control stations above the bulkhead deck at least one such extinguisher shall be provided for use on each side of the ship in such spaces. The number of such extinguishers in such spaces shall not be less than five in a ship of 1,000 tons or over. In addition at least one portable fire extinguisher and a fire blanket shall be provided in every galley; provided that where the deck area of any galley exceeds 45 square metres, at least two such extinguishers and two such blankets shall be provided.

(2) In every ship of Class I at least one portable fire extinguisher shall be provided for use in each control station.

(3) One of the portable fire extinguishers intended for use in any space shall be available near the entrance to that space.

(4) In every ship of Class I there shall be provided in each special category space and cargo space intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion—

- (a) at least two portable extinguishers, suitable for extinguishing oil fires, for every 40 metres length of deck space, so arranged that at least one extinguisher is available on each side of the space and at least one extinguisher is available at each access to the space;
- (b) one portable foam-applicator unit complying with the requirements of Schedule 6 in Merchant Shipping Notice MSN 1665; not less than two such applicators shall be available in the ship for use in any such space.

Fixed fire-extinguishing systems in cargo spaces

5.—(1) In every ship of Class I of 1,000 tons or over there shall be provided a fixed gas fire-extinguishing system complying with the requirements of Schedule 4 in Merchant Shipping Notice MSN 1666 which shall be so arranged as to protect every cargo space.

(2) The Secretary of State may exempt any ship (other than a ship engaged in the carriage of dangerous goods) from the requirements of paragraph (1) if to require compliance therewith would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

Additional requirements for ships constructed on or after 25th May 1980

(3) In every ship of Class I engaged in the carriage of dangerous goods there shall be provided a fixed gas fire-extinguishing system complying with the requirements of Schedule 4 in Merchant Shipping Notice MSN 1666 to protect every cargo space, or with a fire-extinguishing system which can be shown to provide equivalent protection for the cargoes carried (other than special category spaces and spaces where a fixed pressure water-spraying system is fitted in accordance with paragraphs (4) and (5)).

(4) In every ship of Class I there shall be provided in each special category space of a fixed pressure water-spraying system complying with the requirements of Schedule 3 in Merchant Shipping Notice MSN 1666. The Secretary of State may permit in lieu of such a system any other fixed fire-extinguishing system provided that it has been shown by full-scale test in conditions simulating a flowing petrol fire in a special category space to be not less effective in controlling fires likely to occur in such a space.

(5) In every ship of Class I there shall be provided in each cargo space (other than a special category space) intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion a fixed pressure water-spraying system complying with the requirements of Schedule 3, or a fixed gas fire-extinguishing system complying with the requirements of Schedule 4 in Merchant Shipping Notice MSN 1666.

(6) In every ship of Class I there shall be provided in each open ro-ro cargo space having a deck over and in each space deemed to be a closed ro-ro cargo space not capable of being sealed, a fixed pressure water-spraying system complying with Schedule 3 in Merchant Shipping Notice MSN 1666.

Special requirements for cargo space ventilation

Requirements for ships constructed on or after 1st September 1984

6.—(1) In every ship of Class I there shall be provided—

- (a) in each special category space an effective power-ventilation system sufficient to give at least 10 air changes per hour; the Secretary of State may require an increased number of air changes when vehicles are being loaded and unloaded;
- (b) in each cargo space, other than a special category space intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion, an effective power-ventilation system sufficient to give at least 10 air changes per hour for

ships carrying more than 36 passengers and 6 air changes per hour for ships carrying not more than 36 passengers.

(2) The power-ventilation systems referred to in paragraph (1) shall be entirely separate from other ventilation systems and shall be operated at all times when vehicles are in such spaces. Ventilation ducts serving such spaces capable of being effectively sealed shall be separated for each such space. The system shall be capable of being controlled from a position outside such spaces. In addition—

- (a) the ventilation shall be such as to prevent air stratification and the formation of air pockets;
- (b) means shall be provided to indicate on the navigating bridge any loss or reduction of the required ventilating capacity;
- (c) arrangements shall be provided to permit a rapid shut-down and effective closure of the ventilation system in case of fire, taking into account the weather and sea conditions.

Machinery spaces of Category A

7.—(1) In every ship of Class I there shall be provided for the protection of any machinery space of Category A at least one of the following fixed fire-extinguishing systems—

- (a) a fixed pressure water-spraying system complying with the requirements of Schedule 2 in Merchant Shipping Notice MSN 1666;
- (b) a fixed gas fire-extinguishing system complying with the requirements of Schedule 4 in Merchant Shipping Notice MSN 1666; or
- (c) a fixed high-expansion foam fire-extinguishing system complying with the requirements of Schedule 8 in Merchant Shipping Notice MSN 1666.

(2) If the engine and boiler rooms are not entirely separated from each other by a bulkhead or if fuel oil can drain from the boiler room into the engine room, the combined engine and boiler rooms shall, for the purpose of this regulation, be regarded as a single space.

(3) In addition to the requirements of paragraph (1) there shall be provided—

- (a) in each boiler room one or more foam fire extinguishers each of at least 135 litres capacity or carbon dioxide fire extinguishers each of at least 45 kilogrammes capacity placed in such positions as to be readily accessible in the event of fire and sufficient in number to enable foam or carbon dioxide to be directed on to any part of the boiler room and spaces containing any part of the oil fuel installation;
- (b) in each boiler room at least one portable foam-applicator unit complying with Schedule 6 in Merchant Shipping Notice MSN 1665;
- (c) in each firing space and in each space which contains any part of any oil fuel installation at least two portable fire extinguishers suitable for extinguishing oil fires;
- (d) in each firing space a receptacle containing at least 0.3 cubic metre of sand or other dry material suitable for extinguishing oil fires together with a scoop for its distribution or, alternatively, an additional portable fire extinguisher suitable for extinguishing oil fires.

(4) In addition to the requirements of paragraph (1) there shall be provided in any space containing internal combustion type machinery—

- (a) one or more foam fire extinguishers of at least 45 litres or carbon dioxide extinguishers of at least 16 kilogrammes capacity; the extinguishers shall be sited so as to be readily accessible in the event of fire and they shall be sufficient in number to enable foam or carbon dioxide to be directed on to any part of the fuel and lubricating oil pressure systems, gearing and other areas of high fire risk;
- (b) at least one portable foam-applicator unit complying with the requirements of Schedule 6 in Merchant Shipping Notice MSN 1665;

- (c) portable fire extinguishers suitable for extinguishing oil fires sufficient in number to ensure that at least one extinguisher is not more than 10 metres walking distance from any position within the space: provided that there shall be not less than two such extinguishers; and
- (d) in passenger ships carrying more than 36 passengers each machinery space of Category A shall be provided with at least two suitable water-fog applicators.

Machinery spaces containing steam turbines or enclosed steam engines

8.—(1) In every ship of Class I there shall be provided in spaces containing steam turbines or enclosed pressure-lubricated steam engines used either for main propulsion, or having in the aggregate a total power of not less than 375 kW for auxiliary purposes—

- (a) foam fire extinguishers each of at least 45 litres capacity or carbon dioxide fire extinguishers each of at least 16 kilogrammes capacity sufficient in number to enable foam or carbon dioxide to be directed on to any part of the pressure lubrication system and on to any part of the casings enclosing pressure lubricated parts of the turbine, engines or associated gearing and any other areas of high fire risk; provided that such extinguishers shall not be required if equivalent protection is provided in such spaces by a fixed fire-extinguishing system fitted in compliance with regulation 7(1);
- (b) portable fire extinguishers suitable for extinguishing oil fires sufficient in number to ensure that at least one extinguisher is not more than 10 metres walking distance from any position within the space: provided that there shall be not less than two such extinguishers;

Additional requirements for ships constructed on or after 1st September 1984

- (c) in addition, where such spaces are to be periodically unattended, a fire-extinguishing system, specified in regulation 7(1) shall be fitted.

Fire-extinguishing appliances in other machinery spaces

Requirements for ships constructed on or after 25th May 1980

9. In every ship of Class I where a fire hazard exists in any machinery space for which no specific provisions for fire-extinguishing are required by regulation 7 or 8 there shall be provided in or adjacent to that space a sufficient number of portable fire extinguishers to ensure that at least one extinguisher is not more than 10 metres walking distance from any position within that space unless equivalent means of fire extinction are provided.

Paint lockers etc.

10. In every ship of Class I, every paint locker and flammable liquid locker shall be protected by an approved fire-extinguishing system.

Fire patrol, detection and alarm systems

- 11.**—(1) (a) In every ship of Class I an efficient patrol system shall be maintained so that any outbreak of fire may be promptly detected.
- (b) In every such ship manually-operated call points complying with the requirements of Schedule 5 of Merchant Shipping Notice MSN 1666 shall be fitted throughout the accommodation, service and special category spaces which will enable the fire patrol to give an alarm immediately to the navigating bridge or fire control station. Such a manually-operated call point shall be positioned adjacent to each exit from every special category space.
 - (c) Each member of the fire patrol shall be trained to be familiar with the arrangements of the ship as well as the location and operation of any equipment he may be called upon to use.
 - (d) In every such ship carrying more than 36 passengers, each member of the fire patrol shall be provided with a two-way portable radio telephone apparatus.

(2) In every ship of Class I there shall be provided in any part of the ship which is not reasonably accessible to the fire patrol, and in each cargo space (other than special category spaces) containing motor vehicles with fuel in their tanks for their own propulsion, a fixed fire detection and fire alarm system of an approved type complying with Schedule 5 of Merchant Shipping Notice MSN 1666 or a sample extraction smoke detection system complying with the requirements of Schedule 6 of Merchant Shipping Notice MSN 1666.

(3) The Secretary of State may exempt any ship from the requirement in paragraph (2) to provide a fixed fire alarm and fire detection system or a sample extraction smoke detection system in any part of the ship which is not accessible to the fire patrol, if he is satisfied that to require compliance therewith would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

(4) Every ship of Class I shall at all times when at sea, or in port (except when out of service), be so manned and equipped as to ensure that any initial fire alarm is immediately received by a responsible member of the crew.

(5) In every ship of Class I a special alarm, operated from the navigating bridge or fire control station, shall be fitted to summon the crew. This alarm may be part of the ship's general alarm system but it shall be capable of being sounded independently of the alarm to the passenger spaces.

(6) For ships constructed on or after 1st October 1994 a general emergency alarm shall be provided in every Class I ship carrying more than 36 passengers. In the case of a ship of Class I constructed before 1st October 1994 carrying more than 36 passengers a general emergency alarm shall be provided not later than 1st October 1997. The alarm shall be audible throughout all the accommodation and normal crew working spaces and open decks, and its sound pressure level shall comply with the requirements of the Code on Alarms and Indicators adopted by IMO by Resolution A.686(17). The alarm shall continue to function after it has been triggered until it is manually turned off or is temporarily interrupted by a message on the public address system.

(7) In every ship of Class I a public address system or other effective means of communication shall be available throughout the accommodation, service space and control stations, and on and after 1st October 1997 the system shall also be audible on the open deck.

Additional requirements for ships constructed on or after 25th May 1980

(8) In every ship of Class I, in any machinery space where the main propulsion and associated machinery including sources of main electrical supply are provided with automatic or remote control which are under continuously manned supervision from a control room, there shall be provided a fixed fire detection and fire alarm system of an approved type complying with Schedule 5 of Merchant Shipping Notice MSN 1666.

(9) In special category spaces in which the patrol is not maintained by a continuous fire watch at all times during the voyage there shall be provided in that space a fixed fire detection and fire alarm system of an approved type complying with Schedule 5 in Merchant Shipping Notice MSN 1666.

Additional requirement for ships constructed on or after 1st January 1994

(10) In every ship of Class I, where a public space spans three or more decks by means of permanent openings and contains combustibles (such as furniture) and enclosed spaces (such as shops, offices and restaurants), the entire main vertical zone containing that space shall be protected throughout with a smoke detection system complying with the requirements (other than of paragraph (1)(i)) of Schedule 5 of Merchant Shipping Notice MSN 1666.

Additional requirement for ships constructed on or after 1st October 1994

- (11) (a) Every ship of Class I carrying more than 36 passengers shall have the detection alarms for the systems required by regulation 64 centralised in a continuously manned central control station.
- (b) In addition, controls for remote closing of the fire doors and shutting down the ventilation fans shall be centralised in the same location. The ventilation

fans shall be capable of reactivation by the crew at the continuously manned control station.

- (c) The control panels in the central control station shall be—
- (i) capable of indicating open or closed positions of fire doors and on or off status of the detectors, alarms and fans;
 - (ii) continuously powered and shall have an automatic change-over to standby power supply in case of loss of normal supply;
 - (iii) powered from the main source of electric power and from the emergency source of electrical power required by regulation 46 of the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984(a);
 - (iv) designed on the fail-safe principal; occurrence of a fault condition shall initiate a visual and audible fault-signal at the control panel.

Firemen's outfits

- 12.—(1) Every ship of Class I shall be provided with—
- (a) two firemen's outfits and, in addition, two firemen's outfits for every 80 metres (or part thereof) of the aggregate of the lengths of all passenger spaces and service spaces on the deck which carries such spaces or, if there is more than one such deck, on the deck which has the largest aggregate of such lengths; and
 - (b) every such outfit shall comply with the requirements of regulation 46; two such outfits shall include breathing apparatus of the air-hose type and the remainder shall include breathing apparatus of the self-contained type provided that where the air hose of an air-hose type breathing apparatus is required, in order to comply with paragraph 1 of Schedule 5, in Merchant Shipping Notice MSN 1665 to exceed 36 metres in length a self-contained breathing apparatus shall be provided either in addition to or as a substitute for that air-hose type breathing apparatus.
- (2) Two such firemen's outfits shall be available at any one storage position.
- (3) In every ship of Class I carrying more than 36 passengers—
- (a) for each pair of breathing apparatus there shall be provided one water-fog applicator which shall be stored adjacent to such apparatus;
 - (b) at least two spare charges for each breathing apparatus shall be provided, and all air cylinders for breathing apparatus shall be interchangeable;
 - (c) two additional firemen's outfits shall be provided for each main vertical zone;
 - (d) at least two firemen's outfits shall be stored in each main vertical zone.

International shore connection

13. Every ship of Class I of 500 tons or over shall be provided with at least one international shore connection which shall comply with the requirements of Schedule 1 in Merchant Shipping Notice MSN 1665 to enable water to be supplied from another ship or from the shore to the fire main. Fixed provision shall be made to enable such a connection to be used on the port side and on the starboard side of the ship.

SHIPS OF CLASS II

14. Regulations 3 to 13 inclusive shall apply to ships of Class II as they apply to ships of Class I.

SHIPS OF CLASS II(A) OF 21.34 METRES IN LENGTH OR OVER

15. Regulations 3 to 13 inclusive shall apply to ships of Class II(A) of 21.34 metres in length or over as they apply to ships of Class I.

(a) S.I. 1984/1216, to which there are amendments not relevant to these Regulations.

PART III
FIRE PREVENTION AND FIRE APPLIANCES
SHIPS OTHER THAN PASSENGER SHIPS AND TANKERS
SHIPS OF CLASS VII OF 500 TONS OR OVER

Fire pumps, fire mains, water service pipes, hydrants, hoses and nozzles

16.—(1) Every ship of Class VII of 500 tons or over shall be provided with appliances whereby at least two jets of water can reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated, and any store room and any part of any cargo space when empty.

- (2) (a) Every ship of Class VII of 1,000 tons or over shall be provided with at least two fire pumps operated by power. Each such pump shall be capable of delivering at least one jet of water simultaneously from each of any two fire hydrants, hoses and nozzles provided in the ship and shall comply with the requirements of regulation 38.
- (b) Every ship of Class VII of 500 tons or over but under 1,000 tons shall be provided with at least one fire pump operated by power, which shall be capable of delivering at least one jet of water simultaneously from each of any two fire hydrants, hoses and nozzles provided in the ship and shall comply with the requirements of regulation 38, provided that the capacity of the fire pump shall not be less than 25 cubic metres per hour.
- (c) In every ship of Class VII of 500 tons or over, in addition to the fire pumps required by this regulation one of the other pumps fitted in the machinery space such as general service, bilge and ballast pumps shall be capable of providing water to the fire main at the required capacity and the pressure of the fire pumps.
- (3) (a) If in any ship of Class VII of 500 tons or over a fire in any one compartment could put all the fire pumps out of action there shall be provided, in a position outside the machinery spaces, an independently driven power-operated emergency fire pump and its source of power and sea connection.
- (b) In every ship of Class VII of 500 tons or over but under 2,000 tons, the emergency fire pump shall be capable of delivering at least one jet of water simultaneously from each of any two hydrants and hoses through nozzles which comply with the requirements of regulation 40(5)(b) whilst maintaining a pressure of at least 210 kPa at any hydrant in the ship provided that for such ships of 1,000 tons or over, the pressure at any hydrant shall not be less than 250 kPa.
- (4) (a) In every ship of Class VII of 500 tons or over there shall be provided a fire main, water service pipes, hydrants, hoses and nozzles which shall comply with the requirements of regulations 39 and 40.
- (b) (i) Every such ship of 1,000 tons or over shall, in addition to any fire hoses provided in the machinery spaces, be provided with at least one firehose for each 30 metres (or part thereof) length of the ship but in no case less than five hoses and such hoses shall have a total length of at least 60 per cent of the length of the ship. In addition to such hoses there shall be provided one spare fire hose.
- (ii) In every such ship of 500 tons or over there shall be provided in ro-ro cargo spaces at least three water-fog applicators in addition to the nozzles required by these Regulations.
- (iii) In every such ship of 500 tons or over in every ro-ro cargo space the number of hydrants with hoses shall be so arranged that at least two jets of water each from a single length of hose not emanating from the same hydrant may reach any part of the space. Such hydrants shall be positioned near the accesses to the protected space.

