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From:	General Secretariat of the Council
To:	Permanent Representatives Committee/Council
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Subject:	Draft COUNCIL RECOMMENDATION on safety goals and non-binding functional requirements for passenger ships below 24 meters in length – Adoption

CONTEXT AND CONTENT OF THE PROPOSAL

1. On 23 May 2018, the Commission transmitted the above-mentioned proposal to the Council.

2. Directive (EU) 2017/2108 of the European Parliament and of the Council[1] excluded passenger ships below 24 meters in length ('small passenger ships') made of steel or an equivalent material from the scope of Directive 2009/45/EC of the European Parliament and of the Council[2] following the recommendations of the Regulatory Fitness and Performance Programme (REFIT) fitness check on EU passenger ship safety legislation.

[1] Directive (EU) 2017/2108 of the European Parliament and of the Council of 15 November 2017 amending Directive 2009/45/EC on safety rules and standards for passenger ships (OJ L 315, 30.11.2017, p. 40).

[2] Directive 2009/45/EC of the European Parliament and of the Council of 6 May 2009 on safety rules and standards for passenger ships (OJ L 163, 25.6.2009, p. 1).

3. Nevertheless, in recital 8 of Directive (EU) 2017/2108 the co-legislators also invited the Commission to adopt guidelines with specific safety standards for small passenger ships as soon as possible.

4. The proposed Council Recommendation is in response to that invitation.

5. At the same time, it could have a positive impact on the functioning of the internal market.

6. The Annex to the Recommendation contains a number of functional and performance requirements for small passenger ships.

WORK WITHIN THE COUNCIL

7. The Commission presented the proposed Recommendation to the Shipping Working Party in June 2018.

8. The Shipping Working Party examined the proposal on 20 February, 27 February and 6 March 2019.

9. No major substantial changes were made. However, the limited changes proposed underline the voluntary and non-binding nature of the Recommendation, including the functional and performance requirements, as well as the right for Member States to keep or introduce their own national rules for small passenger ships.

10. Ireland has indicated that it intends to make a statement to the minutes of the Permanent Representatives Committee and of the Council at the time of adoption.

CONCLUSION

11. Taking into account the above, the Permanent Representatives Committee/Council are invited to examine and adopt the draft Council Recommendation as set out in the Annex.

ANNEX

2018/0159 (NLE)

Proposal for a

COUNCIL RECOMMENDATION

on safety goals and non-binding functional requirements for passenger ships below 24 meters in length

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 292 and Article 100(2) thereof,

Having regard to the proposal from the European Commission,

Whereas:

(1) Directive (EU) 2017/2108 of the European Parliament and of the Council[3] which was adopted on 15 November 2017 excluded passenger ships below 24 meters in length ('small passenger ships') made of steel or an equivalent material from the scope of Directive 2009/45/EC of the European Parliament and of the Council[4] following the recommendations of the Regulatory Fitness and Performance Programme (REFIT) fitness check on EU passenger ship safety legislation[5]. This amendment will be applicable from 21 December 2019.

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[3] Directive (EU) 2017/2108 of the European Parliament and of the Council of 15 November 2017 amending Directive 2009/45/EC on safety rules and standards for passenger ships (OJ L 315, 30.11.2017, p. 40).

[4] Directive 2009/45/EC of the European Parliament and of the Council of 6 May 2009 on safety rules and standards for passenger ships (OJ L 163, 25.6.2009, p. 1).

[5] COM(2015) 508.

(2) The fitness check has shown that the prescriptive requirements of Directive 2009/45/EC which derived from the 1974 International Convention for the Safety of Life at Sea (the '1974 SOLAS Convention') have proven difficult to adapt to small passenger ships. In the absence of specific safety concerns and adequate standards provided by Directive 2009/45/EC, ships below 24 m in length, except for high-speed passenger craft, have been therefore excluded from the scope of that Directive.

(3) Small passenger ships are built mainly from materials other than steel and the vast majority of this fleet is therefore already certified under national legislation. Member States have different approaches to regulating the safety of small passenger ships, which leads to differences in safety rules and standards. Such divergence constitutes an important challenge especially for smaller ship-owners in the Union, who rely on the second-hand market of small passenger ships. This has been confirmed by the results of the open consultation, with the majority of respondents being micro or small enterprises. The consultation has shown that a more common approach to safety rules for small passenger ships could have a positive impact on the functioning of the internal market in this field.

(4) An internal market for recreational craft was established by Directive 94/25/EC of the European Parliament and of the Council[6], harmonising safety characteristics of recreational craft in all Member States and removing thereby obstacles to trade therein between Member States. There is, however, no such internal market established for small passenger ships.

