

**PART II RULES FOR THE CONSTRUCTION
AND CLASSIFICATION OF SHIPS
IDENTIFIED BY THEIR MISSION**

TITLE 32 OIL TANKERS

SECTION 3 HULL EQUIPMENT

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D4. LIFE SAVING APPLIANCES

100. Application

– See Title 11

200. Life Saving Ships

201. The use of synthetic material in Life saving ships is not permitted unless that then are fire resistant.

D5. FIRE FIGHTING

100. Application

200. Portable fire extinguishers

- See Part II, Title 11, Section 3

300. Emergency stops and shutt-offs

- See Part II, Title 11, Section 311

400. Fire dampers

- See Part II, Title 11, Section 3

500. Openings and access to habitable and service compartments

Guidance

Sub-Chapter D5.500 , items 501 to 513 are applicable to ships having class notation K2 and ESP under 500 GT.

For hips with notation ESP with GT equal to or over 500 Sub-Chapter D5.500 , items 501 to 513 are applicable, and are to comply as well with the International Convention for Safety of Life at Sea (SOLAS) 1974/1988 as

amended, Chapter II-1, Part A, Rules 3 a 6, for details and arrangements of openings and attachments to the hull structure.

Ships with class notation K3 are to comply with Sub-Chapter D5.500 item 514.

End of guidance.

501. Access doors, air inlets and openings to accommodation spaces, service spaces, control stations and machinery spaces 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% of the length of the ship but not less than 3 m from the end of the superstructure or deckhouse facing the cargo area. This distance need not exceed 5 m.

502. The Administration may permit access doors in boundary bulkheads facing the cargo area or within the 5 m limits specified in paragraph D5.105, to main cargo control stations and to such service spaces used as provision rooms, store-rooms and lockers, provided they do not give access directly or indirectly to any other space containing or providing for accommodation, control stations or service spaces such as galleys, pantries or workshops, or similar spaces containing sources of vapour ignition. The boundary of such a space shall be insulated to "A-60" standard, with the exception of the boundary facing the cargo area

503. Bolted plates for the removal of machinery may be fitted within the limits specified in paragraph D5.105.

504. Wheelhouse doors and windows may be located within the limits specified in paragraph D5.105 so long as they are designed to ensure that the wheelhouse can be made rapidly and efficiently gas and vapour tight.

505. Windows and sidescuttles facing the cargo area and on the sides of the superstructures and deckhouses within the limits specified in paragraph D5.105 shall be of the fixed (non-opening) type. Such windows and sidescuttles, except wheelhouse windows, shall be constructed to "A-60" class standard, except that "A-0" class standard is acceptable for windows and sidescuttles outside the limit specified in D5.501.

5061. Such windows and sidescuttles, except wheelhouse windows, shall be constructed to "A-60" class standard, except that "A-0" class standard is acceptable for windows and sidescuttles outside the limit specified in D5.501

512. The wheelhouse windows may be inclined, provided they are located more than one metre above the respective deck,

513. The arrangement of ventilation inlets and outlets and other deckhouse and superstructure boundary space openings shall be situated as far aft as practicable but with-

in the limits of D5.501. Due consideration in this regard shall be given when the ship is equipped to load or discharge at the stern. Sources of ignition such as electrical equipment shall be so arranged as to avoid an explosion hazard.

Guidance

Ships with class notation K3 are to comply with Sub-Chapter D5.500 item 514.

End of guidance

514. The access and openings for ships of class service notation K3 are not required to comply with the provisions of D5.501. However, the access doors, air inlets and openings to accommodation spaces, service spaces and control stations are not to face the cargo area.

D6. OPENINGS OF THE HULL CLOSING AND PROTECTION

100. Access to spaces in the cargo area

Guidance

Sub-Chapter D6.700, items 701 to 718 are applicable to ships having class notation K2 and ESP under 500 GT.

For ships with notation ESP with GT equal to or over 500 Sub-Chapter D6.700, items 701 to 718 are applicable, and are to comply as well with the International Convention for Safety of Life at Sea (SOLAS) 1974/1988 as amended, Chapter II-1, Part A, Rules 3 a 6, for details and arrangements of openings and attachments to the hull structure.

Ships with class notation K3 are to comply with Sub-Chapter D6.700 item 719.

End of guidance.

See Figures F.D6.705.1 and F.D6.705.2.