- (iv) Every such ship of 500 tons or over but under 1,000 tons shall, in addition to any fire hoses provided in the machinery spaces, be provided with at least two fire hoses having a total length of at least 60 per cent of the length of the ship and one spare fire hose.
- (c) In every such ship of 500 tons or over fitted with oil-fire boilers or internal combustion type propelling machinery, there shall be provided in each space containing such boilers or machinery at least two fire hydrants, one on the port side and one on the starboard side, and in addition where there is access to the machinery space of any such ship by way of a shaft tunnel, a fire hydrant shall be provided in the tunnel at the end adjacent to that space. A fire hose and nozzle shall be provided at every such fire hydrant.

Additional requirements for ships constructed on or after 1st September 1984

- (d) In every ship of Class VII of 2,000 tons or over the emergency fire pump shall—
 - (i) be capable of delivering at least one jet of water simultaneously from each of any two hydrants and hoses through nozzles which shall comply with the requirements of regulation 40(5)(b); and
 - (ii) meet the requirements or regulations 38(5).

Portable fire extinguishers

17.—(1) Every ship of Class VII of 500 tons or over shall be provided with a sufficient number of portable fire extinguishers to ensure that at least one such extinguisher will be readily available for use in any part of the accommodation spaces, service spaces and control stations. The number of such extinguishers shall not be less than five in a ship of 1,000 tons or over and not less than three in a ship of 500 tons or over but under 1,000 tons.

Additional requirements for ships constructed on or after 25th May 1980

- (2) In every such ship there shall be provided in each ro-ro cargo space intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion—
 - (a) at least two portable extinguishers suitable for extinguishing oil fires for every 40 metres length of deck space so arranged that at least one extinguisher is available on each side of the space and at least one extinguisher is available at each access to the space; and
 - (b) one foam-applicator unit complying with the requirements of Schedule 6 in Merchant Shipping Notice MSN 1665. Not less than two such applicators shall be available in the ship for use in any such space.

Fixed fire-extinguishing arrangements in cargo spaces

18.—(1) In every ship of Class VII of 2,000 tons or over, other than ships to which paragraph (3) applies, there shall be provided a fixed fire-smothering gas installation complying with the requirements of Schedule 4 in Merchant Shipping Notice MSN 1666 which shall be so arranged as to protect every cargo space.

(2) The Secretary of State may exempt any ship (other than a ship engaged in the carriage of dangerous goods) from the requirements of paragraph (1) in so far as such arrangements relate to the provision of a fixed fire-smothering gas or steam installation in the cargo holds of the ship if he is satisfied that—

- (a) the ship is constructed and solely intended for the carriage of bulk cargoes which are—
 - (i) listed in Table 1 of MSC Circular 671 as non-combustible or constituting a low fire risk; or
 - (ii) listed in Table 2 of MSC Circular 671 and for which a fixed gas system is ineffective, the cargo spaces being provided with an approved fire-extinguishing system which can be shown to give equivalent fire protection; and

- (b) the holds are provided with steel hatch covers and effective means of closing all ventilators and other openings thereto; or
- (c) to require compliance would be unreasonable on account of the short duration of the voyages on which the ship is engaged.

Additional requirements for ships constructed on or after 25th May 1980

(3) In every ship of Class VII engaged in the carriage of dangerous goods there shall be provided—

- (a) a fixed gas fire-extinguishing system complying with the requirements of Schedule 4 in Merchant Shipping Notice MSN 1666 for every cargo space (other than ro-ro cargo spaces not capable of being sealed); and
- (b) a fixed pressure water-spraying system complying with the requirements of Schedule 3 in Merchant Shipping Notice MSN 1666 for every ro-ro cargo space not capable of being sealed.

(4) In every ship of Class VII of 2,000 tons or over there shall be provided in each open ro-ro cargo space having a deck cover and each space which is a closed ro-ro cargo space but not capable of being sealed, a fixed pressure water-spraying system complying with Schedule 3 in Merchant Shipping Notice MSN 1666. Due consideration shall be given to bilge pumping arrangements and drainage facilities.

Additional requirements for ships constructed on or after 1st September 1984

(5) In every ship of Class VII of 500 tons or over there shall be provided for every ro-ro cargo space not capable of being sealed a fixed pressure water-spraying system complying with Schedule 3 in Merchant Shipping Notice MSN 1666.

(6) In every ship of Class VII of 500 tons or over there shall be provided for every ro-ro cargo space capable of being sealed and for every cargo space (other than a ro-ro cargo space) intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion a fixed pressure water-spraying system complying with Schedule 3, or a fixed gas fire-extinguishing system complying with Schedule 4, in Merchant Shipping Notice MSN 1666.

Special requirements for cargo space ventilation

Requirements for ships constructed on or after 1st September 1984

19.—(1) In every ship of Class VII of 500 tons or over there shall be provided in each closed ro-ro cargo space and each cargo space intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion an effective power-ventilation system to provide at least six air changes per hour based on an empty hold. Ventilation fans shall where practicable be run continuously whenever vehicles are on board. Where this is impracticable, they shall be operated for a limited period daily as weather permits and in any case for a reasonable period prior to discharge, after which period such spaces shall be proved gas-free. One or more portable combustible gas detecting instruments shall be carried for this purpose. The system shall be entirely separate from other ventilating systems. Ventilation ducts serving such spaces capable of being effectively sealed shall be separated for each cargo space. The Secretary of State may require the capability to increase the number of air changes when vehicles are being loaded or unloaded. The system shall be capable of being controlled from a position outside such spaces. In addition—

- (a) the ventilation shall be so arranged as to prevent air stratification and the formation of air pockets;
- (b) means shall be provided to indicate any loss of the required ventilating capacity on the navigating bridge;
- (c) arrangements shall be provided to permit a rapid shut-down and effective closure of the ventilating system in case of fire, taking into account the weather and sea conditions.

Machinery spaces of Category A

20.—(1) (a) In every ship of Class VII of 500 tons or over there shall be provided for the protection of any machinery space of Category A at least one of the following fire-extinguishing installations—

- (a) a fixed pressure water-spraying system complying with the requirements of Schedule 2 in Merchant Shipping Notice MSN 1666;
- (b) a fixed gas fire-extinguishing system complying with the requirements of Schedule 4 in Merchant Shipping Notice MSN 1666; or
- (c) a fixed high-expansion foam system complying with the requirements of Schedule 8 in Merchant Shipping Notice MSN 1666.

(b) If the engine and boiler rooms are not entirely separated from each other by a bulkhead, or if fuel oil can drain from the boiler room into the engine room, the combined engine and boiler rooms shall for the purpose of this paragraph be regarded as a single space.

(2) In addition to the requirements of paragraph (1) above there shall be provided—

- (a) in each boiler room one or more foam fire extinguishers each of at least 135 litres capacity or carbon dioxide fire extinguishers of at least 45 kilogrammes capacity. The extinguishers shall be sited so as to be readily accessible in the event of fire and they shall be sufficient in number to enable foam or carbon dioxide to be directed on to any part of the boiler room and spaces containing any part of the oil fuel installation;
- (b) in each boiler room at least one portable foam-applicator unit complying with the requirements of Schedule 6 in Merchant Shipping Notice MSN 1665;
- (c) in each firing space and in each space which contains any part of any oil fuel installation, at least two portable fire extinguishers suitable for extinguishing oil fires, in addition to any which may be carried in compliance with the preceding sub-paragraph;
- (d) in each firing space a receptacle containing 0.3 cubic metre of sand or other dry material suitable for extinguishing oil fires, together with a scoop for its distribution or alternatively an additional portable fire extinguisher suitable for extinguishing oil fires.

(3) In addition to the requirements of paragraph (1) there shall be provided in any such spaces containing internal combustion type machinery—

- (a) one or more foam fire extinguishers of at least 45 litres capacity or carbon dioxide fire extinguishers of at least 16 kilogrammes capacity sufficient in number to enable foam or carbon dioxide to be directed on to any part of the fuel and lubricating oil pressure systems, gearing and other areas of high fire risk;
- (b) at least one portable foam-applicator unit complying with the requirements of Schedule 6 in Merchant Shipping Notice MSN 1665;
- (c) portable fire extinguishers suitable for extinguishing oil fires sufficient in number to ensure that at least one extinguisher is not more than 10 metres walking distance from any position within the space: provided that there shall be not less than two extinguishers.

Machinery spaces containing steam turbines or enclosed steam engines

21. In every ship of Class VII of 500 tons or over there shall be provided in spaces containing steam turbines or enclosed pressure-lubricated steam engines used either for main propulsion, or having in the aggregate power of not less than 375 kW for auxiliary purposes—

- (a) foam fire extinguishers each of at least 45 litres capacity or carbon dioxide fire extinguishers each of at least 16 kilogrammes capacity sufficient in number to enable foam or carbon dioxide to be directed on to any part of the pressure-lubrication system and on to any part of the casings enclosing pressure-lubricated parts of the turbines, engines or associated gearing and any other areas of high fire risk: provided that such extinguishers shall not be required if equivalent protection is provided in such spaces by a fixed fire-extinguishing system fitted in compliance with regulation 20(1);

- (b) portable fire extinguishers suitable for extinguishing oil fires sufficient in number to ensure that at least one extinguisher is not more than 10 metres walking distance from any position within the space: provided that there shall be not less than two extinguishers; and

Additional requirement for ships constructed after 1st September 1984

- (c) where such spaces are to be periodically unattended there shall be provided additionally either a fixed pressure water-spraying system complying with the requirements of Schedule 2, or a fixed gas fire-extinguishing system complying with the requirements of Schedule 4, in Merchant Shipping Notice MSN 1666.

Fire-extinguishing appliances in other machinery spaces

Requirements for ships constructed on or after 25th May 1980

22. Where a fire hazard exists in any machinery space for which no specific provisions for fire-extinguishing are made in regulations 20 and 21 there shall be provided in, or adjacent to that space sufficient number of portable fire extinguishers to ensure that at least one extinguisher is not more than 10 metres walking distance from any position within that space unless equivalent means of fire extinction are provided.

Paint lockers etc.

23. In every ship of Class VII of 500 tons or over, every paint locker and flammable liquid locker shall be protected by an approved fire-extinguishing system.

Fire detection and fire alarm systems and sample extraction smoke detection systems

24.—(1) Every ship of Class VII of 500 tons or over shall be provided with a fixed fire detection and fire alarm system of an approved type complying with the requirements of Schedule 5 in Merchant Shipping Notice MSN 1666 in any machinery space where the installation of automatic and remote control systems and equipment has been approved in lieu of continuous manning of the space.

Additional requirements for ships constructed on or after 25th May 1980

(2) In every ship of Class VII of 500 tons or over there shall be provided in each cargo space (other than ro-ro cargo spaces) intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion either a fixed fire detection and fire alarm system of an approved type complying with Schedule 5, or a sample extraction smoke detection system complying with Schedule 6, in Merchant Shipping Notice MSN 1662.

Additional requirements for ships constructed on or after 1st September 1984

(3) In every ship of Class VII of 500 tons or over, in any machinery spaces where the main propulsion and associated machinery including sources of main electrical supply are provided with automatic or remote control under continuous manned supervision from a control room, there shall be provided a fixed fire detection and alarm system of an approved type complying with Schedule 5 in Merchant Shipping Notice MSN 1666.

(4) In every Class VII ship of 500 tons or over there shall be provided in each ro-ro cargo space a fixed fire detection and fire alarm system of an approved type complying with Schedule 5 in Merchant Shipping Notice MSN 1666.

Firemen's outfits

25.—(1) Every ship of Class VII of 500 tons or over shall carry firemen's outfits complying with the requirements of regulation 46 in accordance with the following scale—

<i>Tonnage of the ship</i>	<i>Number of outfits</i>
500 but under 4,000	2
4,000 or over	3

(2) At least one such outfit carried in any such ship shall include a breathing apparatus of the air-hose type.

(3) If in any such ship which carries firemen's outfits containing only breathing apparatus of the air-hose type, an air-hose exceeding 36 metres in length is necessary to reach from a point on the open deck well clear of any hatch or doorway any part of the accommodation, service, cargo or machinery spaces, at least one of the fireman's outfits provided pursuant to paragraph (1) shall include breathing apparatus of the self-contained type.

Requirements for ships constructed on or after 25th May 1980

(4) Every ship of Class VII of 500 tons or over shall carry firemen's outfits which shall comply with the requirements of regulation 46 in accordance with the following scale—

<i>Tonnage of the ship</i>	<i>Number of outfits</i>
500 but under 2,500	2
2,500 but under 4,000	3
4,000 or over	4

(5) One such outfit carried in any such ship shall include a breathing apparatus of the air-hose type and the remainder shall include breathing apparatus of the self-contained type provided that where the air-hose of an air-hose type breathing apparatus is required, in order to comply with paragraph 1 of Schedule 5 in Merchant Shipping MSN 1665, to exceed 36 metres in length a self-contained breathing apparatus shall be provided either in addition to or as a substitute for that air-hose breathing apparatus.

International shore connection

26. Every ship of Class VII of 500 tons or over shall be provided with at least one international shore connection which shall comply with the requirements of Schedule 1 in Merchant Shipping Notice MSN 1665 to enable water to be supplied from another ship, or from the shore, to the fire main. Fixed provision shall be made to enable such a connection to be used on the port side and on the starboard side of the ship.

SHIPS OF CLASS VII(A)

27. Regulations 16 to 26 inclusive shall apply to every ship of Class VII(A) of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

SHIPS OF CLASS VIII

Requirements for ships of 1,000 tons or over constructed before 25th May 1980

28.—(1) Regulations 16, 17 and 20 to 26 inclusive shall apply to every ship of Class VIII of 1,000 tons or over as they apply to ships of Class VII of 500 tons or over.

Requirements for ships of 500 tons or over but under 1,000 tons constructed before 25th May 1980

(2) Regulations 16, 17, 20 to 23 and 25 shall apply to ships of Class VIII of 500 tons or over but under 1,000 tons as they apply to ships of Class VII of 500 tons or over but under 1,000 tons, provided that where at least two hydrants are required by regulation 16(4)(c) to be provided in each space containing oil fired boilers or internal combustion type propulsion machinery there shall be provided at least one fire hydrant.

Requirements for ships of 500 tons or over constructed on or after 25th May 1980

(3) Regulations 16 to 26 inclusive shall apply to ships of Class VIII of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

SHIPS OF CLASS VIII(A), IX AND IX(A)

Requirements for ships of 1,000 tons or over constructed before 25th May 1980

(4) Regulations 16, 17 and 20 to 26 inclusive shall apply to ships of Classes VIII(A), IX and IX(A) of 1,000 tons or over as they apply to ships of Class VII of 500 tons or over.

Requirements for ships of 500 tons or over but under 1,000 tons constructed before 25th May 1980

(5) Regulations 16, 17, 20 to 23 shall apply to ships of Classes VIII(A), IX and IX(A) of 500 tons or over but under 1,000 tons as they apply to ships of Class VII of 500 tons or over, provided that where at least two hydrants are required by regulation 16(4)(c) to be provided in each space containing oil fired boilers or internal combustion type propulsion machinery there shall be provided at least one fire hydrant.

Requirements for ships of 500 tons or over constructed on or after 25th May 1980

(6) Regulations 16 to 26 inclusive shall apply to ships of classes VIII(A), IX and IX(A) of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

SHIPS OF CLASS XI

Requirements for ships of 1,000 tons or over constructed before 25th May 1980

(7) Regulations 16, 17 and 20 to 26 shall apply to ships of Class XI of 1,000 tons or over as they apply to ships of Class VII of 500 tons.

Requirements for ships of 500 tons or over but under 1,000 tons constructed before 25th May 1980

(8) Regulations 16, 17, 20 to 23 and 25 shall apply to ships of Class XI of 500 tons or over but under 1,000 tons as they apply to ships of Class VII of 500 tons or over, provided that where at least two hydrants are required by regulation 16(4)(c) to be provided in each space containing oil fired boilers or internal combustion type propulsion machinery there shall be provided in each space containing such machinery at least one fire hydrant.

Requirements for ships of 500 tons or over constructed on or after 25th May 1980

(9) Regulations 16 to 26 inclusive shall apply to ships of Class XI of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

SHIPS OF CLASS XII

Requirements for ships of 1,000 tons or over constructed before 25th May 1980

(10) Regulations 16, 17 and 20 to 26 shall apply to ships of Classes XII of 1,000 tons or over as they apply to ships of Class VII of 500 tons.

Requirements for ships of 500 tons or over but under 1,000 tons constructed before 25th May 1980

(11) Regulations 16, 17, 20 to 23 and 25 shall apply to ships of Class XII of 500 tons or over but under 1,000 tons as they apply to ships of Class VII of 500 tons or over, provided that where at least two hydrants are required by regulation 16(4)(c) to be provided in each space containing oil fired boilers or internal combustion type propulsion machinery there shall be provided at least one fire hydrant.

Requirements for ships of 500 tons or over constructed on or after 25th May 1980

(12) Regulations 16 to 26 inclusive shall apply to ships of Class XII of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

PART IV

FIRE PREVENTION AND FIRE APPLIANCES

TANKERS OF CLASS VII(T) OF 500 TONS OR OVER

General requirements

29. Regulations 16 and 17(1), regulations 20 to 24(1) inclusive and regulation 26 shall apply to every tanker of Class VII(T) of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

Cargo tank protection

Inert gas systems

30.—(1) Every tanker of Class VII(T) of 20,000 tons or over constructed or adapted and used to carry crude oil and petroleum products having a closed flashpoint not exceeding 60°C, and Reid vapour pressure below atmospheric pressure, and other liquids having a similar fire hazard, shall be provided with an inert gas system complying with the standard requirements contained in Schedule 9 in Merchant Shipping Notice MSN 1666.