(5) The fitness check recommended a performance standards framework as the only approach that would be proportionate and could generate added value at Union level. Such an approach would leave a degree of freedom to adjust to local circumstances, where necessary, and promote innovative designs, subject to verification that the required safety level is met. In comparison to a prescriptive regulatory framework, it would better reflect the wide variety of designs, materials and operation of small passenger ships, as well as the fact that Member States are better placed to assess the local limitations on navigation for small passenger ships in terms of distance to coast or port and weather conditions.

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[6] Repealed and replaced by Directive 2013/53/EU of the European Parliament and of the Council of 20 November 2013 on recreational craft and personal watercraft (OJ L 354, 28.12.2013, p. 90).

(6) The safety goals and non-binding functional requirements annexed to this Recommendation are based on such performance standards framework, as well as the existing international, Union and national experience. They have been developed jointly with Member States' experts and stakeholders and could, if embraced by Member States and further developed, provide a reference for passengers sailing domestically on those ships in Union waters. They could facilitate access for Union manufacturers and operators to the wider Union market as well. Further developments of the framework should take into consideration passenger interests.

(7) This Recommendation includes safety goals and non-binding functional requirements which are better adapted to small passenger ships. Member States should therefore be invited to guide themselves by the safety goals and non-binding functional requirements annexed in this recommendation, in view of achieving a more common approach towards safety rules applicable to small passenger ships.

HAS ADOPTED THIS RECOMMENDATION:

1. Member States are invited to pave the way towards a more common approach to safety rules for passenger ships below 24 meters in length ('small passenger ships') that operate on domestic voyages within the Union waters and are neither recreational craft as defined in Article 3(2) of Directive 2013/53/EU nor passenger ships falling within the scope of Article 3(1) of Directive 2009/45/EC, as amended by Directive (EU) 2017/2108 and applicable from 21 December 2019.

2. To that effect it is recommended that, from 21 December 2019, Member States, on a voluntary basis:

   (a) guide themselves, where relevant, by the safety goals and non-binding functional requirements for small passenger ships set out in the Annex;

   (b) support further analytical work with a view to identify and further assess the goals and requirements referred to in point (a) within the performance-based framework, and to identify and assess possible alternative forms for their verification and implementation**.** This analysis should include assessment of the wide variety of passenger ship types and sizes, materials of construction and operating conditions;

(c) encourage the involvement of stakeholders, including passenger representatives, in such process.

3. This Recommendation is without prejudice to national safety rules applicable to passenger ships below 24 m in length and does not interfere with the right of Member States to define safety rules applicable to such ships referred to in point 1.

Done at Brussels,

For the Council
The President

Small Passenger Ship Guide

I GENERAL PROVISIONS

I.1. DEFINITIONS

Unless stated otherwise, for the purposes of this non-binding Guide the definitions in Directive 2009/45/EC apply.

The following definitions also apply:

(a) *'survival systems'* means systems independent from the parent ship which can accommodate all persons on board to protect them from hazards to life or health in case the ship needs to be evacuated;

(b) *'evacuation time'* means time needed to place all persons on board in survival systems.

I.2. SCOPE

This Guide concerns newly built passenger ships with a full deck of less than 24 meters in length, when engaged on domestic voyages.

This Guide does not concern passenger ships which are:

(i) ships of war and troopships;

(ii) sailing ships;

(iii) ships not propelled by mechanical means;

(iv) pleasure yachts;

(v) ships exclusively engaged in port areas;

(vi) offshore service ships;

(vii) tenders;

(viii) high speed craft;

(ix) traditional ships;

(x) cable ferries; or

(xi) wooden ships of primitive build.

I.3. GOALS

The main goals of this Guide are the following:

(1) The design, construction and maintenance of the ship and its systems should ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment, in particular, to the marine environment, and to property.

(1) Fire should be prevented, detected, contained and extinguished whilst maintaining essential safety systems during and after the outbreak of a fire.

(2) Reduction of the risk to life, the ship, its cargo and the environment due to fire.

(3) Save and sustain human life during and after an emergency situation, including a potential evacuation of the ship.

(4) Ensure effective communications and transmission and reception of distress alerts.

(5) Ensure safe navigation.

I.4. OPERATIONAL CONDITIONS

(1) The intended operational conditions (both parameters and limitations) and plying limits should be defined for each ship. Those conditions would determine the standards that the ship should meet.

(2) A ship should only operate within its intended operational conditions that should be reflected in the official documentation of the ship.

I.5. SAFETY MANAGEMENT SYSTEM

Each ship should be subjected to a continuous safety management system adapted to the operations undertaken. The safety management system should ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment, in particular, to the marine environment, and to property.

