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PERFORMANCE STANDARD, FUNCTIONAL REQUIREMENTS AND SYSTEM REQUIREMENTS FOR THE ASSESSMENT OF SMOKE MANAGEMENT SYSTEMS

1 The Maritime Safety Committee, at its ninety-fifth session (3 to 12 June 2015), recognizing the need to provide guidance on smoke management systems installed on new passenger ships and having considered a proposal by the Sub-Committee on Ship Systems and Equipment, at its second session (23 to 27 March 2015), approved the performance standard, functional requirements and system requirements for the assessment of smoke management systems, as set out in the annex.

2 Member Governments are invited to bring the annexed performance standard, functional requirements and system requirements for the assessment of smoke management systems to the attention of ship designers, shipyards, passenger shipowners and other parties concerned.

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ANNEX

PERFORMANCE STANDARD, FUNCTIONAL REQUIREMENTS AND SYSTEM REQUIREMENTS FOR THE ASSESSMENT OF SMOKE MANAGEMENT SYSTEMS

1 Purpose

The purpose of this annex is to provide performance standard and functional as well as system requirements applicable to smoke management systems if installed on new passenger ships.

2 Definition

For the purposes of this performance standard, the following definitions apply:

2.1 *Smoke management system* is an engineered system including all methods that can be used singly or in combination to handle smoke movement ensuring a safe evacuation of persons in case of fire by preventing the contamination of smoke into escape routes. The life-safety performance criteria for safe evacuation should be acceptable to the Administration.

2.2 *Smoke extraction system,* which may form part of a smoke management system, is intended to extract smoke from escape routes by means such as exhaust fans.

3 Functional requirements

3.1 The systems should be designed as to maintain sufficiently smoke free escape routes in case of fire.

3.2 The systems may be either independent systems or part of or combined with the general air conditioning and ventilation systems.

3.3 The systems should be provided with an alternative source of power in order to remain operational when the initial source of power is lost.

3.4 After fire or smoke has been detected, activation of the systems should be in a controlled manner, either automatic or manual from the continuously manned central control station and/or the safety centre.

3.5 The system should remain operational or available for the duration required.

4 Principal system requirements

4.1 The system should be arranged for manual operation. Automatic operation with manual override may be accepted by the Administration.

4.2 The system should be arranged in sections such that the smoke will be retained in the space of origin by using smoke barriers made of non-combustible material and/or pressure differentials, whereby any section should not serve more than one main vertical zone.

4.3 The system covering large volume spaces like atrium or other multi-deck spaces should be designed based on respective fire scenarios.

4.4 The system should be capable to maintain the stairway enclosure with a positive pressure compared to the adjacent areas in order to prevent the ingress of smoke. This may be achieved by supplying more air then extracting from the stairway or respective active pressurization system.

4.5 The minimum pressure differential for each section should prevent smoke spread across the smoke control boundary, as applicable, considering the most demanding ventilation arrangement. The pressure difference should not cause any constraint of opening doors in escape routes.

4.6 The system should be designed to be fully operational within 2 minutes after activation, regardless of manual or automatic.

4.7 The system should be provided with at least two independent power sources.

4.8 All ducts used for smoke extraction should be made of steel or equivalent and insulated depending on the type of spaces passing through.

4.9 System components of smoke management systems in contact with smoke should be made of materials able to withstand temperatures expected during operation.

4.10 The system should be so arranged that extracted smoke will not affect external means of escape and the embarkation deck.

4.11 Consideration should be given to the requirement for the automatic fire dampers in SOLAS regulation II-2/9.7. Measures should be implemented to ensure that fire integrity of the ventilation duct is not impaired.

5 Commissioning and operation

5.1 The system should be tested during commissioning using theatrical hot smoke, or other means, that are sufficient to overcome any stratification effects, if applicable, as acceptable to the Administration.

5.2 A design, installation, operation and maintenance manual should be provided on board.

5.3 The smoke management system should be included in the ship's maintenance plan as required by SOLAS regulation II-2/14.2.2.

5.4 An operational strategy as when and how to use a smoke management system should be prepared and included in crew's training plan as well as the regular fire drills.

6 Performance standard

The systems should be tested, approved and maintained, as acceptable to the Administration.