701. The access openings to cargo holds, cofferdams, double sides, double bottom and other compartments that could be considered at gas risk are to be made through the deck and to meet the following requirements:

- a. Allow the sites accessed through them to be inspected and thoroughly cleaned;
- b. Allow a person wearing a breathing apparatus to enter and exit the room without difficulties;
- c. Allow the removal of an injured or unconscious person without difficulties.

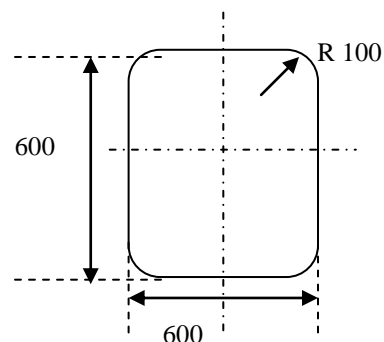
702. The dimensions of access openings, manholes or horizontal scuttles are to have a section of at least 0.36 m² and minimum size of 600 x 600 mm.

703. The dimensions of access openings, manholes or vertical scuttles are to have a section of at least 0.50 m² and minimum size of 600 x 800 mm, at a height of lesser than 600 mm from the bottom plating, unless steps or other type of support has been installed.

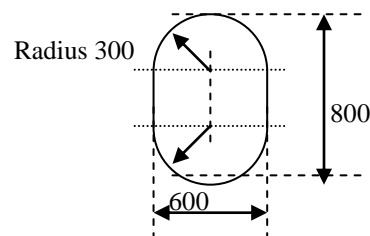
704. Smaller openings may be submitted to RBNA approval, provided that access is possible for the removal of an injured person in a stretcher.

Guidance

The term "minimum opening larger than 600 x 600 mm" means that such openings are to have radii of 100 mm at the maximum:



The term "minimum opening greater than 600 x 800 mm" also includes openings in dimensions below:



End of guidance

Figura F.D6.708.1 – Dimensões para acessos verticais

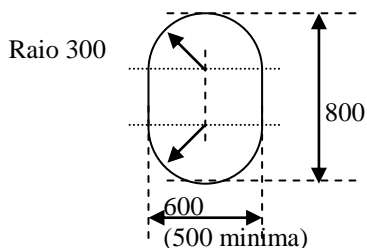
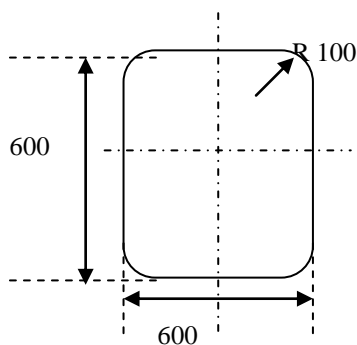


Figura F.D6.708.2 – Dimensões para acessos horizontais



709. Vertical accesses are to have minimum dimensions of 600 mm por 800 mm, and the lower edge at a height not over 600 mm from the floor plating, unless steps are fitted or other support for the feet.

710. Ships under 5000 TDW may be exempted from the regulations above provided the accesses allow for the removal of an injured person.

712. The tank accesses may be circular with a minimum diameter of 80 mm.

713. The coamings are to be in accordance with National Regulations but not under 500 mm height.

714. The accesses which are usually opened or closed during cargo operations shall be of the spark free type.

715. Duct keels in the double borttom shall comply with the following:

- Not communicate with the Engine Room;
- There shall be two means of exit as far as possible onte from the other;
- One of the exits may communicate with the pump room provided there is a watertight means of closure;
- Where there is permanente access to the duct keel from the pump room, na additiona wtertight doo ris to be installed;

e. The door shall have means of closing from outside the access to the pump room

f. The watertigh door is to remain closed during normal operation of the ship, except when access to the duct keel is necessary

g. A notice is to be affixed to the door to the effect that it may not be left open.

716. **Access to the forecastle** - spaces Access to the forecastle spaces containing sources of ignition may be permitted through doors facing cargo area provided the doors are located outside hazardous areas.

717. **Access to the bow** - Every tanker is to be provided with the means to enable the crew to gain safe access to the bow even in severe weather conditions. Such means of access are to be approved by the Society. See D7.400.

718. Tank cleaning openings - Ullage plugs, sighting ports and tank cleaning openings are not to be arranged in enclosed spaces. [IACS UR F F3]

Guidance

Ships with class notation K3 are to comply with Sub-Chapter D6.700 item 718.