I.6. TRANSPORTATION OF CARGO

Where transportation of cargo and dangerous goods is permitted by national legislation for the passenger ships falling under the scope of this Guide, the following principles should be considered:

(1) Cargo transported on ships should be handled in such a way that the safety of those on board, the ship and its surroundings is not jeopardised.

(2) Cargo should be stowed and secured in such a way that the risk of the cargo shifting during transportation is minimised. Cargo areas, load carriers and cargo securing arrangements should be designed and maintained so that they can absorb the forces that can arise as a result of acceleration during transportation.

(3) Dangerous goods should be transported in such a way that the safety of those on board, the ship and its surroundings is not jeopardised and so that the impact on the surrounding environment is minimised.

I.7. TECHNICAL INNOVATION

Where an innovative solution implies additional hazards to those identified in this Guide, specific measures should be taken to address those hazards.

I.8. SHIPBORNE MARINE EQUIPMENT

Save for the areas covered by Union product harmonisation legislation insofar as it is applicable to shipborne marine equipment[7], marine equipment installed on passenger ships falling under the scope of this Guide should comply with the requirements of Directive 2014/90/EU of the European Parliament of the Council[8]. In exceptional, duly justified circumstances, where the competent flag State administration permits the installation of equipment which does not comply with the requirements of that Directive, it should ensure that such equipment provides an equivalent level of safety in the intended operational conditions.

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7 It should be recalled that Union harmonisation legislation regarding product safety applies to certain shipborne marine equipment, in particular, Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (OJ L 153, 22.5.2014, p. 62).

8 Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 on marine equipment and repealing Council Directive 96/98/EC (OJ L 257, 28.8.2014, p. 146).

II-1 CONSTRUCTION, STABILITY, SHIP CONTROL AND POWER INSTALLATIONS

II-1.1. STRUCTURAL STRENGTH

Functional Requirements

The ship structure should be designed, constructed and maintained to provide the required strength to withstand the loads and stresses that the ship will be subject to in the intended operational conditions.

Hazards Addressed

Structural failure due to insufficient scantlings for the loads and stresses that the ship will be subject to.

Performance Requirements

The design, construction and maintenance of the structure should comply with the standards specified for classification by the rules of a recognised organisation, or equivalent rules used by an Administration of the flag State, in accordance with Regulation (EC) No 391/2009 of the European Parliament and of the Council[9].

II-1.2. ANCHORING

Functional Requirements

A ship should be capable of being held at the sea-bed without the use of power.

Hazards Addressed

Loss of control – the ship could drift freely, potentially resulting in collision or grounding[10].

Performance Requirements

Means should be provided to allow holding the ship at the sea-bed independently of the availability of power or propulsion, or both.

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9 Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 on common rules and standards for ship inspection and survey organisations (OJ L 131, 28.5.2009, p. 11).

10 It is acknowledged that holding the ship at sea-bed cannot be guaranteed at any situation. It will depend on many factors like type of ground, sea depth, environmental conditions, etc. but in appropriate circumstances it could mitigate the free drifting of a ship.

II-1.3. MOORING

Functional Requirements

A ship should be capable of being moored and, afterwards, without the use of power, remain secured alongside the pier or any other mooring site.

Hazards Addressed

- Free drifting of the ship in port.
- Breaking of mooring elements.
- Safety of persons embarking and disembarking.

Performance Requirements

(a) Means should be provided to allow securing the ship alongside the pier or any other mooring site, independently of the availability of power or propulsion, or both.

(b) The weakest element in the respective system should be capable of withstanding the expected loads when the ship is moored alongside.

(c) It should be ensured that the ship is maintained in position while passengers are embarking or disembarking.

II-1.4. TOWING SYSTEM

Functional Requirements

Facilities should be provided to allow the ship to be towed.

Hazards Addressed

Loss of control – it must be possible to tow the ship in case of loss of propulsion or steering, or both.

Performance Requirements

The strength of the system should be sufficient to withstand towing loads under the worst case operational conditions.

II-1.5. TANKS

Functional Requirements

Tank arrangements should be designed and liquids should be stored in such a way that damage to the persons on board and to the ship is prevented.

Hazards Addressed

- Explosion due to concentration of dangerous gases in tanks.
- Spill of liquids stored in tanks.
- Structural damage due to over-pressurisation of tanks.
- Loss of power: entry of water into tanks containing fuel or lubrication oil, causing the failure of propulsion or power generation.

Performance Requirements

(a) Arrangements to prevent the ignition of vapours in a tank should be put in place.

(b) It should be possible to determine the level of fluid in a tank and in inaccessible void spaces.