(2) A tanker referred to in paragraph (1) need not be provided with the standard requirements for an inert gas system if—

- (a) being a chemical tanker carrying as cargo any substance mentioned in paragraph (1), it is provided with an inert gas system complying with the alternative requirements for chemical tankers contained in Schedule 10 in Merchant Shipping Notice MSN 1666;
- (b) being a chemical tanker constructed before 1st July 1986 and carrying crude oil or petroleum products, it is provided with an inert gas system complying with the alternative requirements for chemical tankers applicable to it contained in Schedule 10 in Merchant Shipping Notice MSN 1666;
- (c) being a gas carrier carrying as cargo a substance mentioned in paragraph (1), it is provided with cargo tank inerting arrangements equivalent to those specified in sub-paragraph (a) or (b);
- (d) being a chemical tanker or gas carrier constructed before 1st July 1986, it is carrying a flammable cargo other than crude oil or petroleum products; or
- (e) being a chemical tanker or gas carrier constructed on or after 1st July 1986 and carrying a flammable cargo other than crude oil or petroleum products, it complies with the following requirements, that is to say—
 - (i) that the capacity of each tank used for carriage of that cargo does not exceed 3,000 cubic metres;
 - (ii) that the capacity of each nozzle of a tank washing machine does not exceed 17.5 cubic metres per hour; and
 - (iii) that the total combined throughput from all such machines in use in a cargo tank at any time does not exceed 110 cubic metres per hour.

In sub-paragraphs (d) and (e), the references to a flammable cargo other than crude oil or petroleum products includes (without prejudice to the generality of those references) references to any of the cargoes listed in Chapters 17 and 18 of the International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk.

- (3) (a) Every inert gas system provided in accordance with this regulation shall be designed, constructed and tested to the satisfaction of the Secretary of State. It shall be designed and operated so as to render and keep the atmosphere of the cargo tanks including the slop tanks non-flammable at all times, except where such tanks are to be gas free.
- (b) In the event that the inert gas system is unable to meet the operational requirement set out above and it has been assessed that it is impractical to effect a repair, then cargo discharge, deballasting and necessary tank cleaning may only be resumed when the emergency procedures laid down in the Guidelines for Inert Gas Systems are complied with.
- (c) Where inert gas is being supplied by a system referred to in this regulation, and the oxygen content of the inert gas in the inert gas supply main exceeds 8 per cent by volume, it shall be the duty of the master to ensure that:
 - (i) immediate action is taken to improve the gas quality;
 - (ii) if the quality of the gas does not improve, all operations in those tanks to which the inert gas is being supplied are suspended so as to avoid air being drawn into those tanks;
 - (iii) the deck isolation valve (not being the water-seal device) is closed; and
 - (iv) sub-standard gas is vented to the atmosphere.

- (4) (a) Every tanker of Class VII(T) of less than 20,000 tonnes deadweight operating with a tank cleaning procedure using crude oil washing, shall be fitted with an inert gas system complying with the standard requirements contained in Schedule 9 in Merchant Shipping Notice MSN 1666.
- (b) Every tanker of Class VII(T) operating with a tank cleaning procedure using crude oil washing shall be provided with fixed tank washing machines only.
- (5) Every tanker of Class VII(T) fitted with a fixed inert gas system shall be provided with a closed ullage system.
- (6) Combination carriers shall not carry solid cargoes unless all cargo tanks are empty of crude oil and other petroleum products having a closed flash point not exceeding 60°C and other liquids having a similar fire hazard and are gas freed or unless the arrangements provided in each case are in accordance with the relevant operational requirements contained in the Guidelines for Inert Gas Systems.
- (7) Tankers constructed before 25th May 1980 of less than 40,000 tons deadweight carrying oil other than crude oil or other liquids having a similar fire hazard which are not fitted with tank washing machines having an individual throughput greater than 60 cubic metres shall not be required to be fitted with an inert gas system.

Deck foam systems

(8) Every Category A tanker of Class VII(T) of 100,000 tons deadweight or over and every Category A combination carrier of Class VII(T) of 50,000 tons deadweight or over shall be provided with a fixed deck foam system complying with Schedule 7 in Merchant Shipping Notice MSN 1666.

(9) Every tanker referred to in paragraph (1), constructed before 25th May 1980—

- (a) for which the building contract was placed after 1st June 1979; or
- (b) in the absence of a building contract, constructed after 1st January 1980; or
- (c) which was delivered after 1st June 1982; or
- (d) which undergoes an alteration or modification of a major character—
 - (i) for which a contract was placed after 1st June 1979; or
 - (ii) in the absence of a contract, the construction work of which was begun after 1st January 1980; or
 - (iii) which was completed after 1st June 1982;

shall be fitted with a fixed deck foam system complying with Schedule 7 in Merchant Shipping Notice MSN 1666.

(10) Every tanker of Class VII(T) of 2,000 tons or over not fitted with an inert gas system complying with the standard requirements contained in Schedule 9 in Merchant Shipping Notice MSN 1666 shall be provided with a fixed foam fire-extinguishing installation complying with paragraph (11) or with a fixed smothering gas or steam installation complying with Schedule 4 in Merchant Shipping Notice M 1666, providing protection for all cargo spaces.

(11) Every fixed foam fire-extinguishing installation fitted to meet the requirements of paragraph (10) shall be capable of distributing on the decks over such tanks through fixed discharge outlets in not more than 15 minutes a quantity of foam sufficient to cover to a depth of at least 50 millimetres the whole of the tank deck area. Such an installation shall be capable of generating foam suitable for extinguishing oil fires and shall include means for the effective distribution of the foam through a permanent system of piping and control valves or cocks to discharge outlets. There shall be sufficient mobile foam sprayers capable of being connected to the installation whereby foam can be directed into any tank. For the purpose of this paragraph “tank deck area” means an area equivalent to the extreme length of the cargo tanks multiplied by the breadth of the ship.

(12) Every tanker of Class VII(T) of 2,000 tons or over not fitted with a fixed deck foam system complying with Schedule 7 in Merchant Shipping Notice MSN 1666, or a fixed foam fire-extinguishing installation complying with paragraph (11) shall be provided with a mobile foam fire-fighting unit having a capacity of at least 100 litres of foam concentrate or alternatively two portable foam-applicators each having not less than 50 litres of foam concentrate readily available. Such units or appliances, when connected to the appropriate deck fire hydrants, shall be capable by a simple and a rapid means of operation of discharging foam on to the area of the cargo piping manifold.

(13) Every tanker of Class VII(T) of under 2,000 tons not provided with any of the deck foam arrangements of foam appliances referred to in paragraph (12) shall be provided with at least one mobile foam appliance whereby foam is immediately available, by a simple and a rapid means of operation, for discharge in the area of the cargo piping manifolds.

Requirements for ships constructed between 25th May 1980 and 1st September 1984

(14) Every tanker of Class VII(T) of 2,000 tons or over shall be provided with a fixed deck foam system complying with the requirements of Schedule 7 in Merchant Shipping Notice MSN 1666 except that this requirement shall not apply to chemical tankers.

(15) Every tanker of Class VII(T) of under 2,000 tons shall be provided with at least one mobile foam appliance whereby foam is immediately available, by a simple and a rapid means of operation, for discharge in the area of the cargo manifold.

Requirements for ships constructed on or after 1st September 1984

(16) Every tanker of Class VII(T) of 500 tons or over shall be provided with a fixed deck foam system complying with the requirements of Schedule 7 in Merchant Shipping Notice MSN 1666, except that this requirement shall not apply to chemical tankers or gas carriers. For these vessels alternative arrangements shall be provided to the satisfaction of the Secretary of State.

(17) Where a liquid cargo (other than one referred to in paragraph (1)) presenting a particular fire hazard is to be carried a means or system of fire-extinguishing appropriate for dealing with this hazard shall be provided to the satisfaction of the Secretary of State.

Equivalence

- (18) (a) Other fixed fire-extinguishing systems may be provided if they are deemed to be equivalent in the manner set out in paragraph (b) or, as the case may be, (c) of this paragraph.
- (b) A system provided in place of the inert gas system referred to in this regulation shall be deemed to be equivalent to that system if it is—
- (i) capable of preventing dangerous accumulation of explosive mixtures in intact cargo tanks during normal service throughout the ballast voyage and necessary in-tank operations; and
 - (ii) so designed as to minimise the risk of ignition from the generation of static electricity by the system itself.
- (c) An installation provided in place of the fixed deck foam system referred to in this regulation shall be deemed to be equivalent to that system if it is—
- (i) capable of extinguishing spill fires and precludes ignition of spilled oil not yet ignited; and
 - (ii) capable of combating fires in ruptured tanks.

Cargo tank purging and/or gas freeing

Requirements for ships constructed on or after 1st September 1984

31.—(1) In every tanker of Class VII(T) of 500 tons or over arrangements for purging and gas freeing shall be such as to minimise the hazards due to the dispersal of flammable vapours in the atmosphere and to flammable mixtures in a cargo tank.

(2) When the ship is provided with an inert gas system the cargo tanks shall first be purged—

- (a) in accordance with the provisions of the Guidelines for Inert Gas Systems; or
- (b) if the ship does not need to be provided with an inert gas system complying with the requirements of regulation 30(1) but is a ship mentioned in regulation 30(2)(a), (b) or (c) in accordance with the provisions of paragraph 12 of Part IV of the Guidelines on Inert Gas Systems or,

until the concentration of hydrocarbon vapours in the cargo tanks has been reduced to less than 2 per cent by volume. Thereafter, gas-freeing may take place at the cargo tank deck level.

(3) When the ship is not provided with an inert gas system, the operation shall be such that the flammable vapour is discharged—

- (a) through the vent outlets as specified in regulation 23 of the Merchant Shipping (Cargo Ship Construction) Regulations 1997(a); or
- (b) if the ship is one constructed on or after 1st February 1992, through outlets at least 2 metres above the cargo tank deck level with a vertical efflux velocity of at least 30 metres per second during the gas-freeing operation; or
- (c) through outlets at least 2 metres above the cargo tank deck level with a vertical efflux velocity of at least 20 metres per second and through devices (other than flame screens) complying with Schedule 1 in the Merchant Shipping Notice MSN 1671 so as to prevent the passage of flame into the cargo tanks,

until the flammable vapour concentration in the outlet has been reduced to 30 per cent of the lower flammable limit. Thereafter, gas-freeing may be continued at the cargo tank deck level.

Cargo pump rooms

Fixed fire-extinguishing arrangements in cargo pump rooms

32.—(1) In every category A tanker of Class VII(T) of 500 tons or over and in every Category A combination carrier of Class VII(T) of 500 tons or over, each cargo pump room shall be provided with a fixed fire-extinguishing system operated from a readily accessible position outside the pump room. The system shall use water or other medium approved by the Secretary of State.

Requirements for ships constructed on or after 25th May 1980

(2) Except as otherwise provided in paragraph (3), in every tanker of Class VII(T) of 500 tons or over, each cargo pump room and each pump room having a similar hazard shall be provided with at least one of the fixed fire-extinguishing systems required by regulation 20(1) and which shall be operated from a readily accessible position outside the pump room, provided that where the fixed extinguishing system is a gas system—

- (a) every alarm referred to in Schedule 4 in Merchant Shipping Notice MSN 1666 shall be safe for use in a flammable cargo vapour/air mixture;
- (b) a notice shall be exhibited at the controls stating that due to the electrostatic ignition hazard, the system is to be used only for fire-extinguishing and not for inerting purposes; and
- (c) where the extinguishing medium used in the cargo pump room system is also used in systems serving other spaces, the quantity of medium provided or its delivery rate need not be more than the maximum required for the largest space.

(a) S.I. 1997/1509.

(3) In chemical tankers where the fixed fire-extinguishing system referred to in paragraph (1) is a gas system, the concentration shall be as specified in the Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk.

Fire main isolating valves

Requirements for ships constructed on or after 1st September 1984

33. In every tanker of Class VII(T) of 500 tons or over isolation valves shall be fitted in the fire main at poop front in a protected position and on the tank deck at intervals of not more than 40 metres to preserve the integrity of the fire main system in case of fire or explosion.

Firemen's outfits

34. In every ship of Class VII(T) of 500 tons or over there shall be provided not less than four firemen's outfits complying with the requirements of regulation 46. In addition one such outfit carried in any such ship shall include a breathing apparatus of the air-hose type and the remainder shall include breathing apparatus of the self-contained type: provided that where the air hose of an air-hose type breathing apparatus is required, in order to comply with paragraph 1 of Schedule 5 in Merchant Shipping Notice MSN 1665 to exceed 36 metres in length a self-contained breathing apparatus shall be provided either in addition to or as a substitute for that air-hose breathing apparatus.

TANKERS OF CLASS VIII(T)

35. Regulations 29 to 34 inclusive shall apply to tankers of Class VIII(T) of 500 tons or over as they apply to tankers of Class VII(T) of 500 tons or over.

TANKERS OF CLASSES VIII(A)(T) AND IX(A)(T)

- 36.—(a) Regulation 25(4) shall apply to tankers of Classes VIII(A)(T) and IX(A)(T) of 500 tons or over as it applies to ships of Class VII of 500 tons or over.
- (b) Regulations 29 to 33 inclusive shall apply to tankers of Classes VIII(A)(T) and IX(A)(T) of 500 tons or over as they apply to tankers of Class VII(T) of 500 tons or over; provided that tankers of Classes VIII(A)(T) and IX(A)(T) of less than 2,000 tons may, instead of complying with regulation 30(16), comply with the requirements of regulation 30(15) as if they were constructed before 1st September 1984.

PART V

FIRE PREVENTION AND APPLIANCES

GENERAL

Requirements for ships provided with helicopter decks with or without fuelling facilities

37.—(1) On any helicopter deck there shall be provided and stored adjacent to the means of access to that deck—

- (a) dry powder extinguishers of total capacity not less than 45 kilogrammes; and
- (b) a suitable foam-applicator system consisting of monitors or foam-making branch pipes capable of delivering foam solution at a rate of not less than 6 litres per minute per square metre of the area contained within a circle of diameter D metres for not less than five minutes. For the purpose of this regulation, D is the distance across the main rotor and tail rotor in the fore and aft line of a helicopter with a single main rotor and across both rotors for a tandem rotor helicopter; and
- (c) carbon dioxide extinguishers of total capacity of not less than 16 kilogrammes, which shall be so equipped as to enable the medium to be applied to the engine area of any helicopter using the deck.

(2) The arrangement of water service pipes, hydrants, hoses and nozzles shall be such that at least two jets of water can reach any part of the helicopter deck and, where

helicopter refuelling facilities are provided, any part of the fuel storage tanks and associated pumps and piping.

(3) All such nozzles provided in accordance with paragraph (2) shall be of dual-purpose type.

(4) In every ship provided with helicopter refuelling facilities, at least two portable extinguishers suitable for fighting oil fires shall be provided adjacent to the fuel storage tanks and associated pumps and piping in addition to any portable extinguishers required by these Regulations.

Helicopter deck operations manual

Additional requirements for ships constructed after 1st February 1992

(5) If a ship mentioned in regulation 49(1) or (3)—

- (a) is a ship constructed on or after 1st February 1992; and
- (b) has a helicopter deck;

the ship shall carry an operations manual, which shall include a description and a checklist of safety precautions, procedures, and equipment requirements for this helicopter deck.

Fire pumps

38.—(1) In every passenger ship which is required to be provided with fire pumps operated by power, such fire pumps (other than any emergency fire pump) shall together be capable of delivering for fire fighting purposes a quantity of water, under the conditions and at the pressure specified in regulation 39 of not less than two thirds of the quantity required to be dealt with by the bilge pumps provided in the ship in compliance with the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984.

(2) In every ship, other than a passenger ship, which is required to be provided with fire pumps operated by power, such fire pumps (other than any emergency fire pump) shall together be capable of delivering for fire fighting purposes a quantity of water, under the conditions and at the pressure specified in Schedule 7 in Merchant Shipping Notice MSN 1665.

(3) In every ship which is required to be provided with more than one fire pump operated by power (other than any emergency pump) every such fire pump shall have a capacity of not less than 80 per cent of the total capacity of the fire pumps required by paragraph (1) divided by the number of fire pumps required to be provided in the ship, provided that each pump has a capacity of not less than 25 cubic metres per hour. When more fire pumps operated by power than are required by these Regulations are provided in any ship, the capacity of any such additional fire pumps may be less than 80 per cent.

(4) In every ship of Class I, II, or II(A) any emergency fire pump shall be situated in a position aft of the ship's collision bulkhead.

Additional requirement for ships constructed on or after 1st September 1984

(5) For every ship of 2,000 tons or over, other than a passenger ship, the arrangement of the emergency fire pump shall be in accordance with the requirements set out in Schedule 7 in Merchant Shipping Notice MSN 1665.

Fire main, water service pipes and hydrants

39.—(1) In every ship which is required to be provided with fire pumps operated by power, the diameter of the fire main and of the water service pipes connecting the

hydrants thereto shall be sufficient for the effective distribution of the maximum discharge required by these Regulations from—

- (a) where only one pump is required, that pump, or
- (b) where two such pumps are so required, both pumps operating simultaneously, or
- (c) where more than two such pumps are so required, the two largest of such pumps operating simultaneously;

provided that in any ship other than a passenger ship the diameter of the fire main and of the water service pipes shall be sufficient only for the discharge of 140 cubic metres of water per hour.

(2) Any fire pump required to be provided by these Regulations shall, when discharging the quantity of water required by paragraph (1) through adjacent fire hydrants in any part of the ship from nozzles of sizes specified in regulation 40, be capable of maintaining the pressures at any hydrant specified in Schedule 7 in Merchant Shipping Notice MSN 1665.