End of guidance

719. Vessels loading::

- Not ninflammable substances such as mineral oils grade D of the annex II of the MARPOL with flashpoint > 60°
- Flammable products with falshpoint > 60 °
- Asphaltic products

Are exempt to comply with the dimensions for the openings as above. However, the access doors, ventilation inlets and accommodation, control and service station accesses shall not be facing the cargo area.

800. Lighting and sighting ports in pump room/engine room bulkheads. [IACS UR F 9 SFL]

Guidance

Ships with class notation K2, K3 and ESP are to comply with this item 800.

End of guidance

801. Where the pump room is illuminated through glazed ports, these are to be effectively protected from mechanical damage and are to have strong covers secured from the side of the sage space.

802. Glazed ports are to be so constructed that glass and sealing will not be impaired by the working of the ship.

803. The glass and the protection of the light fitting are not to impair the integrity of the bulkhead and are to be of equivalent strength.

804. The fitting is to have the same resistance to fire and smoke as the unpierced bulkhead

900. Special equipment

Guidance

Ships with class notation K2 and ESP are to comply with this item 900.

End of guidance

901. A shower and eyewash facility shall be placed on board in an accessible location directly from the cargo area
...

902. This topic does not apply to bunkering ships and barges.

D7. HULL ACCESORIES

Guidance

Ships with class notation K2, K3 and ESP are to comply with this Subchapter D7.

End of guidance

100. Ladders in Access tanks

101. In compliance Part II, Title 11, Section 3, the access ladders in cargo tanks shall be fitted with ladders runs or rails and shall be securely fixed to the tank structure.

102. Access ladders of cargo tank shall be vertical unless specified to otherwise.

103. Intermediate platforms are to be fitted at intervals not larger than 10 metres.

200. Davitts

– See Title 11

300. Handrails

– See Title 11

400. Safe access to tanker Bows [IMO Res MSC 62(67)] [IACS UR LL 50]

401. Tankers, including oil tankers, chemical tankers and gas carriers should be provided with means to enable the crew to gain safe access to the bow even in severe weather conditions. For tankers constructed on or after 1 July 1998, the access should be by means of either a walkway on the deck or a permanently constructed gangway of substantial strength at or above the level of the superstructure deck or the first tier of a deckhouse which should:

- a. be not less than 1 m in width, situated on or as near as practicable to the centre line of the ship and located so as not to hinder easy access across working areas of the deck;
- b. be fitted at each side throughout its length with a footstop and guard rails supported by stanchions. Such rails should consist of no less than 3 courses, the lowest being not more than 230 mm and the uppermost being at least 1 m above the gangway or walkway, and no intermediate opening should be more than 380 mm in height. Stanchions should be at intervals of not more than 1.5 m;
- c. be constructed of fire resistant and non-slip material;
- d. have openings, with ladders where appropriate, to and from the deck. Openings should not be more than 40 m apart;

- e. if the length of exposed deck to be traversed exceeds 70 m, have shelters of substantial construction set in way of the gangways or walkways at intervals not exceeding 45 m. Every such shelter should be capable of accommodating at least one person and be so constructed as to afford weather protection on the forward, port and starboard sides; and
- f. if obstructed by pipes or other fittings of a permanent nature, be provided with means of passage over such obstruction.

403. The Administration may accept alternative or modified arrangements for tankers with space constraint, such as small tankers, or tankers with large freeboard, such as gas carriers, provided that such alternative or modified arrangements achieve an equivalent level of safety for access to the bow.

404. Arrangements already approved by the Administration for the tankers constructed before 1 July 1998 may be accepted, provided that such existing arrangements achieve an equivalent level of safety for access to the bow.

405. The RBNA shall approve means of access in conformity with the guide of the safe access to tanker bows adopted to the IMO Resolution MSC.62(67), and compliance with the IACS unified interpretation LL50 approved by IMO.

CHAPTER E FIRE SAFETY SYSTEM –SHIPS WITH GT ≥ 500

CHAPTER CONTENTS

- E1. APPLICATION
- E2. PROBABILITY OF IGNITION IN THE CARGO AREA
- E3. DETECTION AND ALARM
- E4. PREVENTION OF FIRE AND EXPLOSIONS
- E5. FIRE CONTAINMENT
-

E1. APPLICATION

100. General

101. This chapter contains additional requirements to those of Part II, title 11, Section 3, Chapter E for oil tankers as described in Chapter II-2 of the International Convention for the Safety of Life at Sea -. International Convention SOLAS 1974/1988, the International Maritime Organization (IMO), and the requirements IACS UR F shall apply for purposes classification of vessels engaged in domestic or international travel. It is intended for vessels with gross tonnage or greater than 500 AB.