(c) Arrangements to prevent under or overpressure should be put in place.

(d) The entry of rain or sea water into tanks containing fuel or lubrication oil should be prevented even if arrangements to prevent overpressure or ignition of vapours are broken.

(e) Safe tank entry should be provided where necessary.

II-1.6. EMBARKING AND DISEMBARKING[11]

Functional Requirements

Passengers and crew should be able to embark safely on the ship and disembark safely from the ship.

Hazards Addressed

- Injuries to persons while embarking or disembarking.
- Persons being injured by vehicles while embarking or disembarking.

Performance Requirements

(a) Means should be provided to avoid passengers and crew being injured when embarking or disembarking, with particular attention to the possibility of falling between the ship and the pier or any other mooring site.

(b) The floor used for embarking and disembarking should be slip resistant, especially when wet.

(c) Pedestrians should be separated from vehicular traffic.

(d) Embarking and disembarking facilities for passengers with reduced mobility should be designed for their specific needs.

II-1.7. FREEBOARD

Functional Requirements

(1) The ship should have sufficient freeboard and bow height for the intended operational conditions:

1.1. To provide a reserve of buoyancy.

1.2. To prevent excessive shipping of seas.

(2) The structural strength and stability of the ship should be sufficient for the draught corresponding to the freeboard assigned.

[11] Shore-based systems are not covered.

Hazards Addressed

- Sinking or capsizing.
- Structural damage due to overloading.

Performance Requirements

(a) The ship should, in the intended operational conditions, have a freeboard which:

a.1. allows the ship to remain afloat with a reserve of buoyancy;

a.2. prevents that shipping of seas impairs the ship buoyancy, particularly in the fore part.

(b) The draught corresponding to the freeboard assigned (maximum draught) should be marked in such a way that it is visible to an external observer.

(c) The fore and aft draughts should be marked in such a way that they are visible to an external observer.

(d) It should be verified that the structural strength and stability are sufficient for the loading condition corresponding to the freeboard assigned (maximum draught).

II-1.8. STABILITY

Functional Requirements

(1) The ship should have a resistance to inclination so as to prevent capsize when disturbed and, sufficient restoring energy to return to upright once the disturbance is removed, in the intended operational conditions.

(2) Following a flooding incident within the watertight zone in contact with the shell, the ship should be able to stay afloat in such a condition as to allow all persons on board to evacuate the ship.

Hazards Addressed

- Sinking or capsizing in intact condition
- Sinking or capsizing in a damage condition.

Performance Requirements

(a) At the foreseen loading conditions, the ship should, in the intended operational conditions of wave and wind:

a.1. resist roll or list caused by a disturbance;

a.2. return to upright from a roll or list caused by a disturbance, subsequent to the removal of the disturbance.

(b) Following a flooding incident within the watertight zone in contact with the shell, the ship should remain afloat and retain suitable stability:

b.1. at an angle compatible with the deployment of the relevant survival systems as indicated in chapter III.

b.2. at an angle compatible with the possibility of passengers to move through the ship.

(c) When calculating the condition at which the ship will remain afloat and retain suitable stability following damage, the heeling moments that will occur linked to this situation in terms of passenger location, deployment of life-saving appliances and weather and sea state conditions should be also considered.

II-1.9. WATER AND WEATHER TIGHTNESS

Functional Requirements

The ship should be designed to provide a level of water and weather tightness which protects the ship against breaking seas and ingress of water which could jeopardise the buoyancy or stability, in the intended operational conditions.

Hazards Addressed

Sinking or capsizing due to the unintended accumulation of water inside the ship.

Performance Requirements

(a) The ship should have watertight and weathertight boundaries to prevent the accumulation of water in spaces which could jeopardise the designed stability or buoyancy parameters in the intended operational conditions.

(b) All ships should be designed with a level below which it should be watertight in the intended operating conditions: watertight level.

(c) The external ship's structure and fittings should be weathertight above the watertight level until, at least, the next deck or level.

(d) The fore region of the ship should provide watertight protection to the remainder of the ship from the consequences of a collision.

(e) A system capable of removing accumulated liquid from any watertight space in the intended operational conditions should be fitted. In machinery spaces, a high-level alarm system should be provided.

(f) All exposed decks should be free draining.

II-1.10. PROTECTION OF PERSONS ON BOARD

Functional Requirements

Any system, equipment or fitting installed on the ship should be designed and installed in such a way that it does not cause injury to any person on board.

Hazards Addressed

Injury to persons on-board.

Performance Requirements

(a) Persons on board should be protected from all the following:

a.1. moving parts;

a.2. hot elements;

a.3. parts which could cause an electrical shock;

a.4. slippery surfaces;

a.5. excessive noise and vibration levels;

a.6. elements under load;

a.7. toxic substances.

