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INTERPRETATIONS OF FIRE PROTECTION-RELATED PROVISIONS OF THE HSC CODE

1 The Maritime Safety Committee, at its seventy-first session (19 to 28 May 1999), approved, with a view to ensuring uniform application of the fire protection-related provisions of the International Code of Safety for High-Speed Craft (HSC Code), interpretations to the relevant sections of the Code, prepared by the Sub-Committee on Fire Protection, as set out in the annex.

2 Member Governments are invited to use the annexed interpretations as guidance when applying relevant provisions of the HSC Code to fire protection construction, installation, arrangements and equipment to be installed on board craft on or after 21 May 1999, in order to fulfill the requirements of the Code, and to bring the interpretations to the attention of all parties concerned.

ANNEX**INTERPRETATIONS OF FIRE PROTECTION-RELATED PROVISIONS OF
THE HSC CODE****Section 1.4.13***Explanations to control stations*

- 1 Main navigating equipment includes, in particular, the steering control and the compass, radar and direction-finding equipment.
- 2 Where in the sections of this Code, relevant to fixed fire-extinguishing systems, there are no specific requirements for the centralization within a control station of major components of a system, such major components may be placed in spaces which are not considered to be a control station.
- 3 Spaces containing, for instance, the following battery sources should be regarded as control stations regardless of battery capacity:
 - .1 emergency batteries in separate battery room for power supply from black-out till start of emergency generator;
 - .2 emergency batteries in separate battery room as reserve source of energy to radiotelegraph installation;
 - .3 batteries for start of emergency generator; and
 - .4 in general, all emergency batteries required in pursuance of paragraph 12.3 of the Code.

Section 4.7*Means of escape*

At least one means of escape from a machinery space should consist of either a ladder leading to a door or hatch (not being a horizontal flush-hatch), or a door located in the lower part of that space and giving access to an adjacent compartment from which a safe means of escape is provided.

Section 4.7.6*Opening direction of doors along escape routes*

Doors along escape routes should, whenever possible, open in the direction of escape flow from the space served.

Section 4.7.10

Markings for exits and emergency routes

Although the arrangement of a low-location lighting system is not required, markings, if installed, should be of photoluminescent or electroluminescent material. In addition to exits, routes leading to evacuation stations, and routes leading to safe areas should be marked. Markings for rescue personnel should indicate the position of the fire control plan.

Section 4.8.1

Dimensioning of the means of escape

It is not required that the means of escape be dimensioned taking into account the additional number of persons that could use it in the event of an accident in an adjacent zone, provided that the requirements of paragraph 8.10.1.3 of the Code are complied with.

Section 7.3

Insulation values of spaces with special characteristics of two or more groupings

Where a space has the special characteristics of two or more space groupings, the structural fire protection time of the divisions should be the highest for the space groupings concerned. For example, the structural fire protection time of the divisions of emergency generator rooms should be the highest value for the space when the space is considered as being a control station (D) and a machinery space (A).

Section 7.3.1

Separating partial bulkheads of spaces

If a space is divided by partial bulkheads into two (or more) smaller areas such that they form enclosed spaces, then the enclosed spaces should be surrounded by bulkheads and decks in accordance with tables 7.4-1 and 7.4-2, as applicable. However, if the separating bulkheads of such spaces are at least 30 % open, then the spaces may be considered as the same space.

Acceptance of cabinets

Cabinets having a deck area of less than 2 m² may be accepted as part of the space they serve provided they have open ventilation to the space and do not contain any material or equipment which could be a fire risk.

Section 7.4

Prevention of heat transmission, details of insulation

- 1 To prevent heat transmission at intersections and terminal points, the insulation of the deck or bulkhead should be carried past the intersection or terminal point for a distance of at least 450 mm in the case of steel and aluminium structures. (Refer to figures 7.4-1 and 7.4-2 in the appendix).
- 2 If a space is divided by a deck or bulkhead and the fire insulation required for each space is different, the insulation with the higher structural fire protection time should continue on the deck or bulkhead with the insulation of the lesser structural fire protection time for a distance of at least 450 mm.
- 3 In the event the lower part of the fire insulation has to be cut for drainage, the construction should be in accordance with the structural details shown in figure 7.4-3 of the appendix.