102. Vessels under 500 GT under the Brazilian Flag shall comply with the Regulations of NORMAM 01 Chapter V as applicable.

103. Vessels of foreign Flags shall comply with National Regulations, or, in the absence of those, with the IMO regulations as far as possible.

200. Requirements for vessels class K2

Guidance

Ships with class notation K2 are to comply with Chapter E Subchapter E20, items 201 to 203.

Ships with class notation K3 are to comply with Chapter E Subchapter E200 item 204.

End of guidance

201. The requisites under the title 32 are additional to those of to Part II, Title 11, Section 3

202. The requirements for oil tankers in this sub chapter apply to tankers carrying crude oil or petroleum products with K2 class notation (having a flashpoint not exceeding 60 ° C, closed cup tests determined by an approved apparatus for determining the flash point and a Reid vapor

pressure which is below atmospheric pressure, or other liquid food products one offering-CAM like a fire hazard.

203. Where there is an intention to carry liquid cargoes other than those mentioned in item 202 or liquefied gases with other fire hazards, other security measures should be required, with due regard to the provisions of International Code for The Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk as provided in Rule VII/8.1, the International Code for The Construction and Equipment of Ships Carrying Liquefied Gases in Bulk as defined in Rule VII/11.1 and Code of Ships Carrying Gas, as appropriate.

- a. A liquid cargo with a flash point below 60 ° C, for which a combat system that the normal fire use foam which complies with the Code of Safety Systems Fire is not effective, is considered in this context as a load that presents additional fire hazards. The following additional measures are required
 - i. The foam shall be alcohol resistant
 - ii. the type of foam for use in ships carrying chemicals concentrates shall be approved by the ARBNA taking into account guidelines developed by the IMO
 - iii. the capacity and throughput of application of foam extinguishing system shall comply with the IBC Code, with the exception that flows under the application may be accepted based on performance tests . For tankers fitted with inert gas systems, may be accepted for an amount sufficient to generate foam foam concentrate for 20 minutes..
- b. For the present Rules, ships carrying a liquid cargo with vapour pressure over 1,013 bar absolute at 37,8° C is to be considered as a cargo presenting additional fire risks, and fall under the requirements of the IBC Code.

Guidance

Ships with class notation K3 are to comply with Chapter E Subchapter E200 item 204.

End of guidance

204. **Requirements applicable to ships with class notation K3** - The requirements covered by this Title 32 are complementary to Part II , Title 11 , Section 3 The liquid cargo with a flash point above 60 ° C , except for products . petroleum products or liquid cargoes subject to the requirements of the IBC Code , are considered to present a low risk of fire, do not need the protection of a fixed foam system for fire extinguishing . Tankers carrying petroleum products with K3 class notation (one point higher than 60 ° C glow , closed cup test) , as determined by an apparatus for determining the point of glow approved , shall comply

with the requirements for ships not load tankers established in title 11 , Section3 , Chapter E except that instead of the fixed fire -extinguishing system required by title 11 , Section3 , E7.100 item , shall be provided with a fixed foam system in deck , which must comply with Code Security System against fire.

However, ships under 500 GT subject to Brazilian Flag shall comply with the regulations of NORMAM 01, item 0522.

205. Ore- oil tankers constructed on 1st July 2002, before or after that date, shall not carry cargoes other than oil unless all cargo spaces are without oil and degassed, or that measures taken in each case have been approved by the RBNA taking into account guidelines developed by IMO.

E2. PROBABILITY OF IGNITION IN THE CARGO AREA

100. Air supply for double hull and double bottom spaces

101. Double hull and double the fun-spaces shall be provided with suitable connections for the supply of air.

102. Adequate trays are to be fitted for collecting any oil drips from the cargo piping and cargo hoses., as well as under the cargo manifold. The hoses shall have electrical continuity along their lengths including the flanges, and shall be earthed for the removal of electrostatic charges.

103. The cargo pumps, ballast pumps and sewage pumps installed in cargo pump housing and driven by shafts passing through the bulkheads that compartment shall be fitted with temperature sensors on the axle bushings installed in the bulkheads, the bearings and the housings of pumps. Should be automatically triggered a continuous audible and visual alarm at the cargo control and control of the pumping station.

104.. The illumination of cargo pump room , except emergency lighting, shall be inter-connected to ventilation, so that the breakdown between in operation when lighting is on. A failure of the ventilation system shall not cause the lighting delete.