- (3) (a) Where any ship is required to be provided with appliances capable of producing two jets of water under the conditions required by these Regulations, hydrants sufficient in number shall be so positioned as to enable at least two jets of water, not emanating from the same hydrant, one of which shall be from a single length of hose, to reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated, and to any store room and any part of any cargo space when empty except that in any special category space or ro-ro cargo space two jets shall reach any part of the space, each from a single length of hose. Such hydrants shall be positioned near the accesses to the protected spaces.
- (b) Where any ship is required to be provided with appliances capable of producing one jet of water under the conditions required by these Regulations, hydrants sufficient in number shall be so positioned as to enable one jet of water from a single length of hose to reach any part of the ship normally accessible to the passengers or crew while the ship is being navigated and any store room and any part of any cargo space when empty.

(4) Any fire main required to be provided by these Regulations shall comply with the requirements set out in Schedule 7, paragraph 10, in Merchant Shipping Notice MSN 1665.

Fire hoses, nozzles, etc.

40.—(1) Fire hoses provided in compliance with these Regulations shall not exceed 18 metres in length except that in ships having a moulded breadth of 27 metres or more, the length of fire hoses for exterior locations and for cargo spaces may exceed 18 metres but shall not exceed 27 metres in length. In a ship constructed before 1st February 1992 every such hose forming part of the ship's equipment before that date shall be made of closely woven flax, canvas or other suitable material; and every other such hose shall be made of non-perishable material. In a ship constructed on or after 1st February 1992 every such hose shall be made of non-perishable material.

(2) Every such hose shall be provided with couplings, branch pipes other necessary fittings and nozzles, as required by these Regulations.

(3) Every fire hose provided in compliance with these Regulations together with the tools and fittings necessary for its use, shall be kept in a conspicuous position near the hydrants or connections with which it is intended to be used. In interior locations in passenger ships, fire hoses shall be connected to the hydrants at all times. Hose diameters shall be not less than 64 millimetres if unlined or 45 millimetres if lined except that smaller diameter hoses may be permitted in small ships.

(4) In ships of Class XII, fire hoses provided in compliance with these Regulations shall not be used for any purpose other than for fire fighting or testing the fire appliances.

- (5) (a) Every ship which is required to be provided with fire pumps operated by power shall be provided with nozzles of 12 millimetres, 16 millimetres, 19 millimetres in diameter or as near thereto in diameter as possible. Nozzles larger in diameter may be provided if the requirements relating to the provision of water for fire fighting purposes are otherwise complied with.

- (b) For machinery spaces and exterior locations the diameter of the nozzles shall be such as to obtain the maximum possible discharge from the minimum number of jets of water and at the pressure required by these Regulations from the smallest fire pump permitted by regulation 38(3), provided that the diameter of the nozzles shall not be required to be greater than 19 millimetres.
- (c) For accommodation and service spaces the diameter of the nozzles shall not be required to be greater than 12 millimetres.
- (d) Every nozzle provided in compliance with these Regulations shall be capable of producing a water-spray and a plain water jet and shall incorporate a shut-off facility.

Special requirements for fixed fire-extinguishing systems

Requirements for ships constructed on or after 1st September 1984

41.—(1) Where halogenated hydrocarbon is used as an extinguishing medium in fixed fire-extinguishing systems its use shall be permitted only in machinery spaces, pump rooms and in cargo spaces intended solely for the carriage of vehicles which are not carrying any cargo.

(2) Where a fixed pressure water-spraying system is used for the protection of special category spaces, cargo spaces where permitted by these Regulations or ro-ro cargo spaces, special consideration shall be given to the bilge pumping and drainage arrangements where such spaces are below the bulkhead deck and to the scupper arrangements where such spaces are above the bulkhead deck.

Fixed low-expansion foam fire-extinguishing systems in machinery spaces

42.—(1) Where in any machinery space a fixed low-expansion foam fire-extinguishing system is fitted in addition to the requirements of these Regulations, such a system shall be capable of discharging through fixed discharge outlets in not more than 5 minutes a quantity of foam sufficient to cover to a depth of 150 mm the largest single area over which oil fuel is liable to spread. The system shall be capable of generating foam suitable for extinguishing oil fires. Means shall be provided for the effective distribution of the foam through a permanent system of piping and control valves or cocks to suitable discharge outlets, and for the foam to be effectively directed by fixed sprayers on other main fire hazards in the protected space. The expansion ratio of the foam shall not exceed 12 to 1.

(2) The means of control of any such system shall be readily accessible and simple to operate and shall be grouped together in as few locations as possible at positions not likely to be cut off by a fire in the protected space.

Fixed fire-extinguishing systems not required by these Regulations

Requirements for ships constructed on or after 25th May 1980

43. In every ship where a fixed extinguishing system not required by these Regulations is provided, such a system shall be to the satisfaction of the Secretary of State.

Fire extinguishers

44.—(1) Non-portable foam, carbon dioxide and dry powder fire extinguishers provided in compliance with these Regulations shall be of approved types and designs and shall meet the requirements of Schedules 2, 3 and 4 in Merchant Shipping Notice MSN 1665 respectively.

(2) Portable fire extinguishers provided in compliance with these Regulations shall be of approved types and designs and shall meet the requirements of Schedule 8 in Merchant Shipping Notice MSN 1665.

(3) Fire extinguishers provided for use in any ship shall not contain any extinguishing medium which has not been approved by the Secretary of State.

(4) Every fire extinguisher provided in compliance with these Regulations shall be kept fully charged at all times.

(5) Spare charges shall be provided to the extent of at least 50 per cent of each type of fire extinguisher provided in compliance with these Regulations, except that for each fire extinguisher which cannot readily be recharged while the ship is at sea, an additional portable fire extinguisher of the same type, or its equivalent, shall be provided in lieu of a spare charge.

Fire buckets

45.—(1) Every fire bucket provided in compliance with these Regulations shall be painted red and shall be clearly and permanently marked with the word “FIRE”. Except in open ships, every such fire bucket shall be kept filled with sand or water.

(2) Except in open ships, fire buckets provided in compliance with these Regulations shall not be used for any purpose other than extinguishing a fire.

Firemen’s outfits

46.—(1) Every fireman’s outfit carried in compliance with these Regulations shall consist of—

- (a) a breathing apparatus complying with the requirements specified in Schedule 5 in Merchant Shipping Notice MSN 1665; and
- (b) personal equipment comprising—
 - (i) a portable self-contained electric battery-operated safety lamp of an approved type capable of functioning efficiently for a period of at least three hours;
 - (ii) a fireman’s axe;
 - (iii) protective clothing of material capable of protecting the skin from the heat radiating from the fire and from burns and scalding by steam; the outer surface shall be water resistant;
 - (iv) boots and gloves of rubber or other electrically non-conducting material; and
 - (v) a rigid helmet providing effective protection against impact.

(2) Firemen’s outfits shall be stored in readily accessible positions which are not likely to be cut off in the event of fire and, except as provided for by regulation 12(2) where more than one such outfit is provided, they shall be stored in widely separated positions.

Means for stopping machinery, shutting off oil fuel suction pipes and closing of openings

47.—(1) In every ship there shall be provided—

- (a) means for stopping ventilating fans serving machinery, accommodation and cargo spaces;
- (b) means for closing all skylights, doorways, ventilators, annular spaces around funnels and other openings to such spaces; and
- (c) means to permit the release of smoke from machinery spaces.

Such means shall be capable of being operated from positions outside the said spaces and which would not be made inaccessible by a fire within such spaces.

(2) Machinery driving forced and induced draught fans, oil fuel transfer pumps, oil fuel unit pumps and other similar fuel pumps shall be fitted with remote controls situated outside the spaces in which such machinery or pumps are situated and which would not be made inaccessible by a fire within such spaces. The controls shall be capable of stopping such machinery, or pumps in the event of fire in such spaces. For machinery spaces in passenger ships constructed on or after 25th May 1980 carrying more than 36 passengers such controls together with the controls required in paragraph (1) shall be situated at one control position or grouped in as few positions as possible. For ships built on or after 1st September 1984, such controls shall have safe access from the open deck.

(3) Subject to paragraph (4) every pipe connected to any oil fuel or lubricating oil storage, settling, or daily service tank, not being a double bottom tank, which if damaged would permit discharge of the contents so as to cause a fire hazard, shall be fitted with a valve or cock which shall be secured to the tank to which it is connected and which shall be capable of being closed from a readily accessible position outside the space in which the tank is situated, provided that in the case of any inlet pipe to such a tank, a non-return valve secured to the tank may be substituted. In the case of an oil fuel or lubricating oil deep tank situated in or adjacent to a shaft or pipe tunnel or similar space, a valve or valves (additional to the valve required to be fitted on the tank) may be fitted on the pipe line or lines outside the tunnel or tunnels or similar space to enable control to be exercised in the event of fire. Such a valve if fitted in the machinery space shall be operated from a position outside the space.

(4) The valve or cock required by paragraph (3) may be dispensed with in the case of a pipe connected to a lubricating oil tank fitted in a space other than a machinery space of Category A provided that the safety of the ship is not impaired.

Gaseous fuel for domestic purposes

Requirements for ships constructed on or after 1st September 1984

48. Where gaseous fuel is used for domestic purposes the arrangements for storage, distribution and utilisation of the fuel shall be in accordance with regulation 56 of the Merchant Shipping (Cargo Ship Construction) Regulations 1997 or regulation 80 of the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984.

Fire control plans

49—(1) In every ship of Classes I and II and in every ship of Class II(A) of 21.34 metres in length or over there shall be permanently exhibited by the owner of the ship for the guidance of the master and officers of the ship, general arrangement plans showing clearly for each deck the position of the control stations, the sections of the ship which are enclosed by "A" Class divisions and the sections of the ship which are enclosed by "B" Class divisions together with particulars of the fire alarms, fire detection systems, the sprinkler installations, the fixed and portable fire-extinguishing appliances and firemen's outfits, the means of access to the various compartments and decks in the ship, the ventilating system including particulars of the master fan controls, the position of dampers and identification numbers of the ventilating fans serving each section of the ship, the location of the international shore connection and the position of all means of control referred to in regulation 47. Descriptions in such plans shall be in English.

(2) In every ship of Classes I and II and in every ship of Class II(A) of 21.34 metres in length or over, carrying more than 36 passengers, the general arrangement plans referred to in paragraph (1) shall provide information regarding fire protection, fire detection and fire extinction set out in IMO Resolution A.756(18).

(3) In every ship of 500 tons or over, other than a ship of Class I or II or a ship of Class II(A) of 21.34 metres in length or over, there shall be permanently exhibited by the owner of the ship for the guidance of the master and officers of the ship general arrangement plans showing clearly in relation to the ship the information referred to in paragraph (1).

(4) The general arrangement plans required by this regulation shall be kept up-to-date, any alterations to general arrangements being recorded thereon without delay.

(5) A duplicate set of the general arrangement plans required by this regulation shall be permanently stored in a prominently marked weather-tight enclosure outside the deckhouse for the assistance of shore-side fire-fighting personnel.

(6) Instructions concerning the maintenance and operation of all the equipment and installations on board for the fighting and containment of fire shall be kept in one book, readily available in an accessible position.

Availability of fire-fighting appliances

50. Fire appliances carried in any ship shall be maintained in good order and shall be kept available for immediate use at all times. All moveable fire appliances, other than firemen's outfits, carried in compliance with these Regulations shall be stowed where they will be readily accessible for the spaces in which they are intended to be used and, in particular, one of the portable fire extinguishers intended for use in any space shall be stowed near the entrance to that space.

PART VI

STRUCTURAL FIRE PROTECTION

PASSENGER SHIPS

SHIPS OF CLASSES I, II, AND II(A)

Application

51.—(1) Regulations 52 to 68 inclusive shall apply to passenger ships of Classes I, II and Class II(A) of 21.34 metres in length or over, constructed on or after 25th May 1980. Subject to paragraph (2) the provisions of Schedule 2 in Merchant Shipping Notice MSN 1670 shall apply to such ships constructed before 25th May 1980.

(2) On or after 1st October 2010, Schedule 2 in Merchant Shipping Notice MSN 1670 shall cease to have effect in relation to passenger ships carrying more than 36 passengers when these ships shall comply with the requirements of regulations 52 to 68 inclusive as these regulations apply to ships constructed on or after 25th May 1980.

Structure

52.—(1) The hull, superstructure, structural bulkheads, decks and deckhouses shall be constructed of steel or other equivalent material, except that the crowns and casings of machinery spaces of Category A shall be constructed only of steel.

(2) Where any part of the structure is of aluminium alloy, the following requirements shall apply—

- (a) the insulation of aluminium alloy component of "A" Class divisions or "B" Class divisions, and supports of such divisions, shall be such that the temperature of the structural core does not rise more than 200°C above the ambient temperature at any time during a standard fire test of 60 minutes duration in the case of an "A" Class division and 30 minutes duration in the case of a "B" Class division; and
- (b) the insulation of aluminium alloy components of columns, stanchions and other structural members required to support lifeboat and liferaft stowage, launching and embarkation areas, shall be such that the temperature rise limitation specified in sub-paragraph (a) shall apply for 60 minutes duration.

Helicopter decks

Requirements for ships constructed on or after 1st February 1992

53.—(1) This regulation applies to a ship having a helicopter deck.

(2) Subject to paragraph (4), the helicopter deck shall be of steel or equivalent fire-resistant construction.

(3) If the space below the helicopter deck is of a high fire risk, the insulation standard shall be to the satisfaction of the Secretary of State.

(4) The helicopter deck may be constructed of aluminium or other low melting metal construction that is not made equivalent to steel. If so constructed—

- (a) if the platform is cantilevered over the side of the ship, then, after the occurrence of a fire on the ship or on the platform, the platform shall undergo a structural analysis to determine its suitability for further use; and

- (b) if the platform is located above the ship's deckhouse or similar structure—
 - (i) the deckhouse top and bulkheads under the platform shall have no openings;
 - (ii) all windows under the platform shall be provided with steel shutters;
 - (iii) after a fire on or in close proximity to the platform the platform shall undergo a structural analysis to determine its suitability for further use.

Main vertical zones and horizontal zones

54.—(1) The hull, superstructure and deckhouses shall be subdivided by bulkheads consisting of "A" Class divisions into main vertical zones except in respect of special category spaces or ro-ro cargo spaces to which regulation 65 applies. The mean length of each zone on any one deck, above the bulkhead deck, shall not normally exceed 40 metres. Steps and recesses shall be kept to a minimum, but any which are necessary shall consist of "A" Class divisions. These divisions shall have insulation values in the case of—

- (a) ships carrying more than 36 passengers, in accordance with the Tables given in Schedule 1 in Merchant Shipping Notice MSN 1667; and
- (b) ships carrying 36 passengers or less, in accordance with the Tables given in Schedule 2 in Merchant Shipping Notice MSN 1667, except that where insulation values of "B-0" and "C" appear in Table 1 the value of "A-0" shall be substituted.

(2) Any portions of such divisions which extend above the bulkhead deck shall, whenever possible, be in line with watertight subdivision bulkheads situated immediately below the bulkhead deck, and shall extend from deck to deck and to the ship's shell and in the case of a deckhouse, to the external plating thereof.

(3) Except in the case of a ship built on or after 1st October 1994 carrying more than 36 passengers a main vertical zone may, for the purpose of regulation 64, be subdivided by horizontal "A" Class divisions into two or more parts provided that such horizontal divisions shall extend between adjacent main vertical zone bulkheads and to the shell or exterior boundaries of the ship and shall have insulation and integrity values in the case of—

- (a) ships carrying more than 36 passengers, in accordance with Table 3 of Schedule 1 in Merchant Shipping Notice MSN 1667; and
- (b) ships carrying 36 passengers or less, in accordance with Table 2 of Schedule 2 in Merchant Shipping Notice MSN 1667.

(4) In ships designed for special purposes such as train services, where the provision of main vertical zone bulkheads would conflict with the purpose for which the ship is intended, an equivalent means for controlling and limiting a fire may be substituted.

Additional requirements for a ship constructed on or after 1st October 1994

(5) In the application of paragraph (1) to a ship constructed on or after 1st October 1994 carrying more than 36 passengers, the references to "A" Class divisions shall be references to those divisions insulated to "A-60" standard: provided that if open deck spaces, sanitary and similar spaces and tanks, voids and auxiliary machinery spaces having little or no fire risk, defined in Category 5, 9 and 10 of Schedule 1 in Merchant Shipping Notice MSN 1667 are on one side of the division, or fuel oil tanks are on both sides the standard may be reduced to "A-0".

(6) In the case of a ship constructed on or after 1st October 1994, the length and width of main vertical zones may be extended to a maximum of 48 metres in order to bring the ends of main vertical zones to coincide with watertight sub-division bulkheads or in order to accommodate a large public space extending for the whole length of the main vertical zone provided that the total area of the main vertical zone is not greater than 1,600 metres² on any deck. The length or width of a main vertical, zone is the maximum distance between the furthestmost points of the bulkheads bounding it.

Bulkheads within a main vertical zone

55.—(1) Every bulkhead within the accommodation spaces or service spaces not being a bulkhead required to consist of an “A” Class division, shall consist of a “B” Class division or “C” Class division as required in the case of—

- (a) ships carrying more than 36 passengers, by the Tables set out in Schedule 1 in Merchant Shipping Notice MSN 1667; and
- (b) ships carrying 36 passengers or less, by the Tables set out in Schedule 2 in Merchant Shipping Notice MSN 1667.

All such divisions may be faced with combustible materials in accordance with regulation 62.