Section 7.4.1.3

Appendages not intended to be of fire-restricting or non-combustible material

Appendages such as air propellers, air ducts to propellers, transmission shafts, rudders and other control surfaces, struts, spars, flexible skirts, etc., are not intended to be of fire restricting or non-combustible material, therefore, paragraph 7.4.1.3 should not apply to them.

Section 7.4.2.1

Structures in contact with sea water

Structures in contact with sea water should be insulated to the required standard 300 mm below the craft's lightweight condition.

Section 7.4.3.2

Surface protection of insulation

The fire insulation in such spaces may be covered by metal sheets (not perforated) or by vapour proof glass cloth accurately sealed at the joint.

Section 7.4.3.3.1

Types of case furniture

Different possible types of case furniture are: desks, wardrobes, dressing tables, bureaux and dressers.

Table 7.4-1

Ventilation openings

Ventilation openings may be accepted in entrance doors to public toilets provided they are positioned in the lower portion of the door, and fitted with closable grilles operable from outside the space and made of non-combustible or fire-restricting material.

Section 7.4.4.1

Public spaces accommodated on two levels

Where stairways are fitted in a public space consisting of only two decks, the following conditions should be met:

- .1 all levels are used for the same purpose;
- .2 the area of the opening between the lower and upper part of the space should be at least 10% of the deck area between the upper and lower part of the space;
- .3 the design should be such that persons within the space should be generally aware, or could easily be made aware of, a developing fire or other hazardous situation located within that space;
- .4 sufficient means of escape are provided from both levels of the space directly leading to an adjacent safe area or compartment; and
- .5 the whole space is served by one section of the sprinkler system.

Section 7.4.4.3

Location of draught stops

Draught stops are not required in public spaces with open ceilings (perforated ceilings) where the opening is 40% or more, and, the ceiling is arranged in such a way that a fire behind the ceiling can be easily seen and extinguished.

Section 7.5.2

Use of aluminium in lubricating oil sump tanks

The use of aluminium in lubricating oil sump tanks for engines, or in lubricating oil filter housings fitted integral with the engines, is accepted.

Section 7.6.1

Accessibility, marking and indication of ventilation controls

The controls should be easily accessible as well as prominently and permanently marked and should indicate whether the shut-off is open or closed.

Section 7.6.4

Accessibility of dampers

Fire and smoke dampers should be easily accessible. Where they are placed behind ceilings or linings, they should be provided with an inspection door on which a plate is fitted providing the identification number of the damper. Such plates with identification numbers should also be placed on any required remote controls.

Section 7.6.6

Means of closing fire and smoke dampers

Manual closing may be achieved by mechanical means of release or by remote operation of the fire or smoke damper by means of a fail-safe electrical switch or pneumatic release (i.e. spring-loaded, etc.).

Section 7.7

Requirements for fixed fire-extinguishing systems not required by paragraph 7.7 of the Code

Where a fixed fire-extinguishing system not required by paragraph 7.7 of the Code is installed, it should meet the requirements of this section.

Section 7.7.1

Control stations not normally occupied

Control stations not normally occupied (e.g. emergency generator rooms) need not be provided with manually operated call points.

Section 7.7.2.1.4

Definition of section

Group of fire detectors and manually operated call points as reported in the indicating unit(s) required by paragraph 7.7.2.1.4 of the Code.

Section 7.7.2.1.9

Extension of detector sections

The same section of detectors may serve spaces on more than one deck if such spaces are located in the fore or aft end of the craft or they are so arranged that they constitute common spaces on different decks (e.g. fan rooms, galleys, public spaces, etc.).