(b) Means should be provided to protect all persons on board from falling overboard.

II-1.11. PROPULSION AND STEERING

Functional Requirements

It should be possible to control the speed and course of the ship in the intended operational conditions, including potential failure scenarios.

Hazards addressed

Inability to manoeuvre due to lack of propulsion or steering capability, potentially resulting in collision or grounding.

Performance Requirements

(a) Redundancy of propulsion and steering equipment, including any auxiliary services, should be provided taking into account the ship size and the operational area.

(b) It should be possible to control the main functions of the propulsion machinery (mechanical, electrical, etc.) from the bridge, including speed and direction of thrust, at any value of list and trim within the intended operational conditions.

(c) Operational indicators which provide an early alert of any failure mode of the propulsion or steering should be available to the master in the bridge.

(d) Failure modes which could leave the ship without control of propulsion or steering should be indicated by a visible and audible alarm in the bridge and, if manned, in the relevant machinery space.

(e) It should be possible to have local control of speed and steering.

(f) Means of communicating orders from the bridge to the local control positions for propulsion and steering should be provided.

(g) It should be possible to start and stop the main propulsion system and operate it, from a dead ship position, without recourse to external power sources.

(h) The design, construction and maintenance of the main and auxiliary machinery needed to control the speed and course of the ship should comply with the standards specified for classification by the rules of a recognised organisation, or equivalent rules used by an Administration of the flag State, in accordance with Regulation (EC) No 391/2009.

II-1.12. EMERGENCY POWER SOURCE

Functional Requirements

Essential safety systems should be powered from, at least, two different power sources independent from each other, one of them, the emergency power source, being exclusively dedicated to essential safety systems.

Hazards addressed

- Essential safety systems failing due to lack of power.
- Failure in starting or operating emergency power sources due to temperature or list and trim conditions.

Performance Requirements

(a) The emergency power source should be activated automatically in case of failure of the other power sources feeding essential safety systems.

(b) The emergency power source and associated distribution system should be placed in such a way that the system does not fail in the event of fire, ingress of water or other accident affecting the other power sources feeding essential safety systems.

(c) The essential safety systems are, when fitted, all the following:

c.1. drainage equipment;

c.2. fire detection equipment;

c.3. emergency firefighting pump and, where relevant, sprinkler systems;

c.4. the necessary communication equipment to alert all the persons on-board, to alert and talk with search and rescue services and transmit active signals which allow the localisation of the ship;

c.5. alarms and alerts;

c.6. navigation lights and necessary equipment to maintain navigational functions;

c.7. emergency lighting including that necessary for escape routes;

c.8. any other system needed to allow all persons on board to evacuate the ship.

(d) The essential safety systems should be maintained for, at least, the time expected to receive assistance or rescue from external means.

(e) The emergency power sources should:

e.1. operate efficiently at any list and trim within the intended operational and foreseeable damage conditions and

e.2. be capable of being readily operated at any temperature within the intended operational conditions.

(f) The design, construction and maintenance of the emergency power sources and their distribution system should comply with the standards specified for classification by the rules of a recognised organisation, or equivalent rules used by an Administration of the flag State, in accordance with Regulation (EC) No 391/2009.

II-2 FIRE SAFETY

II-2.1. IGNITION

Functional Requirements

(1) The ignition of combustible materials and flammable liquids, gases and vapours should be prevented.

(2) Combustible materials, flammable liquids and areas where flammable gasses or vapours can accumulate should be identified as well as potential ignition sources such as batteries for propulsion.

Hazards addressed

Ignition of combustible material or flammable liquids and gases and vapours.

Performance Requirements

(a) Means should be provided to avoid and control leaks of flammable liquids.

(b) Means should be provided to limit the accumulation of flammable gases and vapours.

(c) Ignition sources should be separated from combustible materials, flammable liquids and gases.

(d) Flammable liquids and gases should be stored in dedicated spaces.

(e) Additional safety measures should be taken, including the use of the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code), if a fuel with a flashpoint below 60°C is used.

II-2.2. FIRE GROWTH

Functional Requirements

(1) Means of control for the air supply to every enclosed space should be provided.

(2) Means of control to stop the flow of flammable liquids should be provided.

(3) The fire load of the spaces on board should be limited.

Hazards addressed

Spread of fire.

Performance Requirements

(a) It should be possible to close all ventilation ducts of spaces with high fire risk and of spaces that require high fire protection from a position outside the space.

(b) It should be possible to stop any powered ventilation from a position outside the space where the ventilation is installed.