(2) Except in the case of ships constructed on or after 1st October 1994 carrying more than 36 passengers, all corridor bulkheads where not required to be “A” Class divisions shall be “B” Class divisions which shall extend from deck to deck except that—

- (a) when continuous “B” Class ceilings and/or linings are fitted on both sides of the bulkhead, the portion of the bulkhead behind the continuous ceiling or lining shall be of material which in thickness and composition meets the requirements of “B” Class divisions, but which is required to meet “B” Class fire integrity standards only so far as is reasonable and practicable; and
- (b) in the case of a ship protected by an automatic sprinkler, fire detection and fire alarm system complying with the provisions of Schedule 1 in Merchant Shipping Notice MSN 1666 the corridor bulkheads of “B” Class materials may terminate at a ceiling in the corridor, provided that such a ceiling is of material which in thickness and composition meets the requirements of “B” Class divisions; notwithstanding the requirements for fire integrity of bulkheads in Merchant Shipping Notice MSN 1667 such bulkheads and ceilings shall be required to meet “B” Class fire integrity standards only so far as is reasonable and practicable; all doors and their frames in such bulkheads shall be of non-combustible materials and shall be constructed and erected so as to provide substantial fire resistance.

(3) Except as provided in paragraph (2), every bulkhead required to be a “B” Class division shall extend from deck to deck and to the shell or other boundaries unless continuous “B” Class ceilings and/or linings fitted on both sides of the bulkhead are of at least the same fire resistance as the bulkhead in which case the bulkhead may terminate at the continuous ceiling or lining.

Fire Integrity of bulkheads and decks

56.—(1) In addition to complying with the specific provisions for fire integrity of bulkheads and decks the minimum fire integrity and insulation standards of all bulkheads and decks shall be as prescribed in the Tables given in Merchant Shipping Notice MSN 1667.

(2) Where due to any structural arrangement there may be doubt in determining from the Tables the minimum fire integrity and insulation standard of any division, such standard shall be determined to the satisfaction of the Secretary of State.

Protection of stairways and lifts in accommodation and service spaces

57.—(1) All stairways shall be of steel frame construction, except where the Secretary of State may approve the use of other equivalent material, and shall be within enclosures formed of “A” Class divisions, except that—

- (a) an isolated stairway connecting only two decks need not be enclosed on both decks provided that the integrity of the deck is maintained by bulkheads or doors at one between-deck space; when a stairway is closed at one between-deck space, the stairway enclosure shall have the same integrity standard as is required in the case of—
 - (i) a passenger ship carrying more than 36 passengers, by the Tables set out in Schedule 1 in Merchant Shipping Notice MSN 1667 for the deck which separates the between-deck space;

- (ii) a ship carrying 36 passengers or less, by the Tables set out in Schedule 2 in Merchant Shipping Notice MSN 1667 for the deck which separates the between-deck space;
 - (b) stairways may be fitted within the open part of a public space, provided that they lie wholly within such public space.
- (2) Every opening in a stairway enclosure shall be provided with a means of closure which shall be permanently attached thereto.
- (3) Every lift trunk shall be so fitted as to prevent the passage of smoke and flame from one between-deck to another and shall be provided with means of closing so as to permit the control of draught and smoke.
- (4) (a) Stairway enclosures shall have direct access to the corridors and be of a sufficient area to prevent congestion, having in view the number of persons likely to use them in an emergency.
- (b) In ships constructed on or after 1st October 1994 and in ships constructed before 1st October 1994 carrying more than 36 passengers, only public toilets, lifts, lockers of non-combustible material providing storage for safety equipment and open information counters may be located within the stairway enclosure boundaries.
- (c) In ships constructed on or after 1st October 1994 and in ships constructed before 1st October 1994 carrying more than 36 passengers, only public spaces, corridors, public toilets, special category spaces and other escape stairways required by regulation 68(2)(c), open deck spaces and, in the case of ships constructed before 1st October 1997, spaces to which paragraph (5) applies, are permitted to have direct access to these stairway enclosures.
- (5) Every ship constructed before 1st October 1994 carrying more than 36 passengers shall comply with the following—
- (a) existing spaces other than those referred to in paragraph (4)(b) within the stairway enclosure boundaries—
 - (i) shall be emptied, permanently closed and disconnected from the electrical system; or
 - (ii) shall be separated from the stairway enclosure by the provision of “A” Class divisions in accordance with regulation 56 except as it applies to ships constructed on or after 1st October 1994. Such spaces may have direct access to stairway enclosures by the provision of “A” Class doors, subject to a sprinkler system being provided in these spaces. However, cabins shall not open directly into the stairway enclosure;
 - (b) spaces other than public spaces, corridors, public toilets, special category spaces, other stairways required by regulation 68(3)(c), open deck spaces and spaces covered by paragraph (a)(ii) above are not permitted to have direct access to stairway enclosures;
 - (c) existing machinery spaces of category 10 described in Schedule 1 in Merchant Shipping Notice MSN 1667 and existing back offices for information counters opening directly into the stairway enclosure may be retained, provided that they are protected by smoke detectors connected to a fixed fire detection and fire alarm system complying with the requirements of Schedule 5 in Merchant Shipping Notice MSN 1666 and such offices contain only furniture of restricted fire risk;
 - (d) hinged fire doors in stairway enclosures which are normally kept open shall be self-closing and be capable of release from a central control station and from a position at the door. All other fire doors in stairway enclosures which are normally kept open shall be capable of release from a central control station and from a position at the door;
 - (e) a panel shall be placed in a continuously manned central control station to indicate whether the fire doors in the stairway enclosures are closed.

(6) Furniture in stairway enclosures shall be limited to seating. It shall be fixed, limited to 6 seats on each deck in each stairway enclosure, be of restricted fire risk, and shall not restrict the passenger escape route. The Secretary of State may permit additional seating in the main reception area within stairway enclosures, if it is fixed, non-combustible, and does not restrict the passenger escape route. Furniture is not permitted in passenger and crew corridors forming escape routes in cabin areas except that lockers of non-combustible material, providing storage for safety equipment are permitted.

Openings in "A" Class divisions

58.—(1) Where an "A" Class division is pierced for the passage of electric cables, pipes, trunks, girders, beams or for other purposes, the arrangements shall be such that the effectiveness of the division in resisting fire is not thereby impaired except as provided in paragraph (7).

(2) Where ventilation ducts pass through "A" Class divisions the requirements of regulation 60 shall apply.

(3) Except for hatches between special category spaces or ro-ro cargo spaces within a single horizontal zone, or hatches between cargo spaces or stores or baggage spaces, and hatches between such spaces and the weather decks, every opening shall be provided with permanently attached means of closing which shall be at least as effective for resisting fire as the division in which it is fitted.

(4) Every door and door frame in an "A" Class division shall be constructed of steel or other equivalent material and the means of securing the door when closed shall provide resistance to fire as well as to the passage of smoke and flame, as far as practicable, equivalent to that of the bulkhead in which the door is situated: provided that a watertight door shall not be required to be insulated.

(5) Any door in such a division shall be so constructed that it can be opened and closed by one person from either side of the division.

(6) In ships constructed before 1st October 1994 carrying more than 36 passengers—

- (a) hinged fire doors in main vertical zone bulkheads and galley boundaries which are normally kept open shall be self-closing and be capable of release from a central control station and from a position at the door;
- (b) all other fire doors in main vertical zone bulkheads and galley boundaries which are normally kept open shall be capable of release from a central control station and from a position at the door; and
- (c) a panel shall be placed in a continuously manned central control station to indicate whether the fire doors in main vertical zone bulkheads and galley boundaries are closed.

(7) In the case of a ship constructed before 1st October 1994, every door in a division constructed in compliance with regulation 54(1) or 57(1) except a watertight door or one which is normally locked shut, shall be self-closing and capable of closing against an adverse inclination of up to 3.5 degrees. The speed of door closure shall be controlled so as to prevent undue danger to personnel. All such doors which are held in the open position shall be capable of release from a control station, either simultaneously or in groups, and also individually from a position at the door. The release mechanism shall be so designed that the door will automatically close in the event of disruption of the control system; except that this requirement shall not apply to a watertight door. Hold-back hooks, not subject to control station release, are not permitted.

(8) In the case of a ship constructed on or after 1st October 1994, every door in a division constructed in compliance with regulations 54(1) or 57(1), shall satisfy the following requirements—

- (a) it shall be self-closing and be capable of closing against an adverse inclination of up to 3.5 degrees at an approximately uniform rate of not more than 40 seconds and no less than 10 seconds with the ship in the upright position;
- (b) remote-controlled sliding or power-operated doors shall be equipped with an alarm that sounds at least 5 seconds but no more than 10 seconds before the door begins to move and continues sounding until the door is completely closed.

A door designed to re-open upon contacting an object in its path shall re-open sufficiently to allow a clear passage of at least 0.75 metres but not more than 1 metre;

- (c) all doors shall be capable of remote and automatic release from a continuously manned central control station, either simultaneously or in groups, and also individually from a position at both sides of the door;
- (d) a panel shall be placed in the continuously manned central control station to indicate whether each of the remote-controlled doors are closed;
- (e) the release mechanism shall be so designed that the door will automatically close in the event of disruption of the control system or central power supply;
- (f) release switches shall have on-off function to prevent automatic resetting of the system;
- (g) hold-back hooks not subject to central control station release are prohibited;
- (h) local power accumulators for power-operated doors shall be provided in the immediate vicinity of the doors to enable the doors to be operated at least 10 times (fully opened and closed) using the local controls;
- (i) double-leaf doors equipped with a latch necessary to their fire integrity shall have a latch that is automatically activated by the operation of the doors when released by the system;
- (j) doors giving direct access to special category spaces which are power-operated and automatically closed need not be equipped with the alarms and remote-release mechanisms specified in sub-paragraph (b).

(9) In ships carrying not more than 36 passengers and in ships carrying more than 36 passengers constructed before 1st October 1994, where a space is protected by an automatic sprinkler, fire detection and fire alarm system complying with the provisions of Schedule 1 in Merchant Shipping Notice MSN 1666 or fitted with a continuous "B" Class ceiling, the closing of openings in decks not forming steps in main vertical zones or bounding horizontal zones shall be reasonably tight and such decks shall meet the "A" Class integrity requirements in so far as is reasonable and practicable.

(10) The requirements for "A" Class integrity of the outer boundaries of a ship shall not apply to glass partitions, windows and sidescuttles, subject to the requirements of regulation 61 provided that, in the case of ships constructed on or after 1st October 1994 there is no requirement for such boundaries to have "A" Class integrity in regulation 61(3). The requirements for "A" Class integrity shall not apply to exterior doors in superstructures and deckhouses, except that doors opening on to lifeboat and liferaft handling and embarkation areas shall be of such construction as to protect these areas from a space having a potential fire hazard,

(11) In the case of a ship constructed on or after 1st October 1994 all "A" Class doors located in stairways, public spaces and main vertical zone bulkheads in escape routes shall be equipped with a self-closing hose port of material, construction and fire resistance which is equivalent to the door in which it is fitted, and which shall furnish a 150 mm square clear opening with the port open and door closed, and shall be inset into the lower edge of the door opposite the door hinges or, in the case of sliding doors, nearest the opening.

Openings in "B" Class divisions

59.—(1) Where a "B" Class division is pierced for the passage of electric cables, pipes, trunks, girders, beams or for other purposes the arrangements shall be such that the effectiveness of the division in resisting fire is not thereby impaired except as provided in paragraph (4). Where ventilation ducts pass through "B" Class divisions the requirements of paragraph 6 of Schedule 3 of Merchant Shipping Notice MSN 1667 shall apply.

- (2) (a) Doors and door frames in "B" Class divisions and the means of securing them shall provide a method of closure which shall have resistance to fire as far as practicable equivalent to the division, except that ventilation openings may be permitted in the lower portion of such doors. Where such an opening is in or under a door, its total net area shall not exceed 0.05 square metre. When such an opening is cut in a door, it shall be fitted with a grille made of steel and shall be capable of being manually closed from each side of the door. Doors shall be non-combustible, except that in ships carrying 36 passengers or less a door which separates a cabin from an individual interior sanitary space such as a shower space may be of combustible material.
- (b) In the case of a ship constructed on or after 1st October 1994, cabin doors in "B" Class divisions shall be of the self-closing type. Hold-backs are not permitted.

(3) The requirements for "B" Class integrity of the outer boundaries of a ship shall not apply to glass partitions, windows and sidescuttles subject to the requirements of regulation 61. The requirements for "B" Class integrity shall not apply to exterior doors in superstructures and deckhouses, except that doors opening on to lifeboat and liferaft handling and embarkation areas shall be of such construction as to protect these areas from a space having a potential fire hazard.

(4) Except in the case of a ship constructed on or after 1st October 1994 carrying more than 36 passengers, where an automatic sprinkler, fire detection and fire alarm system complying with the provisions of Schedule 1 of Merchant Shipping Notice MSN 1666 is fitted—

- (a) the closing of openings in decks need only meet the "B" Class integrity requirements in so far as is reasonable and practicable;
- (b) openings in corridor bulkheads of "B" Class materials shall be protected in accordance with the provisions of regulation 55.

Ventilation systems

60.—(1) Wherever practicable the system of ducts leading from each ventilation fan shall be within one main vertical or horizontal zone.

(2) Where ventilation systems penetrate decks precautions shall be taken, in addition to those relating to the fire integrity of the decks required by regulation 58(1), to reduce the likelihood of smoke and hot gases passing from one between-deck space to another through the system. In addition to insulation requirements contained in this regulation, vertical ducts shall be insulated as required by the Tables in Schedules 1 and 2 in Merchant Shipping Notice MSN 1667 as appropriate.

- (3) (a) Ducts serving a stairway enclosure shall be taken from the fan room independently of other ducts in the ventilation system and shall not serve any other space.
- (b) In the case of a ship constructed on or after 1st October 1994, carrying more than 36 passengers stairway enclosures shall be ventilated and shall be served only by an independent fan and duct system which shall not serve any other spaces in the ventilation system.

(4) There shall be provided for every control station situation below deck, other than a control station situated in the machinery space, means to ensure ventilation, visibility and freedom from smoke within it so that, in the event of a fire in the ship, the equipment it contains may be operated effectively. Unless a control station is situated on, and has access to, an open deck or is provided with local closing arrangements equally effective to maintain ventilation, visibility and freedom from smoke in the event of a fire in the ship, there shall be provided at least two entirely separate means of supplying air to such control stations and the air inlets to these sources of supply shall be so situated that the risk of both drawing in smoke simultaneously is, as far as practicable, eliminated.

(5) Ventilation ducts except those in cargo spaces, shall be constructed in accordance with the specifications set out in Schedule 3 in Merchant Shipping Notice MSN 1667.

Additional requirements for a ship constructed on or after 1st January 1994

(6) Where a public space spans three or more decks by means of permanent openings and contains combustibles (such as furniture) and enclosed spaces (such as shops, offices and restaurants), the space shall be equipped with a smoke extraction system; and—

- (a) the smoke extraction system shall—
 - (i) be activated by operation of the smoke detection system required by regulation 11(10); and
 - (ii) be capable of being manually controlled; and
- (b) the size of the fan or fans shall be such that the entire volume within the space can be exhausted in not more than 10 minutes.

Windows and sidescuttles

61.—(1) All windows and sidescuttles in bulkheads within accommodation and service spaces and control stations other than those to which regulations 58(8) and 59(3) apply, shall be constructed so as to preserve the integrity requirements of the type of bulkheads in which they are fitted.

(2) Notwithstanding the requirements of the Tables set out in Schedules 1 and 2 in Merchant Shipping Notice MSN 1667 as appropriate the following shall apply—

- (a) all windows and sidescuttles in bulkheads separating accommodation and service spaces and control stations from weather shall be constructed with frames of steel or other suitable materials; the glass shall be retained by a metal glazing bead or angle; and
- (b) except in the case of ships built on or after 1st October 1994 carrying more than 36 passengers, the fire integrity of windows facing open or enclosed lifeboat and liferaft embarkation areas and of windows situated below such areas in such a position that their failure during a fire would impede the launching of, or embarkation into, lifeboats or liferafts shall be such that any potential fire hazard is kept to a minimum.

(3) In the case of a ship constructed on or after 1st October 1994, carrying more than 36 passengers, windows facing life-saving appliances, lifeboat and liferaft embarkation and muster areas, external stairs and open decks used for escape routes, and windows situated below liferaft and escape slide embarkation areas shall have fire integrity as required in Table 5 of Schedule 1 in Merchant Shipping Notice MSN 1667. Where automatic sprinkler heads are provided for such windows, and where windows are located in the ship's side below the lifeboat embarkation areas they shall have fire integrity at least to "A-0" Standard.

Restriction of combustible materials

62.—(1) The following surfaces shall be such that a surface spread of flame of Class 1 and in the case of ships constructed before 1st September 1984, Class 1 and 2 will not be exceeded—

- (a) exposed surfaces in corridors and stairway enclosures; and
- (b) within all accommodation spaces, service spaces and control stations—
 - (i) bulkheads, wall and ceiling linings; and
 - (ii) concealed or inaccessible spaces.

(2) Within accommodation spaces, service spaces and control stations the following shall apply—

- (a) the total volume of combustible facings, mouldings, decorations and veneers shall not exceed a volume equivalent to 2.5 millimetres of veneer on the combined area of walls and ceilings; in the case of ships fitted with an automatic sprinkler, fire alarm and fire detection system complying with the provisions of Schedule 1 in Merchant Shipping Notice MSN 1666 the above volume may include some combustible material used for the erection of "C" Class divisions;
- (b) veneers used on surfaces and linings to which paragraph (1) applies shall not have a gross calorific potential exceeding 45 megajoules per square metre of

surface area for the thickness used as measured in accordance with the method specified in International Standard ISO 1716-1973 (E), or with—

- (i) any International Standard replacing the same or any British Standard which (in either case) the Secretary of State considers relevant from time to time and specifies in a Merchant Shipping Notice; or
- (ii) with any relevant standard of a member State other than the United Kingdom;
- (c) furniture in the corridors and stairway enclosures shall be kept to a minimum;
- (d) primary deck coverings shall be of approved material which will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures; and
- (e) waste paper receptacles shall be constructed of non-combustible materials and with solid sides and bottoms.