Section 7.7.2.1.10

Restriction of loops

For fire detection systems with remotely and individually identifiable fire detectors, the requirement set out in this section is considered met when a loop covering accommodation spaces, service spaces, and control stations, does not include machinery spaces of a major fire hazard.

Section 7.7.2.1.14

Acceptable activating arrangements

The following arrangement may be acceptable:

- .1 to activate a paging system;
- .2 to activate the fan stops;
- .3 to activate the closure of fire doors;
- .4 to activate the closure of fire and smoke dampers;
- .5 to activate the sprinkler system.

Section 7.7.2.1.15

Installation of loops and definitions

- 1 A loop should not pass through a space twice. Where this is not practical, (e.g. for large public spaces) the part of the loop which by necessity passes through the space for a second time should be installed at the maximum possible distance from the other parts of the loop.
- 2 Definitions:
 - .1 *Loop*: electrical circuit linking detectors of various sections in a sequence and connected (input and output) to the indicating unit(s).
 - .2 *Zone address identification capability*: a system with individually identifiable fire detectors.

Section 7.7.2.2.4

Location of detectors

Distances smaller than 0.5 m from bulkheads may be accepted in corridors, lockers and stairways.

Section 7.7.4

Remote control of the system

The system should be remotely controlled in such a way that it is fully serviceable from the operating compartment without any intervention of personnel outside that space in normal conditions.

Section 7.7.6.1.2

Construction of pipelines passing through accommodation

Pipelines may pass through accommodation spaces provided they are of substantial thickness and that their tightness is verified with a pressure test, after their installation, at a pressure head not less than 5 N/mm². In addition, pipelines passing through accommodation areas should only be joined by welding and should not be fitted with drains or other openings within such spaces. Pipelines should not pass through refrigerated spaces.

Section 7.7.6.1.4

Location of closing devices

Openings which may admit air to, or allow gas to escape from, a protected space should be capable of being closed from outside the protected space.

Section 7.7.6.1.5

Consideration of volume of air receivers when calculating the quantity of extinguishing medium

The volume of starting air receivers, converted to free air volume, should be added to the gross volume of the machinery space when calculating the necessary quantity of extinguishing medium. Alternatively, a discharge pipe connected to a safety valve may be fitted provided it leads directly to the open air.

Section 7.7.6.1.6

Warning of release of extinguishing medium to ro-ro spaces and other spaces where personnel can enter

- 1 Ro-ro spaces and other spaces where personnel can be expected to enter, and where the access is facilitated by doors or manway hatches, should be provided with an automatic warning for the release of the extinguishing medium.
- 2 The pre-discharge alarm should be automatically activated, e.g. by opening of the release cabinet door.
- 3 Reference is made to the Code on Alarms and Indicators, 1995 (resolution A.830(19)).

Section 7.7.6.1.9

Separation of spaces

Two spaces can be considered as separated spaces where divisions comply with tables 7.4-1 and 7.4-2, as appropriate, or the divisions are of steel construction.

Section 7.7.6.1.11

Means for checking the quantity of medium in containers

1 Means for checking the quantity of medium in containers should be so arranged that it is not necessary to move the containers completely from their fixing position. This may be achieved for instance by providing hanging bars above each bottle row for a weighing device or by using suitable surface indicators.

2 Surface indicators containing radioactive material should be of a type accepted by the Administration.

Section 7.7.6.1.13

Location, accessibility, use and ventilation of CO₂ - storage spaces

1 Spaces for storage of the cylinders or tanks for extinguishing gas should not be used for other purposes. Access to these spaces should be possible from the open deck; spaces situated below the deck should be directly accessible by a stairway or ladder from the open deck. The space should be located no more than one deck below the open deck.

2 Spaces where the entrance from the open deck is not provided, or which are located below deck, are to be fitted with mechanical ventilation. The exhaust duct (suction) should lead to the bottom of the space. Such spaces should be ventilated with at least 6 air changes per hour.