(c) The ventilation of the accommodation spaces should be independent of the ventilation from any space with high fire risk.

(d) Means of control should be provided for stopping any system using flammable liquids, e.g. fuel pumps, lubricating oil pumps, thermal oil pumps and oil separators (purifiers).

(e) The following exposed surfaces should have low-flame spread characteristics:

e.1. corridors and stairways forming part of an escape route;

e.2. ceilings and linings in accommodation spaces, service spaces and control stations.

(f) Combustible material, where installed, should have a limited calorific value. Such a limit should depend on the construction material of the ship, but in no case should be higher than 45MJ/m2.

(g) The maximum fire load in each space should be limited in accordance with MSC.1/Circ. 1003 or other equivalent standard.

II-2.3. SMOKE GENERATION AND TOXICITY

Functional Requirements

The quantity of smoke and toxic products released from materials during fire, including surface finishes, should be limited.

Hazards addressed

Danger to life from smoke and toxic products generated during a fire in spaces where persons have access.

Performance Requirements

(a) Paints, varnishes and other finishes used on exposed interior surfaces should not be capable of producing excessive quantities of smoke and toxic products.

(b) Primary deck coverings, if applied within accommodation and service spaces and control stations, should be of approved material which should not give rise to smoke or toxic or explosive hazards at elevated temperatures.

II-2.4. FIRE DETECTION AND ALARM

Functional Requirements

Fixed fire detection and fire alarm system installations should be suitable for the nature of the space, fire growth potential and potential generation of smoke and gases.

Hazards addressed

Non-detection of a fire on board at an early stage as to provide enough time for fire extinguishing or safe abandonment, or both.

Performance Requirements

(a) Fire detection means should be provided in high fire risk spaces and spaces classified as requiring high fire protection in accordance with point II-2.5(a).

(b) Fire detection means should provide a signal in the bridge in case of fire. Such a signal should be accompanied with an audible alarm.

(c) If the audible alarm in the bridge is not acknowledged in a reasonable time, then it should be audible in every space of the ship where crew has access.

(d) The alarm level sound should be adjusted according to the level of noise on the ship in normal operation, so that it can be perceived by the crew.

(e) It should be possible to identify the space where the fire has been detected.

II-2.5. STRUCTURAL FIRE PROTECTION

Functional Requirements

(1) Fires should be contained in the space of origin, so as to provide sufficient time for fire extinguishing or for all persons on board to evacuate the ship, or for both.

(2) Each ship should be subdivided by thermal and structural boundaries.

Hazards addressed

Persons on board injured by a fire before they reach a survival system.

Performance Requirements

(a) The spaces on board should be classified as follows:

a.1. Spaces with high fire risk, including:

- spaces containing internal combustion machinery;
- ro-ro spaces;
- spaces containing flammable liquids;
- certain high capacity electrical battery compartments.

a.2. Spaces that require high fire protection, including:

- escape routes, including stairways and corridors;
- control stations;
- accommodation spaces;
- assembly and embarkation spaces;
- propulsion and steering machinery spaces;
- compartments used for electrical energy conversion, distribution and storage equipment (batteries).

(b) Between a space with high fire risk and a space that requires high fire protection there should be thermal boundary(ies) providing structural fire protection (SFP).

(c) The SFP of the thermal boundary should avoid the passage of flame and smoke for 60 minutes as a general rule. This time could be decreased as a function of the evacuation time calculated in accordance with point II-2.6, but should in no case be lower than 30 minutes.

(d) In thermal boundaries made of steel the average temperature of the unexposed side should not rise more than 140 °C above the original temperature, nor should the temperature, at any one point, including any joint, rise more than 180 °C above the original temperature during the SFP time when subject to the standard fire test.

(e) Where materials other than steel are used in the thermal boundaries, the insulation should be such that the structural core does not reach a temperature such that it loses its structural properties during the SFP time. For example, for aluminium the temperature to be considered is 200 ºC.

(f) For non-steel ships, every limit of a high fire risk space in contact with the shell should be provided with a thermal boundary.

(g) The fire protection of the ventilation ducts should be the same as that of the space where they are installed.

II-2.6. EVACUATION TIME

Functional Requirements

The time needed to evacuate the ship should be calculated[12] or demonstrated on board, or both, for each ship.

Hazards addressed

Fatalities or injuries in case of an emergency requiring the evacuation of the ship.

Performance Requirements

(a) In determining the evacuation time, all means of escape should be considered serviceable.

[12] MSC.1/Circ.1533 and MSC.1/Circ.1166, as amended, could serve as reference for the calculation concept.

(b) The evacuation time expressed in minutes should be below the following value:

Maximum time = (SFP-7)/3

Where SFP is the structural fire protection time in minutes.