(3) Within accommodation spaces, service spaces, control stations and machinery spaces the following shall apply—

- (a) all ceilings, linings, grounds, draught stops and insulating materials shall be of non-combustible materials except in respect of—
 - (i) mail rooms and baggage rooms;
 - (ii) materials used to insulate refrigerated compartments;
 - (iii) materials used to insulate valves associated with hot and cold service systems provided that their exposed surfaces are such that a surface spread of flame of Class 1, and in the case of ships constructed before 1st September 1984 Classes 1 and 2, will not be exceeded; and
 - (iv) vapour barriers and adhesives used in conjunction with insulating materials, if their exposed surfaces are such that a surface spread of flame of Class 1, and in the case of ships constructed before 1st September 1984 Class 1 or 2, will not be exceeded; and
- (b) paints, varnishes and other finishes used on exposed interior surfaces shall not be capable of producing excessive quantities of smoke and toxic products.

Miscellaneous items of fire protection

63.—(1) The following provisions shall apply to all parts of the ship—

- (a) any pipe which penetrates an “A” Class division or “B” Class division shall be of suitable material having regard to the temperature such divisions are required to withstand;
- (b) pipes intended for oil or other flammable liquids shall be of suitable material having regard to the risk of fire;
- (c) overboard scuppers, sanitary discharges or other outlets close to or below the waterline shall not be of a material likely to fail in the event of fire and thereby give rise to a danger of flooding; and
- (d) in spaces where penetration of oil products is possible the exposed surface of insulation shall be impervious to oil or oil vapours.

(2) The following provisions shall apply to the accommodation spaces, service spaces, and control stations—

- (a) every air space enclosed behind a ceiling, panel or lining, shall be divided longitudinally and transversely by close fitting draught stops which shall be spaced not more than 14 metres apart and shall be closed at each deck;
- (b) every ceiling and lining shall be so constructed as to enable a fire patrol to detect any smoke originating in a concealed or inaccessible space without impairing the efficiency of the fire protection of the ship; the Secretary of State may exempt any ship from the requirement of this regulation if he is satisfied that there is no risk of fire originating in such a space;
- (c) electric space heaters shall be fixed in position and shall be so constructed as to reduce risk of fire to a minimum; no such heater shall be fitted with an element so exposed that clothing, curtains or similar materials can be scorched or set on fire by heat from the element;
- (d) cellulose-nitrate film shall not be used for cinematograph installations.

Automatic sprinkler, fire detection and fire alarm system or fixed fire detection and fire alarm system

Requirements for a ship constructed on or after 25th May 1980

64.—(1) In every ship there shall be installed in all accommodation spaces, service spaces and control stations throughout each separate main vertical zone or, if a main vertical zone is divided horizontally in accordance with regulation 54(3) into parts, throughout each part vertical zone either—

- (a) (i) an automatic sprinkler, fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 1 in Merchant Shipping Notice MSN 1666 and so arranged as to protect all such spaces in the ship; or
- (ii) a fixed fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 5 in Merchant Shipping Notice MSN 1666 and so arranged as to detect the presence or the signs of a fire and its location in any such spaces.

Additional requirements for a ship constructed on or after 1st July 1986

(2) In a ship constructed on or after 1st July 1986 complying with paragraph (1)(a)(i) there shall be installed in addition a fixed fire detection and fire alarm system of an approved type complying with the requirements of Schedule 5 in Merchant Shipping Notice MSN 1666 arranged so as to provide smoke detection in corridors, stairways and escape routes within the accommodation spaces.

Additional requirements for a ship constructed on or after 1st January 1994

(3) In a ship constructed on or after 1st January 1994, where a public space spans three or more decks by means of permanent openings and contains combustibles (such as furniture) and enclosed spaces (such as shops, offices and restaurants), the entire main vertical zone containing the space shall be protected throughout with an automatic sprinkler, fire detection and fire alarm system complying with the requirements specified in Schedule 1 in Merchant Shipping Notice MSN 1666.

Ships Constructed before 1st October 1994

(4) On or after 1st October 1997, every ship constructed before 1st October 1994 carrying more than 36 passengers shall be equipped in all accommodation and service spaces, stairway enclosures and corridors with a fixed fire detection and fire alarm system of an approved type and complying with the requirements of Schedule 5 in Merchant Shipping Notice MSN 1666 so installed and arranged as to provide smoke detection in such spaces. Such systems need not be fitted in private bathrooms, and spaces having little or no fire risks such as voids and similar spaces. Detectors operated by heat instead of smoke shall be installed in galleys.

- (5) (a) In every ship constructed before 1st October 1994 carrying more than 36 passengers there shall be installed in all accommodation and service spaces, stairway enclosures and corridors so as to protect such spaces, an automatic sprinkler, fire detection and fire alarm system of an approved type complying with the requirements of Schedule 1 in Merchant Shipping Notice MSN 1666. In a ship which complies with Resolutions MSC 1 (XLV), MSC 6(48), MSC 11(55), MSC 12(56), MSC 13(57) and MSC 22(59) the implementation date may be extended to 1st October 2005 or 15 years after the date of construction of such a ship whichever is later.

Ships Constructed on or after 1st October 1994

- (5) (b) In every ship constructed on or after 1st October 1994 carrying more than 36 passengers there shall be installed in all service spaces, control stations and accommodation spaces including corridors and stairways so as to protect such spaces, an automatic sprinkler, fire detection and fire alarm system of an approved type complying with the requirements of Schedule 1 in Merchant Shipping Notice MSN 1666 and so as to provide smoke detection, a fixed fire detection and fire alarm system complying with the requirements of Schedule

5 in Merchant Shipping Notice MSN 1666. Smoke detectors need not be fitted in private bathrooms and galleys. Spaces having little or no fire risk such as voids, public toilets and similar spaces need not be fitted with such automatic sprinkler system or fixed fire detection and alarm system. Control stations where water may cause damage to essential equipment may be fitted with an approved fixed fire-extinguishing system of another type.

(6) The Secretary of State may exempt any ship from the requirements of paragraphs (1), (2), (4) and (5) in respect of—

- (a) any spaces which afford no substantial fire risk; or
- (b) except in ships constructed on or after 1st October 1994 carrying more than 36 passengers, any control station.

Protection of special category spaces and ro-ro cargo spaces

65.—The following provisions shall apply to special category spaces and ro-ro cargo spaces whether above or below the bulkhead deck—

- (a) if it is not practicable to divide such spaces into main vertical zones, equivalent protection shall be obtained by dividing such spaces into horizontal zones; such a horizontal zone for the purpose of this regulation may include special category spaces or ro-ro cargo spaces on more than one deck provided that the total overall clear height for vehicles does not exceed 10 metres; the bulkheads and decks forming the boundaries of such a horizontal zone shall be insulated respectively—
 - (i) in the case of ships carrying more than 36 passengers constructed before 1st October 1994, as required for Category 11 spaces in Tables 1 and 3 of Schedule 1 in Merchant Shipping Notice MSN 1667;
 - (ii) in ships constructed on or after 1st October 1994 carrying more than 36 passengers, the boundary bulkheads and decks shall be insulated to “A-60” standard. However when a space classified in accordance with Schedule 1 in Merchant Shipping Notice MSN 1667 as Category 5, 9 or 10 is on one side of the division the standard may be reduced to “A-0”;
 - (iii) in the case of ships carrying 36 passengers or less as required for Category 11A spaces in Tables 1 and 2 of Schedule 2 in Merchant Shipping Notice MSN 1667.
- (b) the requirements of regulations 58 and 60 for maintaining the integrity of vertical zones shall apply to bulkheads and decks forming the boundaries separating horizontal zones from each other and from the remainder of the ship;
- (c) a fixed pressure water-spraying system complying with the requirements specified in Schedule 3 in Merchant Shipping Notice MSN 1666 shall be provided;
- (d) indicators shall be provided on the navigating bridge which shall show when any access fire door in the boundary of a special category space or ro-ro cargo space is closed; and
- (e) the outlet from any exhaust ventilation duct shall be sited in a safe position having regard to possible sources of ignition; ventilation ducts, including dampers, shall be of steel and arrangements shall be provided to permit a rapid shut-down and effective closure of the ventilation system in case of fire.

Protection of cargo spaces, other than special category spaces and ro-ro cargo spaces intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion

66. In every ship the following provisions shall apply to any cargo space, other than a special category space or ro-ro cargo space containing motor vehicles with fuel in their tanks for their own propulsion—

- (a) a fixed fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 5 or a sample extraction smoke detection system complying with Schedule 6 in Merchant Shipping Notice MSN 1666 shall be provided;

- (b) a fixed pressure water-spraying system complying with the requirements specified in Schedule 3 in Merchant Shipping Notice MSN 1666 or a fixed gas fire-extinguishing system complying with the requirements specified in Schedule 4 in Merchant Shipping Notice MSN 1666 shall be provided; and
- (c) the outlet from any exhaust ventilation duct shall be sited in a safe position having regard to possible sources of ignition; ventilation ducts, including dampers, shall be of steel.

Special arrangements in machinery spaces

67.—The following provisions shall apply to machinery spaces—

- (a) the number of openings to machinery spaces shall be the minimum compatible with the proper working of the ship;
- (b) windows shall not be fitted in machinery space boundaries;
- (c) doors in the boundaries of machinery spaces of Category A, other than watertight doors and the fire-screen door referred to in paragraph (d), shall be arranged so that the closure of the door will be assured in the event of fire in the space; and the doors shall be provided with closing arrangements which either comply with the requirements of regulation 58(7) as it applies to ships constructed before 1st October 1994 or are provided with power-operated closing arrangements operable from the control position required by regulation 47(2); and
- (d) any machinery space of Category A which is accessible from an adjacent shaft tunnel shall be provided with a lightweight steel fire-screen door in addition to any watertight door; the fire-screen door shall be operable from each side and shall be located at the shaft tunnel side of the bulkhead.

Means of escape

68.—(1) Every ship shall be provided with doorways, stairways, ladderways and other ways to provide readily accessible means of escape to the lifeboat and liferaft embarkation decks for all persons in the ship from accommodation spaces, service spaces and other spaces in which the crew is normally employed, other than machinery spaces. The means of escape shall be so designed and constructed as to be capable of being easily used by the persons for whom they are intended. The number, width and continuity of such means of escape shall be sufficient, having regard to the number of persons by whom they may be used.

(2) Notwithstanding the generality of paragraph (1), in every ship the following shall be complied with—

- (a) there shall be provided below the bulkhead deck at least two means of escape from each watertight compartment or from each similarly restricted space or group of spaces; at least one of the means of escape provided from each such compartment or from each such space or group of spaces shall be independent of watertight doors; one of the means of escape may be dispensed with, in an exceptional case, having regard to the nature and location of spaces and to the number of persons who normally might be employed or, except in case of a ship constructed on or after 1st October 1994 accommodated there. Where one of the means of escape is dispensed with, the sole means of escape shall provide satisfactory safe escape, provided that in a ship constructed on or after 1st October 1994 the clear width of stairways in such escapes may be less than 900 millimetres but shall not be less than 800 millimetres, with handrails on both sides;
- (b) there shall be provided above the bulkhead deck at least two means of escape from each space bounded by main vertical zone bulkheads or from each similarly restricted space or group of spaces;
- (c) (i) in the case of a ship constructed before 1st October 1994, at least one of the means of escape required by sub-paragraphs (a) and (b) shall be by means of a readily accessible enclosed stairway, which shall provide continuous fire shelter from the level of its origin to the appropriate lifeboat and

liferaft embarkation decks or the highest level served by the stairway, whichever level is the highest; however, where only one means of escape is permitted for the purpose of compliance with sub-paragraph (a), the sole means of escape shall provide satisfactory safe escape;

- (ii) in the case of a ship constructed on or after 1st October 1994 at least one of the means of escape required by sub-paragraphs (a) and (b) shall consist of a readily accessible enclosed stairway, which shall provide continuous fire shelter from the level of its origin to the appropriate lifeboat and liferaft embarkation decks, or to the uppermost weather deck if the embarkation deck does not extend to the main vertical zone being considered. In the latter case, direct access to the embarkation deck by way of external open stairways and passageways shall be provided and shall have emergency lighting in accordance with regulation 48 of the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984 and slip-free surfaces underfoot. In such ships boundaries facing external open stairways and passageways forming part of an escape route and boundaries in such a position that their failure during a fire would impede escape to the embarkation deck shall have fire integrity, including insulation values, in accordance with the appropriate Tables in regulation 55. In such ships the widths, number and continuity of escapes shall be as follows—
 - (aa) stairways shall not be less than 900 millimetres in clear width. Stairways shall be fitted with handrails on each side. The minimum clear width of stairways shall be increased by 10 millimetres for every one person provided for in excess of 90 persons. The maximum clear width between handrails where stairways are wider than 900 millimetres shall be 1,800 millimetres. The total number of persons to be evacuated by such stairways shall be assumed to be two thirds of the crew and the total number of passengers in the areas served by such stairways. The width of the stairways shall conform to standards not inferior to those set out in IMO resolution A757(18);
 - (bb) all stairways sized for more than 90 persons shall be aligned fore and aft;
 - (cc) doorways and corridors and intermediate landings included in means of escape shall be sized in the same manner as stairways;
 - (dd) stairways shall not exceed 3.5 metres in vertical rise without the provision of a landing and shall not have an angle of inclination greater than 45°;
 - (ee) landings at each deck shall be not less than 2 square metres in area and shall increase by 1 square metre for every 10 persons provided for in excess of 20 persons but need not exceed 16 square metres, except for those landings servicing public spaces having direct access onto the stairway enclosure;
- (d) satisfactory protection of access from the stairway enclosures to the lifeboat and liferaft embarkation areas shall be provided;
- (e) lifts shall not be considered as forming one of the required means of escape;
- (f) stairways serving only a space and a balcony in that space shall not be considered as forming one of the required means of escape;
- (g) if a radio office has no direct access to a weather deck, two means of escape shall be provided from the office; the Secretary of State may permit one of these escapes to be an opening type window or sidescuttle of sufficient size;
- (h) dead-end corridors shall not be permitted to exceed 7 metres in ships carrying not more than 36 passengers and 13 metres in ships carrying more than 36 passengers; and in ships constructed on or after 1st October 1994 they shall be prohibited. For the purpose of this sub-paragraph a dead-end corridor is a corridor, or part of a corridor from which there is only one escape route;
- (i) in special category spaces and ro-ro cargo spaces the number and disposition of the means of escape both below and above the bulkhead deck shall be adequate, and, in general, the safety of access to the lifeboat and liferaft

embarkation decks shall be at least equivalent to that required by subparagraphs (a), (b), (c), (d) and (e).

(3) In every ship the means of escape from any public room which may be used for the purpose of concerts, cinema shows and similar forms of entertainment shall be adequate, having regard to the number of persons who may be in the audience, and the seating shall be arranged in rows to ensure free access to the exits. When in any such public room subdued lighting is used, the exits shall be clearly marked with illuminated signs and any doors shall be constructed to open outwards.

(4) In every ship suitable signs shall be displayed in passageways and stairways indicating the direction of escape to passenger assembly stations. Such signs shall be continuously illuminated and shall be adequate in number and distribution. They shall be capable of being illuminated by the ship's emergency lighting system.

(5) In the machinery spaces in every ship there shall be provided from each machinery space two means of escape in compliance with the following provisions—

(a) where the space is below the bulkhead deck the two means of escape shall consist of either—

(i) two sets of steel ladders as widely separated as possible, leading to doors in the upper part of the space similarly separated and from which access is provided to the appropriate lifeboat and liferaft embarkation decks; one of these ladders shall be provided with continuous fire shelter from the lower part of the space to a safe position outside the space; or

(ii) one steel ladder leading to a door in the upper part of the space from which access is provided to such embarkation deck and additionally in the lower part of the space and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides a safe escape route to the lifeboat and liferaft embarkation deck;

(b) where the space is above the bulkhead deck, the two means of escape shall be as widely separated as possible and the doors leading from such means of escape shall be in a position from which access is provided to the appropriate lifeboat and liferaft embarkation decks; where such escapes require the use of ladders these shall be of steel;

(c) in a ship of less than 1,000 tons the Secretary of State may permit one of the means of escape required by this paragraph to be dispensed with having regard to the width and disposition of the upper part of the machinery space; in a ship of 1,000 tons or over one of the means of escape required by this paragraph may be dispensed with provided that either a door or a steel ladder provides a safe escape route to the embarkation deck having regard to the nature and location of the space and whether persons are normally employed in that space; and

(d) in the case of ships constructed on or after 1st October 1994, two means of escape shall be provided from a machinery control room located within a machinery space, at least one of which will provide continuous fire shelter to a safe position outside the machinery space.

(6) In every ship one of the means of escape from the machinery spaces where the crew is normally employed shall avoid access to any special category space or ro-ro cargo spaces.