Section 7.7.7

Reference to resolution A.602(15)

Reference is made to IMO resolution A.602(15) entitled "Revised Guidelines for marine portable fire extinguishers".

Mass and capacity of portable fire extinguishers

1 The mass of portable fire extinguishers should not exceed 23 kg.

2 Each powder or carbon dioxide extinguisher should have a capacity of at least 5 kg, and each foam extinguisher a capacity of at least 9 l.

Equivalents of portable fire extinguishers

Reference is made to ISO/DIS 7156 - Fire protection equipment - Portable fire extinguishers - Performance and construction.

Examination and testing of portable fire extinguishers

1 Fire extinguishers should be examined annually by a competent person.

2 Each fire extinguisher should be provided with a sign indicating that it has been examined.

3 Fire extinguisher cylinders and propellant bottles should be hydraulic pressure tested every 10 years.

Type and location of portable fire extinguishers

1 Carbon dioxide fire extinguishers should not be placed in accommodation spaces. In control stations and other spaces containing electrical or electronic equipment or appliances necessary for the safety of the craft, fire extinguishers should be provided with extinguishing media which are neither electrically conductive nor harmful to the equipment and appliances.

2 Fire extinguishers should be ready for use and located in easily visible places such that they can be reached quickly and easily at any time in the event of a fire. In addition, the fire extinguisher should be located such that their serviceability is not impaired by the weather, vibration or other external factors. Portable fire extinguishers should be provided with devices to identify whether they have been used.

Section 7.7.8.1

Independently driven pumps

Independently driven pumps are pumps powered by independent sources of power.

Section 7.7.8.3

Drainage of fire mains and shutting-off fire main branches

Fire mains should be capable of being drained. Valves should be installed in the main so that fire main branches can be isolated when the main is used for purposes other than fire-fighting.

Section 7.7.8.4

Location of hydrants

One hydrant should be located in the vicinity and outside of each entrance to a machinery space.

Section 7.7.8.5

Length of fire hoses

Fire hoses should have a length of:

- at least 10 m,
- not more than 15 m in machinery spaces,
- not more than 20 m for other spaces and open decks.

Additional hoses and nozzles when carrying dangerous goods

Ships carrying dangerous goods should be provided with 3 additional hoses and 3 additional nozzles.

Section 7.8.1.1

Vehicle decks located totally within ro-ro spaces

Vehicle decks located totally within ro-ro spaces may be accepted without structural fire protection provided these decks are not part of the craft's main load-carrying structure, and provided satisfactory measures are taken to ensure that the safety of the craft, including fire-fighting abilities and integrity of fire resisting divisions, is not affected by a partial or total collapse of these internal decks.

Section 7.8.2

Reference to resolution A.123(V) and complementary devices for fire-extinguishing systems including instructions for maintenance and operation

- 1 The pumps should be capable of maintaining:
 - .1 half the total required application rate with any one pump unit out of function, for category A craft; and
 - .2 the total required application rate with any one pump unit room out of function, for category B craft.
- 2 Such systems should fulfill the following requirements:
 - .1 the valve manifold should be provided with a pressure gauge and each of the valves should be marked;
 - .2 instructions for maintenance and operation of the installation should be set up in the room where the valves are located; and
 - .3 the piping system should be provided with a sufficient number of drainage valves.

Section 7.8.3.1

Fixed fire detection systems, if fitted, in special category spaces

The fire detection system, excluding manual call points, may be switched off with a timer during loading/unloading of vehicles to avoid "false" alarms.

Section 7.8.4.1.1

Construction of water fog applicators

A water fog applicator may consist of a metal L-shaped pipe, the long limb being approximately 2 m in length and capable of being fitted to a fire hose, and the short limb being approximately 250 mm in length and fitted with a fixed water fog nozzle or capable of being fitted with a water spray nozzle.

Section 7.8.4.1.3

Location of portable fire extinguishers including suitability and capacity

Fire extinguishers in special-category spaces should be suitable for A and B class fires. The extinguishers should have a capacity of 12 kg dry powder or equivalent.