105. A system should be installed for continuous monitoring the concentration of hydrocarbon gases. The points for taking samples, or the heads of the detectors must be located in appropriate to potentially dangerous leaks to be readily detected positions. When the concentration of hydrocarbons reach a pre-set level which shall not exceed 10% of the lower flammable limit, gas should be automatically triggered a continuous audible and visual alarm in the

bomb bay, the control of engine compartment, compartment cargo pump rooms and on the bridge, to warn people about the possible danger.

106. A monitoring device for the bilge shall be installed in the pump room, together with adequately located alarms.

E3. DETECTION AND ALARM

100. General prescriptions

– See Title 11

200. Initial and periodic tests

– See Title 11

300. Protection of the machinery spaces

301. The present requirements are additional to those of Part II, Title 11, Section 3,

As prescrições desse capítulo são adicionais ao apresentado

302. Fire detecting system for unattended machinery spaces. [IACS URF 32]

a) An automatic fire detection system is to be fitted in the machinery spaces.

b) The system is to be designed with self-monitoring properties. Power or system failures are to initiate an audible alarm distinguishable from the fire alarm.

c) The fire detection indicating panel is to be located on the navigating bridge, fire control station, or other accessible place where a fire in the machinery space will not render it inoperative.

d) The fire detection indicating panel is to indicate the place of the detected fire in accordance with the arranged fire zones by means of a visual signal. Audible signals clearly distinguishable in character from any other audible signals shall be audible throughout the navigating bridge and the accommodation area of the personnel responsible for the operation of the machinery space.

e) Fire detectors are to be of types, and so located, that they will rapidly detect the onset of fire in conditions normally present in the machinery space. Consideration is to be given to avoiding false alarms. The type and location of detectors are to be approved by the Classification Society and a combination of detector types is recommended in order to enable the system to react to more than one type of fire symptom.

f) Fire detector zones are to be arranged in a manner that will enable the operating staff to locate the seat of the fire. The arrangement and the number of loops and the location of detector heads is to be approved in each case. Air currents created by the machinery are not to render the detection system ineffective.

g) When fire detectors are provided with the means to adjust their sensitivity, necessary arrangements are to be ensured to fix and identify the set point.

h) When it is intended that a particular loop or detector is to be temporarily switched off, this state is to be clearly indicated. Reactivation of the loop or detector is to be performed automatically after a present time.

i) The fire detection indicating panel is to be provided with facilities for functional testing.

j) The fire detecting system shall be fed automatically from the emergency source of power by a separate feeder if the main source of power fails.

k) Facilities are to be provided in the fire detecting system to release manually the fire alarm from the following places: Passageways having entrances to engine and boiler rooms, navigating bridge, control station in engine room.

l) The testing of the fire detecting system on board is to be carried out to the satisfaction of the individual Classification Society.

E4. PREVENTION OF FIRE AND EXPLOSIONS

Guidance

Items E4.400 to E4.600 are applicable to ships having class notation K2.

In the case of ships having the service notations oil tanker K3, flash point > 60°C the items E4.200 to E4.400 apply except that the location and separation of spaces is not required to comply with the requirements E4.200 to E4.400.

However, the following provisions are to be complied with:

a. *Tanks containing cargo or cargo residues are to be segregated from accommodation, service and machinery spaces, tanks containing drinking water and stores for human consumption by means of a cofferdam or similar space.*

b. *Double bottom tanks adjacent to cargo tanks are not to be used as fuel oil tanks.*

c. *Means are to be provided to keep deck spills away from accommodation and service areas.*

End of guidance

100. Forward and aft peak tanks

101. The forward and aft peak tanks are not to be used as cargo tanks. Double bottom tanks adjacent to cargo tanks are not to be used as fuel tanks.

200. Cargo pump room

201. The cargo pump rooms are to be separated from the other spaces of the ship by cofferdams or A-60 oiltight bulkheads and are not to have, in particular, any direct communications with the machinery spaces.

a. The pump room is to be fitted with a high level bilge alarm;

b. The pump room is to be fitted with a gas detection system located at the bottom of the compartment, triggering a visual and sound alarm on the bridge when the concentration of gases reaches 10% of the lower explosive limit, differing from other alarms;

c. The pump room ventilation system shall have a capacity for 30 20 changes per hour *Está na Seção 6*

300. Machinery spaces

301. Machinery spaces are to be positioned aft of cargo tanks and slop tanks; they are also to be situated aft of cargo pump rooms and cofferdams, but not necessarily aft of the fuel oil bunker tanks.