(7) In the case of ships constructed on or after 1st October 1994, and from 1st October 1997 in ships constructed before 1st October 1994 carrying more than 36 passengers—

(a) the means of escape including stairways and exits shall be marked, at all points of the escape route including angles and intersections, by lighting or photoluminescent strip indicators placed not more than 0.3 metres above the deck. The marking must enable passengers to identify all routes of escape and readily identify the escape exits;

(b) if electric illumination is used, it shall be supplied by the emergency source of power and it shall be so arranged that the failure of any single light, or cut in a lighting strip, will not result in the marking being ineffective;

- (c) additionally, all escape route signs and fire equipment location markings shall be of photoluminescent material or marked by lighting;
- (d) such lighting and photoluminescent material shall comply with guidelines set out in IMO Resolution A752(18);
- (e) the requirements of these sub-paragraphs are in addition to the emergency lighting required by regulation 48 of the Merchant Shipping (Passenger Ship Construction and Survey) Regulations 1984; and

Additional requirement for a ship constructed on or after 1st January 1994

(8) Where a ship constructed on or after 1st January 1994 has a public space spanning three or more decks by means of permanent openings and containing combustibles (such as furniture) and enclosed spaces (such as shops, offices and restaurants)—

- (a) each level within the space shall have two means of escape; and
- (b) one of those means of escape shall give direct access to an enclosed vertical means of escape meeting the requirements of paragraph (2)(c) for a readily accessible enclosed stairway.

Additional requirements for ro-ro passenger ships

- (9) (a) Ro-ro passenger ships shall comply with subparagraphs (b) to (h) of this paragraph on and after 1st July 1997: provided that such ships constructed before that date need not comply before the first periodical survey date after the coming into force of these Regulations.
- (b) (i) Handrails or suitable handholds shall be provided in all corridors along the entire escape route to the assembly and embarkation stations so that a firm handhold is available, where practicable, every step of the way.
- (ii) Such fittings shall be provided on both sides of corridors exceeding, in the case of side to side corridors, 1 m in width and in the case of forward to aft corridors, 1.8 m in width.
- (iii) Suitable means shall be provided to assist the crossing of lobbies, atria and other large open spaces on such escape routes with the ship at large angles of heel or trim.
- (iv) Handrails shall be capable of supporting a distributed load of 750 N/m acting horizontally towards the vertical mid plane of the corridor, and acting vertically downwards, with the ship upright. The two loads need not be supported simultaneously.
- (c) (i) In public spaces and along escape routes deck coverings and furniture, including cabinets but excluding portable tables and chairs, shall be securely fixed.
- (ii) Except when the ship is secured in her berth, and so far as practicable passengers are not aboard, escape routes shall be kept clear of obstructions such as cleaning carts, bedding, luggage and boxed goods.
- (d) escape routes from normally occupied spaces to assembly stations shall be as direct as practicable, and shall be marked with signs in accordance with Merchant Shipping Notice M 1293.
- (e) Openings from enclosed spaces to weather decks shall where practicable be of a type suitable for use as emergency exits.
- (f) (i) Decks shall be sequentially numbered commencing with deck one which shall be the lowest or tank top level.
- (ii) Deck numbers shall be displayed in prominent and continuously illuminated positions at stair landings and lift lobbies.
- (iii) Where decks are also named, the deck number shall be displayed with the name.
- (g) (i) Diagrammatic plans showing escape routes shall be prominently exhibited in public spaces and on the inside of each cabin or stateroom door where any person is accommodated.

- (ii) Such plans shall be as far as practicable correctly oriented with respect to their viewing position and such position shall be indicated on each plan in relation to the escape routes.
 - (h) The doors of cabins and staterooms where any person is accommodated and all doors in escape routes shall not require the use of keys or similar devices to open them when moving in the direction of escape.
- (10) (a) This paragraph applies to ro-ro passenger ships constructed on or after 1st July 1997.
- (b) The lowest 0.5 metre of any bulkhead, lining or partition adjacent to an escape route shall be capable of supporting a loading of 1500 Pa acting perpendicular to the plane of the bulkhead, lining or partition.
 - (c) It shall not be necessary to climb more than two decks up or down in order to reach an assembly station or open deck from any passenger space, neither shall it be necessary to cross from one side of the ship to the other to attain an escape route.
 - (d) From open decks provided in compliance with sub paragraph (c) of this paragraph, external open routes shall be provided to the appropriate lifeboat and liferaft embarkation areas.
- (11) An evacuation analysis demonstrating compliance with paragraph (1) shall be produced for ro-ro passenger ships constructed on or after 1st July 1999. Such analysis shall—
- (a) be carried out concurrently with the design of the vessel;
 - (b) identify and as far as practicable eliminate congestion arising due to the intended movement of passengers and crew along escape routes during mustering and embarkation into lifeboats and liferafts;
 - (c) demonstrate that escape routes can reasonably accommodate the loss of any route, assembly station, embarkation station, evacuation system, lifeboat or liferaft as a result of a casualty.

PART VII

STRUCTURAL FIRE PROTECTION:

SHIPS OTHER THAN PASSENGER SHIPS OR TANKERS TO WHICH PART VIII APPLIES

SHIPS OF CLASSES VII, VII(A), VIII, VIII(A), IX and IX(A) AND TANKERS OF CLASSES VII(T), VIII(T), VIII(A)(T) AND IX(A)(T) OF 500 TONS OR OVER

Application

69. Regulations 70 to 84 inclusive shall apply to ships of Classes VII, VII(A), VIII, VIII(A), IX and IX(A) of 500 tons or over and tankers, other than tankers to which Part VIII applies of Classes VII(T), VIII(T), VIII(A)(T) and XI(A)(T) of 500 tons or over, constructed on or after 1st September 1984. Such ships constructed on or after 26th May 1965 but before 1st September 1984 shall comply with the requirements of Schedule 4 of Merchant Shipping Notice MSN 1670.

Structure

70. Regulation 52 shall apply to ships to which this Part applies as it applies to ships to which Part VI applies.

Helicopter decks

71. Regulation 53 shall apply to ships to which this Part applies as it applies to ships to which Part VI applies.

Methods of fire protection

72. One of the following methods of protection shall be adopted in the accommodation and service spaces—

- (a) Method IC—The construction of all internal divisional bulkheading shall be of non-combustible “B” Class divisions or “C” Class divisions without the installation of an automatic sprinkler, fire detection and fire alarm system in the accommodation and service spaces, except as required by regulation 82; or
- (b) Method IIC—An automatic sprinkler, fire detection and fire alarm system as required by regulation 82 shall be fitted in all spaces in which fire might be expected to originate with no restriction on the type of internal divisional bulkheading; or
- (c) Method IIIC—A fixed fire detection and fire alarm system, as required by regulation 82 shall be fitted in all spaces in which a fire might be expected to originate with no restriction on the type of internal divisional bulkheading, except that in no case shall the area of any accommodation space or spaces bounded by continuous “A” Class divisions and/or “B” Class divisions exceed 50 square metres subject to the requirements of regulation 73(4).

Bulkheads within accommodation spaces, services spaces and control stations

73.—(1) All bulkheads which are required to be “B” Class divisions shall extend from deck to deck and to the shell or other boundaries, unless continuous “B” Class ceilings and/or linings are fitted on both sides of the bulkhead in which case the bulkhead may terminate at the continuous ceiling and/or lining.

(2) In ships where Method IC is adopted all bulkheads which are not required to be either “A” Class divisions or “B” Class divisions, shall be “C” Class divisions.

(3) In ships where Method IIC is adopted there is no restriction on the construction of bulkheads which are not required to be “A” Class divisions or “B” Class divisions except where “C” Class bulkheads are required in accordance with Table 1 in Schedule 1 in Merchant Shipping Notice MSN 1668.

(4) In ships where Method IIIC is adopted there is no restriction on the construction of bulkheads which are not required to be “A” Class divisions or “B” Class divisions except where “C” Class bulkheads are required in accordance with Table 1 in Schedule 1 in Merchant Shipping Notice MSN 1668. In no case shall the area of any accommodation space or spaces bounded by continuous “A” Class divisions and/or “B” Class divisions exceed 50 square metres provided that this area may be exceeded in public spaces.

Fire integrity of bulkheads and decks

74. In addition to complying with the specific provisions for fire integrity of bulkheads and decks referred to elsewhere in this Part of the Regulations the minimum fire integrity of bulkheads and decks shall be as prescribed in Schedule 1 of Merchant Shipping Notice MSN 1668.

Protection of stairways and lifts in accommodation and service spaces

75.—(1) Every stairway within accommodation spaces, service spaces and control stations shall be constructed of steel except where the Secretary of State may approve the use of other equivalent material. Every such stairway and lift shall lie respectively within an enclosure or trunk constructed of “A” Class divisions of “A-0” standard except that an isolated stairway serving only two decks shall only be required to be enclosed at one level by either “A” Class divisions of “A-0” standard: or “B” Class divisions of “B-0” standard; provided that the fire integrity of any bulkhead which separates a stairway from either a machinery space of Category A or a ro-ro cargo space shall be determined by reference to Table 1 of Schedule 1 in Merchant Shipping Notice MSN 1668.

(2) Every opening in a stairway enclosure and lift trunk shall be provided with a means of closure which shall be permanently attached thereto and which shall comply with the requirements of regulation 76 or 77, whichever is applicable.

Openings in "A" Class divisions

76.—(1) Where an "A" Class division is pierced for the passage of electric cables, pipes, trunks, girders, or beams or for other purposes, the arrangements shall be such that the effectiveness of the division in resisting fire is not thereby impaired.

(2) The construction of all doors and frames in "A" Class bulkheads, with the means of securing the doors when closed, shall provide resistance to fire as well as to the passage of smoke and flame, as far as is reasonably practicable, equivalent to that of the bulkheads in which the doors are situated.

(3) Every door in an "A" Class bulkhead shall be so constructed that it can be opened and closed by one person from either side of the division.

(4) Every door in an "A" Class bulkhead which forms part of a stairway enclosure or lift trunk serving accommodation spaces, service spaces or control stations and every door in a casing of a machinery space of Category A shall be self-closing.

(5) Hold-back arrangements may be fitted to doors to which paragraph (4) refers provided that such arrangements—

- (a) have remote release fittings of a type which in the event of disruption of the control system will automatically close the doors; and
- (b) will permit each door to be closed manually.

(6) Doors fitted in boundary bulkheads of machinery spaces of Category A shall be reasonably gastight and self-closing.

(7) Watertight doors need not be insulated.

(8) Where ventilation ducts pass through "A" Class divisions the requirements of Schedule 3 in Merchant Shipping Notice MSN 1668 shall apply.

Openings in "B" Class divisions

77.—(1) Where a "B" Class division is pierced for the passage of electric cables, pipes, trunks, girders, or beams, or for other purposes, the arrangements shall be such that the effectiveness of the division in resisting fire is not thereby impaired.

(2) The construction of all doors and door frames in "B" Class bulkheads shall provide resistance to fire as well as the passage of flame, as far as is reasonably practicable, equivalent to that of the bulkheads in which the doors are situated.

(3) The number of ventilation openings in "B" Class divisions shall be kept to a minimum and shall be provided as far as is reasonably practicable only in the lower part of a door and fitted with a grille constructed of steel or under a door except that such openings shall not be provided in a door in a "B" Class division forming a stairway enclosure. The net area of any such opening or openings shall not exceed 0.05 square metre and in no case shall a gap under a door exceed 25 millimetres. The grille shall be capable of being manually closed from each side of the door.

(4) Every door in a "B" Class bulkhead which forms a stairway enclosure or part thereof shall be self-closing.

(5) Hold-back arrangements may be fitted to doors to which paragraph (4) refers provided that such arrangements—

- (a) have remote release fittings of a type which in the event of disruption of the control system will automatically close the doors; and
- (b) will permit each door to be closed manually.

Ventilation systems

78.—(1) Where ventilation systems penetrate decks, precautions shall be taken, in addition to those relating to the fire integrity of the decks required by regulation 76, to reduce the likelihood of smoke and hot gases passing from one between-deck space to another through the system. In addition to insulation requirements contained in this regulation, vertical ducts shall, be insulated as required by the Tables in Schedule 1 in Merchant Shipping Notice MSN 1668.

(2) Ducts serving a stairway enclosure shall be taken from the fan room independently of other ducts in the ventilation system and shall not serve any other space.

(3) There shall be provided for every control station situated below deck, other than a control station in the machinery space, means to ensure ventilation, visibility and freedom from smoke within it so that in the event of a fire in the ship, the equipment it contains may be operated effectively. Unless the control station is situated on, and has access to, an open deck or is provided with local closing arrangements equally effective to maintain ventilation, visibility and freedom from smoke in the event of a fire in the ship, there shall be provided at least two entirely separate means of supplying air to such control stations and the air inlets to these sources of supply shall be so situated that the risk of both drawing in smoke simultaneously is, as far as practicable, eliminated.

(4) Ventilation ducts except those in cargo spaces, shall be constructed in accordance with the specifications set out in Schedule 3 in Merchant Shipping Notice MSN 1668.

Details of construction

79.—(1) Where Method IC is adopted ceilings, linings, draught stops and their associated grounds in accommodation and service spaces and control stations shall be non-combustible.

(2) Where Method IIC or Method IIIC is adopted ceilings, linings, draught stops and their associated grounds in corridors and stairway enclosures serving accommodation and service spaces and control stations shall be non-combustible.

Restriction of combustible materials

80.—(1) All exposed surfaces in corridors and stairway enclosures and surfaces in concealed or inaccessible spaces within accommodation and service spaces and control stations shall be such that a surface spread of flame of Class 1 is not exceeded.

(2) Primary deck coverings in accommodation and service spaces and control stations shall be of an approved material which will not readily ignite or give rise to toxic or explosive hazards at elevated temperatures.

(3) Paints, varnishes and other finishes used on exposed surfaces within accommodation and service spaces, control stations and machinery spaces shall not contain nitrocellulose or other highly flammable base products and shall not be capable of producing excessive quantities of smoke. Such surfaces, except where otherwise required by these Regulations, shall be such that a surface spread of flame of Class 2 will not be exceeded: provided that these requirements shall not apply to furniture, furnishings, machinery and similar items.

(4) (a) Insulating materials shall be of non-combustible materials except in respect of—

- (i) cargo spaces;
- (ii) materials used to insulate refrigerated compartments;
- (iii) materials used to insulate valves associated with hot and cold service systems provided that their exposed surfaces are such that a surface spread of flame of Class 1 will not be exceeded; and
- (iv) vapour barriers and adhesives used in conjunction with insulating materials, if their exposed surfaces are such that a surface spread of flame of Class 1 will not be exceeded.

(b) In a ship constructed before 1st February 1992, a non-combustible bulkhead, lining or ceiling fitted in an accommodation or service space may have a combustible veneer which—

- (i) in corridors, stairway enclosures and control stations, does not exceed 1.5 millimetres in thickness;
- (ii) in any other accommodation or service space, does not exceed 2.0 millimetres in thickness.

(c) In a ship constructed on or after 1st February 1992—

- (i) the total volume of combustible facings, mouldings, decorations and veneers in any accommodation or service space bounded by non-combustible bulkheads, ceilings and linings shall not exceed a volume equivalent to a 2.5 millimetre veneer on the combined area of the walls and ceilings;
- (ii) a non-combustible bulkhead, lining or ceiling fitted in an accommodation or service space may have a combustible veneer with a gross calorific potential not exceeding 45 megajoules per square metre of surface area for the thickness used (as measured in accordance with the method specified in International Standard ISO 1716-1973(E) or with an equivalent British Standard which the Secretary of State may specify in a Merchant Shipping Notice).

Miscellaneous items of fire protection

81.—(1) Any pipe which penetrates an “A” Class division or “B” Class division shall be of suitable material having regard to the temperature such divisions are required to withstand.

(2) In accommodation spaces, service spaces or control stations pipes intended to convey oil or other flammable liquids shall be of a suitable material having regard to the risk of fire.

(3) Overboard scuppers, sanitary discharges or other outlets close to or below the waterline shall not be of a material likely to fail in the event of fire and thereby give rise to danger of flooding.

(4) Electric space heaters shall be fixed in position and shall be so constructed as to reduce the risk of fire to a minimum. No such heater shall be constructed with an element so exposed that clothing, curtains or other material can be scorched or set on fire by heat from the element.

(5) Cellulose-nitrate film shall not be used in cinematograph installations.

(6) All waste-paper receptacles shall be constructed of non-combustible materials with solid sides and bottoms.

(7) In spaces where penetration of oil products is possible, the exposed surface of insulation materials shall be impervious to oil or oil vapours.

(8) Every air space enclosed behind a ceiling, panel or lining within accommodation spaces, service spaces and control stations shall be divided by close fitting draught stops which shall be spaced not more than 14 metres apart and which shall be closed at each deck.

Fixed fire detection and fire alarm system, and automatic sprinkler, fire detection and fire alarm system

82.—(1) In ships in which Method IC is adopted, a fixed fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 5 in Merchant Shipping Notice MSN 1666 shall be so installed and arranged as to provide smoke detection and manually-operated call points in all corridors, stairways and escape routes within accommodation spaces.

(2) In ships in which Method IIC is adopted, an automatic sprinkler, fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 1 in Merchant Shipping Notice MSN 1666 shall be so installed and arranged as to protect accommodation spaces, galleys and other service spaces, except spaces which afford no substantial fire risk such as void spaces and sanitary spaces. In addition, a fixed fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 5 in Merchant Shipping Notice MSN 1666 shall be so installed and arranged as to provide smoke detection and manually-operated call points in all corridors, stairways and escape routes within accommodation spaces.

(3) In ships in which Method IIIC is adopted, a fixed fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 5 in Merchant Shipping Notice MSN 1666 shall be so installed and arranged as to detect the

presence of fire in all accommodation spaces and service spaces, except spaces which afford no substantial fire risk such as void spaces and sanitary spaces. Notwithstanding the foregoing exception smoke detection and manually-operated call points shall be installed in all corridors, stairways and escape routes.

Special arrangements in machinery spaces

83. The following provisions shall apply to machinery spaces—

- (a) the number of openings to machinery spaces shall be the minimum compatible with the proper working of the ship;
- (b) windows shall not be fitted in machinery space boundaries;
- (c) any machinery space of Category A which is accessible from an adjacent shaft tunnel shall be provided with a light-weight steel fire-screen door in addition to any watertight door; the fire-screen door shall be operable from each side and shall be located at the shaft tunnel side of the bulkhead.