Weight and capacity of fire extinguishers

- 1 The weight of portable fire extinguishers should not exceed 23 kg.
- 2 Each powder or carbon dioxide extinguisher should have a capacity of at least 5 kg, and each foam extinguisher a capacity of at least 9 l.

Section 7.8.5.1

Reference to MSC/Circ.729

Reference is made to MSC/Circ.729 - Design guidelines and operational recommendations for ventilation systems in ro-ro cargo spaces.

Section 7.8.7.1

Degree of protection for electrical equipment

- 1 For equipment above a height of 450 mm above the deck:

The degree of protection for electrical equipment required by this section should have an enclosure having an ingress protection of at least IP 55 as defined in IEC Publication 529 - Classification of Degree of Protection provided by Enclosures, or by apparatus for use in zone 2 areas as defined in IEC Publication 79 - Electrical Apparatus for Explosive Gas Atmospheres (Temperature Class T3).

- 2 For equipment at or below a height of 450 mm above deck:

The electrical equipment referred to in this section should be certified "safe type" and wiring, if fitted, should be suitable for use in zone 1 areas as defined in IEC Publication 79 - Electrical Apparatus for Explosive Gas Atmospheres - (Gas Group II A and Temperature Class T 3).

Section 7.8.7.2

Degree of protection for electrical equipment in exhaust ventilation ducts and exhaust fans

- 1 The electrical equipment referred to in these regulations should be certified "safe type" and wiring, if fitted, and should be suitable for use in zone 1 areas as defined in IEC Publication 79 - Electrical Apparatus for Explosive Gas Atmospheres (Gas Group II A and Temperature Class T 3).
- 2 Exhaust fans should be of a non-sparking type in accordance with IACS Unified Requirement F 29, as revised.

Section 7.9.3.4

Open spaces

"Open spaces" as referred to in paragraph 7.9.3.4 of the Code is interpreted as excluding grouping E in tables 7.4-1 and 7.4-2.

Section 7.10.1.2

Construction of water fog applicators

A water fog applicator might consist of a metal L-shaped pipe, the long limb being approximately 2 m in length and capable of being fitted to a fire hose, and the short limb being approximately 250 mm in length fitted with a fixed water fog nozzle or capable of being fitted with a water spray nozzle.

Section 7.10.2

Storage of firefighter's outfits and marking of location

The storage of firefighter's outfits and personal equipment should be permanently and clearly marked.

Section 7.10.3.1.1

Reference to ISO 6942 - 1983

Reference is made to ISO 6942 - 1983 - Clothing for protection against heat and fire; evaluation of thermal behaviour of materials and material assemblies when exposed to source of radiant heat.

Section 7.10.3.1.2

Reference to IEC 903 - 1988

Reference is made to IEC 903 - 1988 - Specification for gloves and mitts of insulating material for live working.

Section 7.10.3.1.4

Reference to IEC-Publication 79

Electric safety lamps intended to be used in hazardous areas should be of an explosion proof type. Reference is made to IEC Publication 79.

Section 7.10.3.1.5

Handle of axe

The handle of the axe should be provided with high-voltage insulation.

Section 7.10.3.2.2

Spare charges and recharging of air cylinders for breathing apparatus

Two spare charges suitable for use with the apparatus should be provided for each required apparatus.

Section 7.10.3.3

Fireproof lifeline for breathing apparatus

Each breathing apparatus should be provided with a flexible fireproof lifeline approximately 30 m in length. The lifeline should be subjected to a test by static load of 3.5 kN for 5 min.

Section 7.11.1.3

Safe evacuation from the alternative safe area

Safe evacuation from the alternative safe area should be completed within the structural fire protection time for areas of major fire hazard.

Section 7.13.1

Stairways open at one deck

A stairway open at one deck should be considered part of the space to which it is open, and consequently, should be protected by a sprinkler system, if provided.