II-2.7. FIRE-FIGHTING

Functional Requirements

Fires should be suppressed and extinguished in the space of origin.

Hazards addressed

Spread of fire.

Performance Requirements

(a) It should be possible to reach each space of the ship where persons have access and open decks with a jet of water with an effective pressure and a capacity adapted to the ship under consideration.

(b) At least two water fire pumps should be installed in the ship, one of them powered from the emergency power source (emergency fire pump).

(c) The emergency fire pump and its suction should be located in a space separate from those with other fire pumps and separated with a thermal barrier from propulsion machinery spaces.

(d) All high fire risk spaces should be provided with a fixed fire-fighting system.

(e) Automatic sprinkler systems should be located in sleeping accommodation spaces.

(f) Portable fire extinguishers should be located in the vicinity of the entrance of spaces with high fire risk or high fire protection need.

(g) The medium used for either fixed or portable fire-fighting means should:

g.1. be appropriate according to the most likely type of fire to be encountered in the protected space and

g.2. not be harmful to the human health unless there are:

- means to ensure that the space can be totally enclosed with any opening being closed from outside the space; and
- means to ensure that no person is inside the space before starting the relevant fire-fighting.

II-2.8. MEANS OF ESCAPE

Functional Requirements

Persons on board should be able to reach a survival system through accessible escape routes, that are visibly marked, clear of obstacles and protected from fire and flooding.

Hazards addressed

Persons on board being unable to leave the ship in case of evacuation.

Performance Requirements

(a) Ships should be provided with at least two different means of escape from each space normally occupied, eventually leading to embarkation positions.

(b) The two means of escape should be arranged in a way that in any plausible fire scenario both means of escape would not be blocked.

(c) The means of escape should:

c.1. be provided with handholds;

c.2. not be obstructed;

c.3. be clearly marked, with marks visible in low visibility conditions;

c.4. be provided with illumination powered by two sources of power, one of them being the emergency source of power; and

c.5. be wide enough to allow the free movement of persons on board, including persons wearing protective equipment, transportation of persons on stretchers and disabled persons.

(d) Plans showing the escape routes should be displayed inside each cabin, if applicable, and in public spaces.

III LIFE-SAVING APPLIANCES AND ARRANGEMENTS

III.1. GENERAL READINESS OF LIFE-SAVING APPLIANCES

Functional requirements

All life-saving appliances (LSA) should be in a state of continuous readiness independently of ship's supplies in the intended operational conditions.

Hazards Addressed

- Injury to the persons on board during normal operations, training, maintenance or emergency situations.
- Malfunction or delay when using LSA either in a real emergency or during training or drills.

Performance Requirements

Life-saving appliances should be:

(a) easily accessible;

(b) not obstructed and not locked;

(c) operable and deployed independently of ship's power supplies;

(d) maintained in a state of continuous readiness;

(e) able to operate in the intended operational conditions; and

(f) able to be deployed at any list or trim within the intended operational and foreseeable damage conditions.

III.2. PROVISION OF EMERGENCY INFORMATION

Functional requirements

Provide readily available emergency information and instructions to all persons on board depending on their assignment to life-saving appliances.

Hazards Addressed

Lack of adequate information and instructions to passengers regarding emergency procedures, potentially causing additional delays, confusion or panic.

Performance Requirements

(a) Information and instructions to all persons on board should be:

a.1. presented in a way that makes it likely to be understood (e.g. style and language); and

a.2. conspicuously distributed throughout the ship.

(b) Information and instructions regarding emergency procedures, location and use of equipment, should include at least:

b.1. directions to assembly stations;

b.2. location of LSA; and

b.3. operation and use of LSA.

(c) Instructions for LSA should be readable and understandable in low visibility conditions (e.g. emergency lighting), and stowage locations for LSA should be clearly marked.

III.3. COMMUNICATION

Functional requirements

(1) Means should be provided to alert and guide Search and Rescue (SAR) services to the location of the ship and the survival systems.

(2) Means should be provided to allow the master or crew to communicate simultaneously with all persons on board during emergencies.

(3) Means should be provided for alerting all persons on board about emergencies.

Hazards Addressed

- Difficulties to be detected by SAR in case of emergency (either the ship or any survival system at sea).
- Inability to establish effective two-way communication between crew members to support escape, evacuation and rescue activities.
- Inability to provide in due time effective information and instructions to the persons on board regarding any emergency.
- Inability to alert persons on board in a timely manner to an emergency situation.
- Delays and organizational failures.

