



Fire Safety of RO-RO Passenger Ships in Service

Background

A series of casualties that occurred on ro-ro passenger ships in mid-2010 demonstrated the vulnerability of such a ship type to their vehicle deck's fire and led to the IMO's discussion from 2017 to 2023, which were mainly based on FIRESAFE I and II studies¹.

Consequently, SOLAS regulation II-2/20 addressing fire protection of vehicle, special category and ro-ro spaces has been substantially amended by resolution MSC.550(108) for implementation from 1 January 2026. While the amendments will apply to ro-ro passenger ships or passenger ships with vehicle spaces, special category spaces and/or ro-ro spaces, which are constructed on or after 1 January 2026, some provisions will retroactively apply to those constructed before the date.

General

This Technical Information is intended to outline the amendments to SOLAS regulation II-2/20.4.1.6, 20.4.4 and 20.6.2.3, as adopted by resolution MSC.550(108), and to remind stakeholders of the necessary follow-up actions to ensure compliance for existing ro-ro passenger ships. Accordingly, this document does not address the amendments applicable to new ro-ro passenger ships constructed on or after 1 January 2026.

For existing passenger ships constructed before 1 January 2026, the amendments reinforce the functions of existing fire safety arrangements installed onboard and add new requirements for weather decks intended for carriage of vehicles. These retroactive provisions are to be implemented no later than the first survey conducted on or after **1 January 2028**. The details of retroactive fire safety requirements are provided in the following sections.

Combined smoke and heat detectors for vehicle, special category and ro-ro spaces

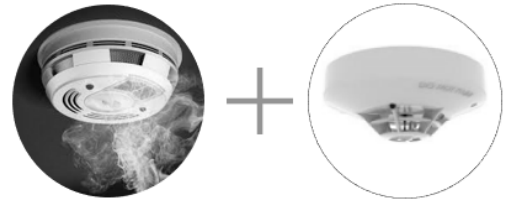
Fixed fire detection and fire alarm system in vehicle spaces, special category spaces, and ro-ro spaces shall be provided with smoke and heat detectors. In doing so, the heat detectors shall comply with the spacing and coverage requirements of smoke detectors, as rephrased below. (SOLAS regulation II-2/20.4.1.6)

Type of detector	Maximum floor area per detector	Maximum distance apart between centers	Maximum distance away from bulkheads
Smoke detectors	74 m ²	11 m	5.5 m

¹ Please refer to EMSA's FIRESAFE studies uploaded on <https://www.emsa.europa.eu/firesafe.html>

Where combined smoke and heat detectors have been already installed in vehicle, special category or ro-ro space of existing passenger ships, no further actions would be required. However, if only smoke detectors (or any other types) have been fitted in those spaces, two options may be considered, as follows:

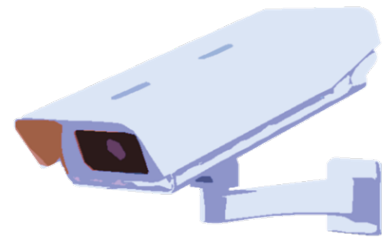
- **Option 1:** Installation of heat detectors in addition to existing smoke detectors
- **Option 2:** Replacement of existing detectors with combined smoke and detectors, through a system upgrade without re-locating existing installation



While ship owners/operators may choose one of both options (or another compliant solution), Option 2, if available, is generally considered a more competitive solution compared to Option 1, in terms of budget and work efficiency.

Video monitoring system for vehicle, special category and ro-ro spaces

In vehicle spaces, special category spaces and ro-ro spaces, an effective video monitoring system shall be arranged with the following functions: (SOLAS regulation II-2/20.4.4)