Section 10.2.4.8

Safe positions for discharge of air and overflow pipes and relief valves

1 Air and overflow pipes and relief valves should discharge to a position where there is no risk of fire or explosion from the emergence of oils and vapour, and should not lead into crew spaces, passenger spaces, special category spaces, ro-ro spaces, other than open ro-ro spaces, machinery spaces or similar spaces.

2 The requirement to provide overpressure protection should be applied only to filling pipes served by pumps on board.

Section 10.2.4.9

Material of oil fuel pipe valves

For valves fitted to oil fuel tanks, and which are under static pressure-head, steel or modular cast iron may be accepted. However, ordinary cast iron valves may be used in piping systems where the design pressure is lower than 0.7 N/mm² and the design temperature is below 60°C.

APPENDIX Heat transmission at intersections

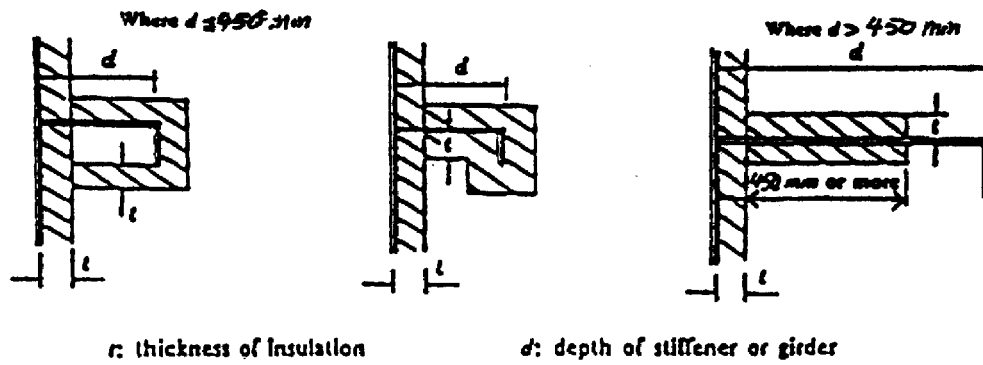


Figure 7.4-1

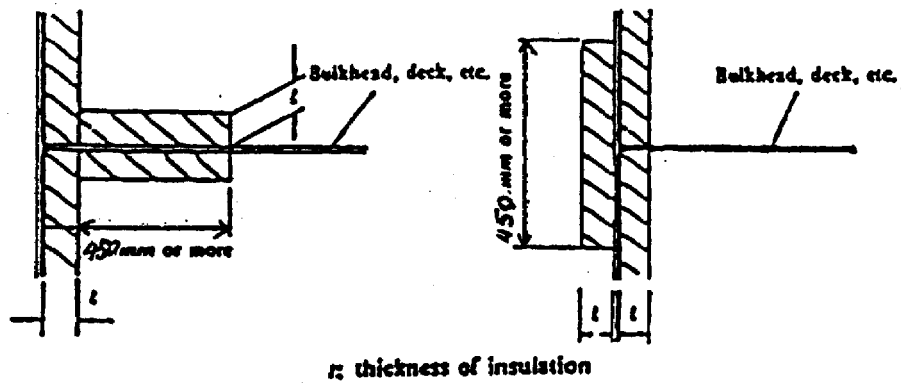


Figure 7.4-2

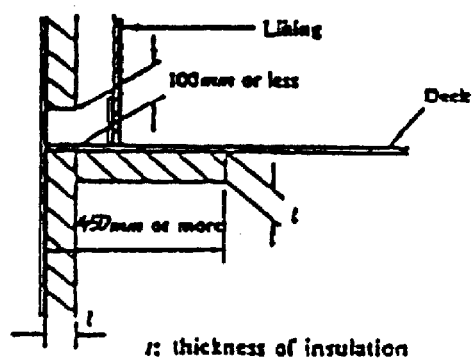


Figure 7.4-3