302. Any machinery space is to be isolated from cargo tanks and slop tanks by cofferdams, cargo pump rooms, fuel oil bunker tanks or ballast tanks

303. Pump rooms containing pumps and their accessories for ballasting those spaces situated adjacent to cargo tanks and slop tanks and pumps for fuel oil transfer are to be considered as equivalent to a cargo pump room provided that such pump rooms have the same safety standard as that required for cargo pump rooms.

304. However, the lower portion of the pump room may be recessed into machinery spaces of category A to accommodate pumps, provided that the deck head of the recess is in general not more than one third of the moulded depth above the keel, except that in the case of ships of not more than 25000 tonnes deadweight, where it can be demonstrated that for reasons of access and satisfactory piping arrangements this is impracticable, the Society may permit a recess in excess of such height, but not exceeding one half of the moulded depth above the keel.

400. Accommodation spaces, service spaces and control stations

401. Accommodation spaces, main cargo control stations, control stations and service spaces (excluding isolated cargo handling gear lockers) are to be positioned aft of cargo tanks, slop tanks, and spaces which isolate cargo or slop tanks from machinery spaces but not necessarily aft of the fuel oil bunker tanks and ballast tanks, but be arranged in such a way that a single failure of a deck or bulkhead

not permit the entry of gas or fumes from the cargo tanks into an accommodation space, main cargo control stations, control station, or service spaces. A recess provided in accordance with E3.300 need not be taken into account when the position of these spaces is being determined.

402. However, where deemed necessary, the Society may permit accommodation spaces, main cargo control stations, control stations, and service spaces forward of the cargo tanks, slop tanks and spaces which isolate cargo and slop tanks from machinery spaces, but not necessarily forward of fuel oil bunker tanks or ballast tanks.

- a. Machinery spaces, other than those of category A, may be permitted forward of the cargo tanks and slop tanks provided they are isolated from the cargo tanks and slop tanks by cofferdams, cargo pump rooms, fuel oil bunker tanks or ballast tanks.
- b. All of the above spaces are to be subject to an equivalent standard of safety and appropriate availability of fire-extinguishing arrangements being provided to the satisfaction of the Society.
- c. Accommodation spaces, main cargo control spaces, control stations and service spaces are to be arranged in such a way that a single failure of a deck or bulkhead not permit the entry of gas or fumes from the cargo tanks into such spaces.
- d. In addition, where deemed necessary for the safety or navigation of the ship, the RBNAy may permit machinery spaces containing internal combustion machinery not being main propulsion machinery having an output greater than 375 kW to be located forward of the cargo area provided the arrangements are in accordance with the provisions of this paragraph.

403. Where the fitting of a navigation position above the cargo area is shown to be necessary, it is to be for navigation purposes only and it is to be separated from the cargo tank deck by means of an open space with a height of at least 2 m. The fire protection of such navigation position is to be in addition as required for control spaces in [Ch 7, Sec 6](#) and other provisions, as applicable, of this Chapter.

404. Means be provided to keep deck spills away from the accommodation and service areas. This may be accomplished by provision of a permanent continuous coaming of a height of at least 300 mm, extending from side to side. Special consideration be given to the arrangements associated with stern loading.

Guidance

Note 1 : *The provisions of E3.404 above also apply to bow and stern cargo loading stations.*

End of guidance

405. Exterior boundaries of superstructures and deckhouses enclosing accommodation and including any overhanging decks which support such accommodation, is to be constructed of steel and insulated to A-60 standard for the whole of the portions which face the cargo area and on the outward sides for a distance of 3 m from the end boundary facing the cargo area. The distance of 3 m is to be measured horizontally and parallel to the middle line of the ship from the boundary which faces the cargo area at each deck level. In the case of the sides of those superstructures and deckhouses, such insulation is to be carried up to the underside of the deck of the navigation bridge.

Guidance

Note 1 : *Service spaces and control stations (except the wheelhouse) located in superstructures and deckhouses enclosing accommodation are to comply with the provisions of E3.405.*

End of guidance

406. The location and arrangement of the room where foods are cooked are to be selected such as to minimize the risk of fire.

E5. FIRE CONTAINMENT

100. Application

101. For tankers, only method IC as defined in Part II, Title 11, Section 3, Chapter E, E.9 shall be used.

200. Fire integrity of bulkheads and decks

201. In addition to complying with the specific provisions for fire integrity of bulkheads and decks of tankers, the minimum fire integrity of bulkheads and decks shall be as prescribed in tables T.E5.201.1 and T.E5.201.2.