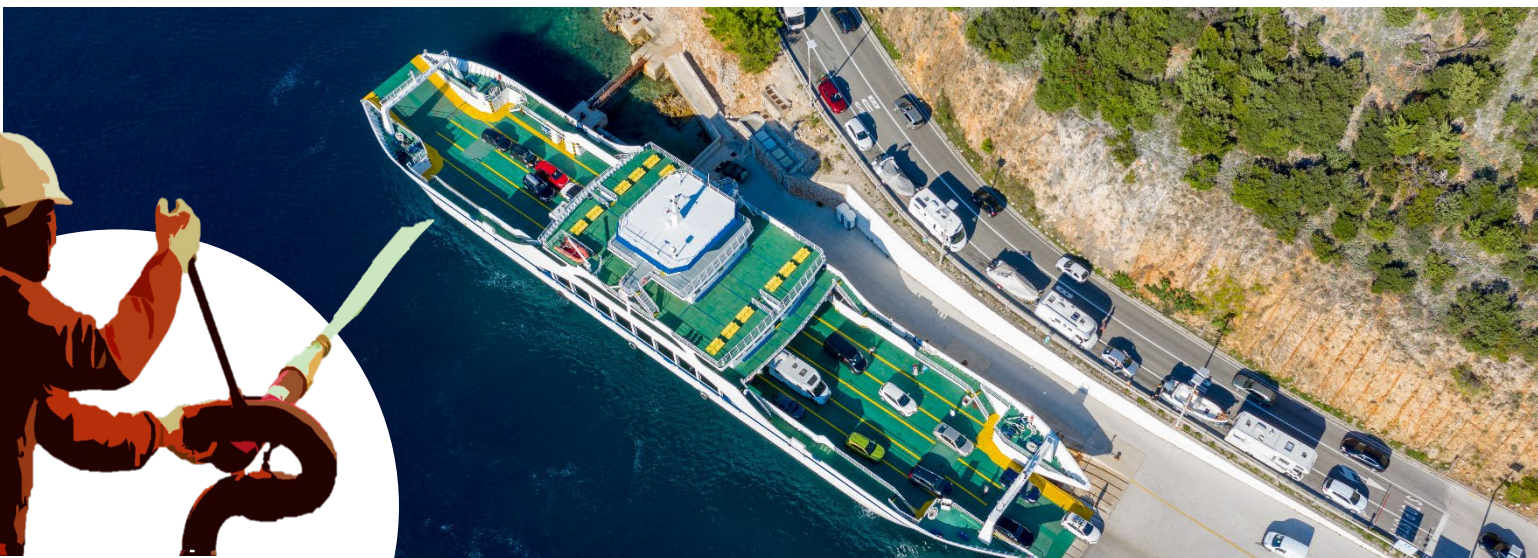
- Immediate playback capability shall be provided.
- Cameras shall be installed at high enough locations to cover the whole space.
- Videos recorded for at least 24 hours shall be available for replay at a continuously manned control station or the safety center.
- Correspondence, in other words, relationship between any one video camera and the section of the fixed water-based fire-extinguishing system protecting the space covered by this camera shall be clearly displayed close to the video monitor.

Fixed water monitors for weather decks intended for carriage of vehicles

In accordance with SOLAS regulation II-2/20.6.2.3, fixed water-based fire extinguishing system with water monitor(s) shall be installed on passenger ships to protect weather decks intended for the carriage of vehicles, if designated.

Water monitors shall be in positions which ensure unobstructed protection of vehicles transported on the weather deck, as far as practicable. Operation of monitors shall be ensured by safe access ways or remote control not to be impaired by a fire in the area protected by that monitor

The capacity of each monitor shall be at least 1,250 L/min (i.e. 75m³/h). However, lower flow rates may be permitted subject to the approval by the Administration, when the required rate is not achievable given the size and arrangement of the ship.



Alternative arrangements may be also permitted for ships that have already installed a fixed water-based fire-extinguishing system based on monitor(s) prior to 1 January 2026.

Fixed water-based fire extinguishing systems using water monitors are required only for the weather decks intended for carriage of vehicles. As such, where such areas are not designated onboard, these requirements are not applicable.

Actions to be taken by stakeholders

Shipowners/operators shall **ensure** that their passenger ships constructed before **1 January 2026** comply with these amendments, no later than **the first survey²** on or after **1 January 2028**. Any relevant modifications or new installations shall be carried out only after the approval of relevant plans or drawings³. In particular, considering that drydocking may be required to comply with the retroactive application of the amendments, it is recommended that a detailed plan be developed to ensure appropriate measures are taken between 1 January 2026 and the end of the grace period (i.e., the first survey² on or after 1 January 2028).

Attending surveyors shall confirm the compliance at the time of the **first survey²** on or after **1 January 2028**. The end.

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² Under the SOLAS Convention, a renewal survey is required every year for passenger ships; therefore, the term “first survey” refers to the first renewal survey conducted on or after 1 January 2028. In contrast, from a perspective of the Korean Ship Safety Act, the term “first survey” means the first periodic survey conducted on or after 1 January 2028, as a renewal survey is required every five years for passenger ships.

³ For plan approval, please submit them to Electric and Automation Team (elec@krs.co.kr) and Environment and Piping Team (piping@krs.co.kr).