Means of escape

84.—(1) In every ship stairways and ladderways shall be arranged so as to provide ready means of escape to the lifeboat and liferaft embarkation deck from all accommodation spaces, service spaces and other spaces in which crew are normally employed. In particular the following shall be complied with—

- (a) at all levels of accommodation there shall be provided at least two widely separated means of escape from each restricted space or group of spaces;
- (b) below the lowest open deck such escapes shall be by means of stairways except that one of these stairways may be replaced by a trunked vertical ladder;
- (c) above the lowest open deck the means of escape shall be stairways or doors to an open deck or a combination thereof;
- (d) one of the means of escape may be dispensed with in an exceptional case having regard to the nature and location of the space and to the number of persons who normally might be accommodated or employed there;
- (e) no dead-end corridors having a length of more than 7 metres shall be permitted; a dead-end corridor is a corridor or part of a corridor from which there is only one escape route;
- (f) the width and continuity of the means of escape shall be to the satisfaction of the Secretary of State; and
- (g) if a radio office has no direct access to the open deck, two means of escape from such office shall be provided; one of these escapes may be an opening type window or sidescuttle of sufficient size.

(2) In all cargo spaces intended for the carriage of motor vehicles with fuel in their tanks for their own propulsion where the crew is normally employed the number and locations of escape routes to the open deck shall be sufficient to provide ready escape for the number of persons involved but shall in no case be less than two and shall be as widely separated as possible.

(3) In every ship two means of escape shall be provided from each machinery space of Category A. In particular one of the following provisions shall be complied with—

- (a) two sets of steel ladders as widely separated as possible leading to doors in the upper part of the space similarly separated and from which access is provided to the lifeboat or liferaft embarkation deck or decks; in general, one of these ladders shall provide continuous fire shelter from the lower part of the space to a safe position outside the space; the shelter shall be of steel, insulated where necessary, and be provided with a self-closing steel door at the lower end; or
- (b) one steel ladder leading to a door in the upper part of the space from which access is provided to the lifeboat or liferaft embarkation deck or decks and additionally, in the lower part of the space and in a position well separated from the ladder referred to, a steel door capable of being operated from each side and which provides access to a safe escape route from the lower part of the space to the lifeboat and liferaft embarkation deck.

(4) In a ship of less than 1,000 tons the Secretary of State may permit one of the means of escape required by paragraph (3) to be dispensed with having regard to the size and disposition of the upper part of the space.

(5) From machinery spaces other than machinery spaces of Category A, escape routes shall be provided having regard to the nature and location of the space and the number of persons normally employed in that space.

(6) Lifts shall not be considered as forming one of the required means of escape as required by this regulation.

PART VIII

STRUCTURAL FIRE PROTECTION

TANKERS

TANKERS OF CLASSES VII(T), VIII(T), VIII(A)(T) AND IX(A)(T) OF 500 TONS OR OVER

Application

85. Regulations 86 to 101 inclusive apply to tankers of Classes VII(T), VIII(T), VIII(A)(T) and IX(A)(T) of 500 tons or over carrying crude oil and petroleum products having a closed flash-point not exceeding 60°C, and the Reid vapour pressure of which is below that of atmospheric pressure, or other liquids having a similar or additional fire hazard, and to gas carriers, being ships constructed on or after 1st September 1984. Such tankers constructed on or after the 25th May 1980 but before 1st September 1984 shall comply with the provisions in Schedule 3 in Merchant Shipping Notice MSN 1670. Such tankers constructed after 26th May 1965 but before 25th May 1980 shall comply with the provisions in Schedule 4 in Merchant Shipping Notice MSN 1670.

Structure

86.—(1) The hull, superstructures, structural bulkheads, decks and deckhouses shall be constructed of steel or other equivalent material, except that the crowns and casings of machinery spaces of Category A and the exterior boundaries of superstructures and deckhouses which are required to be insulated to “A-60” standard in compliance with regulation 88 shall be constructed only of steel.

(2) Where any part of the structure is of aluminium alloy, the following requirements shall apply—

- (a) the insulation of aluminium alloy components of “A” Class divisions or “B” Class divisions, and supports of such divisions, shall be such that the temperature of the structural core does not rise more than 200°C above the ambient temperature at any time during a standard fire test of 60 minutes duration in the case of an “A” Class division and 30 minutes duration in the case of a “B” Class division; and
- (b) the insulation of aluminium alloy components of columns, stanchions and other structural members required to support lifeboat and liferaft stowage, launching and embarkation areas, shall be such that the temperature rise limitation specified in sub-paragraph (a) shall apply for 60 minutes duration.

Helicopter decks

87. Regulation 53 shall apply to every tanker to which this Part applies as it applies to ships to which Part VI applies.

Exterior boundaries of superstructures and deckhouses

88.—(1) Exterior boundaries of superstructures and deckhouses enclosing accommodation, including any overhanging decks which support such accommodation, shall be insulated to “A-60” standard for the whole of the portions which face the cargo area

and on the side portions for a distance of not less than 3 metres from the portions which face the cargo area.

(2) Entrances, air inlets and openings to accommodation spaces, service spaces and control stations shall not face the cargo area. They shall be located on the transverse bulkhead not facing the cargo area or on the outboard side of the superstructure or deckhouse at a distance of at least 4 per cent of the length of the ship but not less than 3 metres from the end of the superstructure or deckhouse facing the cargo area; provided that such distance need not exceed 5 metres.

(3) No doors shall be fitted within the limits specified in paragraph (2) except that the Secretary of State may permit doors to a space within those limits if—

- (a) that space is a cargo control station, provisions room or store room; and
- (b) that space does not have access to any accommodation space, service space or control station.

Where such doors are fitted to a space located aft of the cargo area, the boundaries of the space shall be insulated to “A-60” standard, with the exception of the boundary facing the cargo area. Bolted plates for removal of machinery may be fitted within the limits specified in paragraph (2). Wheelhouse doors and wheelhouse windows may be located within the limits specified in paragraph (2) so long as they are designed to ensure that the wheelhouse can be made rapidly and efficiently gas and vapour tight.

(4) Windows and sidescuttles facing the cargo area and on the sides of the superstructures and deckhouses within the limits specified in paragraph (2) shall be of the fixed (non-opening) type. Such windows and sidescuttles in the first tier on the main deck shall be fitted with inside covers of steel or other equivalent material.

Boundary bulkheads and decks of machinery spaces of Category A and cargo pump rooms

89.—(1) Windows and sidescuttles shall not be fitted in internal or external boundary bulkheads or decks of machinery spaces of Category A and cargo pump rooms, or in skylights to such spaces, except that such windows and sidescuttles may be fitted in a bulkhead between a machinery space of Category A and a machinery control room located within the boundaries of such a space.

(2) Skylights to machinery spaces of Category A and cargo pump rooms shall be capable of being closed and opened from outside the spaces which they serve.

Bulkheads within accommodation spaces, service spaces and control stations

90.—(1) All bulkheads which are not required to be either “A” Class divisions or “B” Class divisions shall be “C” Class divisions.

(2) All bulkheads required to be “B” Class divisions shall extend from deck to deck and to the shell plating or other boundaries, except that where continuous “B” Class ceilings and/or linings are fitted on both sides of the bulkheads the bulkheads may terminate at such ceilings and/or linings.

(3) All materials used in the construction of “B” Class divisions and “C” Class divisions and doors in “B” Class bulkheads and “C” Class bulkheads shall be non-combustible.

Fire integrity of bulkheads and decks

91. In addition to complying with the specific provisions for fire integrity of bulkheads and decks referred to elsewhere in this Part the minimum fire integrity of bulkheads and decks shall comply with the requirements of Schedule 2 in Merchant Shipping Notice MSN 1668.

Protection of stairways and lifts in accommodation and service spaces

92.—(1) Every stairway within accommodation spaces, service spaces and control stations shall be constructed of steel except where the Secretary of State may approve the use of other equivalent material. Every such stairway and lift shall lie respectively within an enclosure or trunk constructed of “A” Class divisions of “A-0” standard except that an isolated stairway serving only two decks shall only be required to be

enclosed at one level by either "A" Class divisions of "A-0" standard or "B" Class divisions of "B-0" standard provided that the fire integrity of any bulkhead which separates a stairway from either a machinery space of Category A or a cargo pump room shall be determined by reference to Table 3 of Schedule 2 in Merchant Shipping Notice MSN 1668.

(2) Every opening in a stairway enclosure and lift trunk shall be provided with a means of closure which shall be permanently attached thereto and which shall comply with the requirements of regulation 93 or 94, whichever is applicable.

Openings in "A" Class divisions

93. Regulation 76 shall apply to every tanker to which this Part applies, as it applies to ships to which Part VII applies.

Openings in "B" Class divisions

94. Regulation 77 shall apply to every tanker to which this Part applies as it applies to ships to which Part VII applies.

Ventilation systems

95. Regulation 78 shall apply to every tanker to which this Part applies as it applies to ships to which Part VII applies; except that Schedule 2 shall be substituted for Schedule 1 of Merchant Shipping Notice MSN 1668.

Details of construction

96. All ceilings, linings, draught stops and their associated grounds in accommodation and service spaces and control stations shall be of non-combustible materials.

Restriction of combustible materials

97. Regulation 80 shall apply to every tanker to which this Part applies as it applies to ships to which Part VII applies.

Miscellaneous items of fire protection

98. Regulation 81 shall apply to every tanker to which this Part applies as it applies to ships to which Part VII applies.

Fixed fire detection and fire alarm system

99. In every tanker to which this Part applies a fixed fire detection and fire alarm system of an approved type complying with the requirements specified in Schedule 5 in Merchant Shipping Notice MSN 1666 shall be so installed and arranged as to provide smoke detection and manually-operated call points in all corridors, stairways and escape routes within accommodation spaces.

Special arrangements in machinery spaces

100. Regulation 83 shall apply to every tanker to which this Part applies, as it applies to ships to which Part VII applies.

Means of escape

101. Except for sub-paragraph (2), regulation 84 shall apply to every tanker to which this Part applies as it applies to ships to which Part VII applies.

PART IX

SPECIAL REQUIREMENTS FOR SHIPS CARRYING DANGEROUS GOODS

Ships carrying explosives

102.—(1) Where any ship (other than a passenger ship) carries explosives of such nature and of such quantity as are not permitted to be carried in a passenger ship by regulation 16(1) of the Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997, such explosives shall not be carried in any compartment fitted with steam fire smothering arrangements. There shall be provided in any compartment containing such explosives and in every adjacent compartment, a smoke detection system, or a fire detection system capable of automatically indicating the presence or indication of fire and its location. The indicators shall be centralised either on the navigating bridge or at other control stations provided with direct communication with the navigating bridge, provided that the Secretary of State may in any ship permit the indicators to be distributed among several stations if he is satisfied that such arrangements are at least as effective as centralised indicators.

(2) For the purposes of this regulation “compartment” means all spaces contained between two adjacent permanent bulkheads and includes the lower hold and all cargo spaces above it. The whole of any shelter deck space not sub-divided by steel bulkheads the openings in which can be closed by steel closing plates shall, for the purpose of this regulation, be considered as a single space. Where steel bulkheads with openings closed by steel closing plates are fitted, the enclosed spaces in the shelter deck shall be considered as part of the compartment or compartments below.

Ships carrying dangerous goods

103.—(1) Subject to paragraph (2), ships constructed on or after 1st September 1984 of the following descriptions that is to say—

- (a) passenger ships; and
- (b) cargo ships of 500 tons or over;

which are intended, or which contain cargo spaces which are intended, for the carriage of dangerous goods on international voyages, shall comply with the protective requirements prescribed in Merchant Shipping Notice MSN 1669.

(2) This regulation shall not apply to ships intended for the carriage of dangerous goods in limited quantities as referred to in section 18 of the general introduction to the International Maritime Dangerous Goods Code.

(3) Nothing in this regulation shall be taken to require duplication of anything already provided in a ship in compliance with other requirements of these Regulations.

PART X

EQUIVALENTS, PENALTIES AND DETENTION

Alternative construction and equivalents

104.—(1) Where these Regulations require that the ship shall be constructed in a particular manner or that a particular fitting, material, appliance or apparatus or type thereof shall be fitted or carried in a ship, or that any particular provision shall be made, the Secretary of State shall permit the ship to be constructed in any other manner or shall approve any other fitting, material, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made in that ship, if he is satisfied by trial thereof or otherwise that such other construction, fitting, material, appliance or apparatus, or type thereof, or provision is at least as effective as that required by these Regulations.

(2) For the purposes of these Regulations, the results of a verification or test shall be accepted if the verification or test is carried out—

- (a) in accordance with these Regulations or with a standard, code of practice, specification or technical description of an EEA State other than the United Kingdom offering equivalent levels of safety, suitability and fitness for purpose; and
- (b) by a body or laboratory of an EEA State other than the United Kingdom offering suitable and satisfactory guarantees of technical and professional competence and independence.

Penalties

105.—(1) If a ship to which these Regulations apply proceeds or attempts to proceed to sea or on a voyage or excursion without complying with the requirements of these Regulations, the owner and master of the ship shall each be guilty of an offence in respect of each case of non-compliance and liable on summary conviction to a fine not exceeding the statutory maximum or on conviction on indictment, to imprisonment for a term not exceeding two years and a fine.

(2) Any contravention of regulation 30(3)(c) by the master shall be an offence punishable on summary conviction by a fine not exceeding level 5.

(3) It shall be a good defence to a charge under this regulation to prove that the person charged took all reasonable steps to avoid commission of the offence.

Powers to detain

106. In any case where a ship does not comply with the requirements of these Regulations, the ship shall be liable to be detained and section 284 of the Merchant Shipping Act 1995 (which relates to the detention of a ship) shall have effect in relation to the ship, subject to the modification that as if for the words “this Act” wherever they appear, there were substituted “the Merchant Shipping (Fire Protection) (Large Ships) Regulations 1998”.

Signed by the authority of the
Secretary of State for Environment, Transport and the Regions

7th April 1998

Glenda Jackson
Parliamentary Under Secretary of State,
Department of the Environment, Transport and the Regions

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations give effect in relation to United Kingdom Ships of Classes I, II and Class II(A) of over 21.34 metres in length and Classes VII to IX, XI and XII of over 500 tons, to the provisions of Chapter II-2 of the Amendments to the International Convention for the Safety of Life at Sea 1974 (SOLAS), adopted by the Maritime Safety Committee of the International Maritime Organization at its forty-fifth Session for ships constructed on or after 1st September 1984, and amended by the Maritime Safety Committee in accordance with resolutions MSC 6(48), MSC 13(57), MSC 22(59), MSC 24(60) and MSC 27(61), and further amended by resolution 1 of the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea 1974, adopted on 29th November 1995.

They include requirements which, in relation to existing ships, were previously contained in the Merchant Shipping (Fire Appliances) Regulations 1980 (S.I. 1980/544) as amended, the Merchant Shipping (Passenger Ship Construction) Regulations 1980 (S.I. 1980/535) as amended, the Merchant Shipping (Cargo Ship Construction and Survey) Regulations 1981 (S.I. 1981/572) as amended, the Merchant Shipping (Fire Protection) Regulations 1984 (S.I. 1984/1218) as amended and the Merchant Shipping (Fire Protection) (Ships built before 25th May 1980) Regulations 1985 (S.I. 1985/1218) as amended.

They impose new requirements giving effect to resolution MSC 27(61)

- (a) in respect of passenger ships constructed on or after 1st October 1994 and carrying more than 36 passengers, including provisions for—
 - (i) enhanced fire integrity of bulkheads and decks including fire zone boundaries;
 - (ii) dimensioning of escape ways;
 - (iii) marking of escape ways with low located lighting systems;
 - (iv) controlling "A" Class doors arranged for power operation;
 - (v) mandatory installation of fixed sprinkler fire extinguishing systems in accommodation spaces; and
- (b) in respect of tankers constructed on or after 1st October 1994 means for monitoring and controlling flammable atmospheres in double hull spaces; and
- (c) prohibiting new installations of halon fire-extinguishing systems.

They impose new requirements giving effect to resolution MSC 24(60) in respect of passenger ships constructed before 1st October 1994 and carrying more than 36 passengers, including provisions for—

- (i) fixed fire detection systems in accommodation spaces;
- (ii) fixed sprinkler fire extinguishing systems in accommodation spaces;
- (iii) enclosing of stairways and limitation on furnishings within stairway enclosures;
- (iv) public address systems;
- (v) marking of escape ways with low located lighting systems;
- (vi) machinery space fixed fire-extinguishing systems;
- (vii) ro-ro cargo and special category space protection;

Such requirements come into effect on various dates which take account of a vessels standard of structural fire protection.

A compliance cost assessment has been prepared and copies can be obtained from the Maritime and Coastguard Agency, Spring Place, 105 Commercial Road, Southampton SO15 1EG. A copy has been placed in the Library of each House of Parliament.

Merchant Shipping Notices referred to in these Regulations are obtainable from distribution agents Eros Marketing Support Services Ltd, Unit B, Imber Court Trading Estate, Orchard Lane, East Molesey, Surrey KT8 0BN (Telephone Number 0181 957 5028).

Copies of the British Standards specifications and International Standards referred to in these Regulations may be obtained from any of the sales outlets operated by the British Standards Institution, or by post from the British Standards Institution at Linford Wood, Milton Keynes MK14 6LE (Telephone Number: (01908) 320066).

SOLAS, its Protocol and amendments, and IMO Publications and Resolutions are obtainable from the International Maritime Organization, 4 Albert Embankment, London SE1 7SR.

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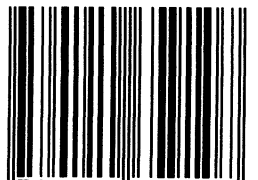
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