Performance Requirements

(a) The following means should be provided to guide SAR services to the ship and to the survival systems:

a.1. an electronic signal which can be automatically and remotely detected by SAR services (including signals emitted by satellite navigation systems such as Galileo);

a.2. a signal which can be perceived visually in the vicinity; and

a.3. a portable communication system for use between the survival systems and SAR.

(b) Means for internal communication should:

b.1. provide two-way communication between crew members independently of the space of the ship where they are located;

b.2. provide continuous audible information and instructions in all the spaces where persons have access.

(c) Means for alerting all persons on board should:

c.1. be audible in all spaces where persons have access; and

c.2. be suitable for verbal communications on board.

III.4. EVACUATION

Functional requirements

(1) Each ship should have assembly stations where all persons on board should be mustered before being transferred to survival systems.

(2) It should be possible to transfer any person from the assembly station to a survival system without injury and with "dry feet", i.e., without the need to enter in the water even for limited time.

(3) Means for the survivability of all persons after evacuation should be provided.

Hazards Addressed

- Inadequate survival systems which are neither sufficient, suitable nor accessible for all persons on board.
- Passengers are not properly assembled, causing delays and confusion in evacuation.
- Possibility that certain survival systems may not be available as a result of loss due to fire, flooding or other damages.
- Damages to the survival systems or to the persons, or both, during launching.

- Drowning.
- Hypothermia.

Performance Requirements

(a) Each ship should carry survival systems distributed throughout the ship with sufficient capacity, such that, in the event that any one survival system is lost or rendered unserviceable, the remaining survival systems can accommodate the total number of persons the ship is certified to carry.

(b) The distribution, deployment arrangements and capacity of the survival systems should allow all persons that the ship is certified to carry to be accommodated on either side of the ship.[13]

(c) Assembly stations should provide sufficient space for the mustering of all persons on board.

(d) No person should be expected to jump more than 1 metre in height to the survival system. For greater heights, a device to facilitate the embarkation should be provided (e.g. evacuation slide or embarkation ladder).

(e) The launching of the survival system should be carried out without any obstacle or interference with other structures, especially with the propeller.

(f) Each ship should carry an individual flotation device appropriate for each person on board.

(g) Suitable thermal protection for persons should be provided depending on the operational conditions.

[13] This requirement does not necessarily mean that 100% capacity is needed on each side of the ship. It is possible to use survival systems which could be deployed from either side of the ship.

III.5. RESCUE

Functional requirements

Means should be provided for the recovery of persons from the water.

Hazards Addressed

Inability to recover a person from the water effectively and rapidly, which might cause deterioration of survivor health or even loss of life.

Performance Requirements

(a) The ship should carry flotation aids that can be launched from the ship to a person in the water.

(b) The recovery of a person from the water should be carried out either by the ship or by a dedicated unit.

IV RADIO COMMUNICATIONS

Functional Requirements

(1) The ship should be capable of transmitting and receiving relevant maritime safety information.

(2) Every ship should be capable of transmitting and receiving distress alerts.

(3) It should be possible to communicate with external assistance means, either aerial or maritime, during a SAR operation.

Hazards Addressed

- Incapability of receiving and transmitting relevant maritime safety information.
- Lack of communication with external means in case of emergency.
- Incapability of assisting surrounding ships in distress.

Performance Requirements

Every ship should be capable of:

(a) transmitting ship-to-shore distress alerts;

(b) receiving shore-to-ship distress alerts;

(c) transmitting and receiving ship-to-ship distress alerts (also by means of satellite systems);

(d) transmitting and receiving search and rescue co-ordinating communications;

(e) transmitting and receiving on-scene communications;

(f) transmitting and receiving maritime safety information;

(g) transmitting and receiving general radio communications to and from shore-based radio systems or networks; and

(h) transmitting and receiving bridge-to-bridge communications.

V NAVIGATION

Functional Requirements

The ship should be designed, constructed, equipped and maintained so that, while at sea, it can:

(1) be independently navigated; and

(2) provide alerts to the crew of all navigation hazards, fixed or mobile.

Hazards Addressed

- Collisions and groundings.
- Failure to ascertain the position of the ship.

Performance Requirements

(a) Detailed information about the geographical sea area where the ship is operating should be made available.

(b) Means should be provided to establish the position, course and speed of the ship (such as satellite navigation systems including Galileo).

(c) Means should be provided to assist in navigation and in collision avoidance (such as satellite navigation systems including Galileo).

(d) The bridge configuration should provide adequate all-round visibility for the navigational watch.

(e) Means should be provided to establish the propeller's direction of rotation and power demand and the rudder's position in relation to the ship's principal direction.

(f) Means should be provided to determine the water depth.

(g) It should be possible to detect the ship by surrounding ships.