202. The following requirements shall govern application of the tables:

203. Tables T.E1.201.1 and T.E1.201.2 shall apply respectively to the bulkhead and decks separating adjacent spaces;

204. For determining the appropriate fire integrity standards to be applied to divisions between adjacent spaces, such spaces are classified according to their fire risk as shown in categories (1) to (10) below. Where the contents and use of a space are such that there is a doubt as to its classification for the purpose of this regulation, or where it is possible to assign two or more classifications to a space, it shall be treated as a space within the relevant category having the most stringent boundary requirements. Smaller, enclosed areas within a space that have less than 30 % communicating openings to that space are considered

separate areas. The fire integrity of the boundary bulkheads and decks of such smaller spaces shall be as prescribed in tables 9.7 and 9.8. The title of each category is intended to be typical rather than restrictive. The number in parentheses preceding each category refers to the applicable column or row in the tables;

Categories

(1) Control stations

Spaces containing emergency sources of power and lighting. Wheelhouse and chartroom. Spaces containing the ship's radio equipment. Fire control stations. Control room for propulsion machinery when located outside the machinery space. Spaces containing centralized fire alarm equipment.

(2) Corridors

Corridors and lobbies.

(3) Accommodation spaces

Spaces as defined in regulation 3.1, excluding corridors.

Guidance

Regulation 3.1:

"Accommodation spaces" are those spaces used for public spaces, corridors, lavatories, cabins, offices, hospitals, cinemas, game and hobby rooms, barber shops, pantries containing no cooking appliances and similar spaces

End of guidance

(4) Stairways

Interior stairways, lifts, totally enclosed emergency escape trunks, and escalators (other than those wholly contained within the machinery spaces) and enclosures thereto.

In this connection, a stairway which is enclosed only at one level shall be regarded as part of the space from which it is not separated by a fire door.

(5) Service spaces (low risk)

Lockers and store-rooms not having provisions for the storage of flammable liquids and having areas less than 4 m² and drying rooms and laundries.

(6) Machinery spaces of category A

Spaces as defined in regulation 3.31.

Guidance

Machinery spaces of category A" are those spaces and trunks to such spaces which contain either:

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

.3 any oil-fired boiler or oil fuel unit, or any oil-fired equipment other than boilers, such as inert gas generators, incinerators, etc.

End of guidance

(7) Other machinery spaces

Electrical equipment rooms (auto-telephone exchange and air-conditioning duct spaces). Spaces as defined in regulation 3.30 excluding machinery spaces of category A.

Guidance

"Machinery spaces" are machinery spaces of category A and other spaces containing propulsion machinery, boilers, oil fuel units, steam and internal combustion engines, generators and major electrical machinery, oil filling stations, refrigerating, stabilizing, ventilation and air conditioning machinery, and similar spaces, and trunks to such spaces.

End of guidance

(8) Cargo pump-rooms

Spaces containing cargo pumps and entrances and trunks to such spaces.

(9) Service spaces (high risk)

Galleys, pantries containing cooking appliances, saunas, paint, lockers and store-rooms having areas of 4 m² or more, spaces for the storage of flammable liquids and workshops other than those forming part of the machinery spaces.

(10) Open decks

Open deck spaces and enclosed promenades having little or no fire risk. To be considered in this category, enclosed promenades shall have no significant fire risk, meaning that furnishings shall be restricted to deck furniture. In addition, such spaces shall be naturally ventilated by permanent openings. Air spaces (the space outside superstructures and deckhouses).

205. Continuous "B" class ceilings or linings, in association with the relevant decks or bulkheads, may be accepted as contributing, wholly or in part, to the required insulation and integrity of a division.

206. External boundaries which are required to be of steel or other equivalent material may be pierced for the fitting of windows and sidescuttles provided that there is no requirement for such boundaries of tankers to have "A" class integrity. Similarly, in such boundaries which are not required to have "A" class integrity, doors may be constructed of materials which are to the satisfaction of the Administration.

207. Exterior boundaries of superstructures and deckhouses enclosing accommodation and including any over-

hanging decks which support such accommodation, shall be constructed of steel and insulated to "A-60" standard for the whole of the portions which face the cargo area and on the outward sides for a distance of 3 m from the end boundary facing the cargo area. The distance of 3 m shall be measured horizontally and parallel to the middle line of the ship from the boundary which faces the cargo area at each deck level. In the case of the sides of those super-

structures and deckhouses, such insulation shall be carried up to the underside of the deck of the navigation bridge.

208. Skylights to cargo pump-rooms shall be of steel, shall not contain any glass and shall be capable of being closed from outside the pump-room.

TABLE T.E5.201.1 - FIRE INTEGRITY OF BULKHEADS SEPARATING ADJACENT SPACES

Spaces		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Control stations	(1)	A-0 ^c	A-0	A-60	A-0	A-15	A-60	A-15	A-60	A-60	*
Corridors	(2)		c	B-0	B-0 A-0 ^a	B-0	A-60	A-0	A-60	A-0	*
Accommodation spaces	(3)			c	B-0 A-0 ^a	B-0	A-60	A-0	A-60	A-0	*
Stairways	(4)				B-0 A-0 ^a	B-0 A-0 ^a	A-60	A-0	A-60	A-0	*
Service spaces (low risk)	(5)					c	A-60	A-0	A-60	A-0	*
Machinery spaces of category A	(6)						*	A-0	A-0 ^d	A-60	*
Other machinery spaces	(7)							A-0 ^b	A-0	A-0	*
Cargo pump-rooms	(8)								*	A-60	*
Service spaces (high risk)	(9)									A-0 ^b	*
Open decks	(10)										-

Table T.E5.201.2 - FIRE INTEGRITY OF DECKS SEPARATING ADJACENT SPACES

Spaces Below	Above		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Control stations		(1)	A-0	A-0	A-0	A-0	A-0	A-60	A-0	-	A-0	*
Corridors		(2)	A-0	*	*	A-0	*	A-60	A-0	-	A-0	*
Accommodation spaces		(3)	A-60	A-0	*	A-0	*	A-60	A-0	-	A-0	*
Stairways		(4)	A-0	A-0	A-0	*	A-0	A-60	A-0	-	A-0	*
Service spaces (low risk)		(5)	A-15	A-0	A-0	A-0	*	A-60	A-0	-	A-0	*
Machinery spaces of category A		(6)	A-60	A-60	A-60	A-60	A-60	*	A-60 ^e	A-0	A-60	*
Other machinery spaces		(7)	A-15	A-0	A-0	A-0	A-0	A-0	*	A-0	A-0	*
Cargo pump-rooms		(8)	-	-	-	-	-	A-0 ^d	A-0	*	-	*
Service spaces (high risk)		(9)	A-60	A-0	A-0	A-0	A-0	A-60	A-0	-	A-0 ^b	*
Open decks		(10)	*	*	*	*	*	*	*	*	*	-

Notes: To be applied to tables 9.7 and 9.8 as appropriate.

- Where spaces are of the same numerical category and superscript b appear, a bulkhead or deck of the rating shown in the tables is only required when the adjacent spaces are for a different purpose (e.g. in category (9)). A galley next to a galley does not require a bulkhead but a galley next to a paint room requires an "A-0" bulkhead.
- Bulkheads separating the wheelhouse, chartroom and radio room from each other may have a "B-0" rating.
- Bulkheads and decks between cargo pump-rooms and machinery spaces of category A may be penetrated by cargo pump shaft glands and similar gland penetrations,

provided that gas tight seals with efficient lubrication or other means of ensuring the permanence of the gas seal are fitted in way of the bulkheads or deck.

- Fire insulation need not be fitted if the machinery in category (7) if, in the opinion of the Administration, it has little or no fire risk.
- Where an asterisk appears in the table, the division is required to be of steel or other equivalent material, but is not required to be of "A" class standard. However, where a deck, except an open deck, is penetrated for the passage of electric cables, pipes and vent ducts, such penetrations should be made tight to prevent the passage of flame and smoke. Divisions between control stations

(emergency generators) and open decks may have air intake openings without means for closure, unless a fixed gas fire-fighting system is fitted.

200. Penetrações em divisões resistentes ao fogo e prevenção da transmissão de calor

– See Title 11

300. Proteção de aberturas em divisões resistentes ao fogo

– See Title 11

400. Proteção de aberturas existentes nas divisórias externas dos compartimentos de máquinas

– See Title 11

500. Proteção das divisórias externas dos compartimentos de carga

501. For the protection of cargo tanks bulkheads in oil tankers carrying crude oil and petroleum products having a flash point not over 60°C, materials which easily melt under the heat of a fire are not to be used in valves, air vent piping of cargo tanks, cargo piping

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