



## EMERGENCY ESCAPE ROUTING SYSTEMS

### LOW LOCATION EMERGENCY ESCAPE ROUTE LIGHTING {LLL}

- ◆ Low-Location Lighting (**LLL**) is a form of lighting used to help occupants escape from a building or ship during an emergency, typically a fire.
- ◆ **LLL** is installed at the base of the wall or on the floor near to the wall.
- ◆ During a fire, smoke can obscure overhead lights. In such cases, **LLL** is intended to define the path occupants should follow to the exit(s).
- ◆ **LLL** is already in place on aircraft in the form of a floor-mounted pathway marking system.
- ◆ As described in the next section **LLL** is now being installed on passenger ships.

Standards are also being developed for the use of **LLL** in buildings. The International Standards Organization (ISO), American Society of Testing and Materials (ASTM), and National Fire Protection Association (NFPA) are all addressing **LLL** in new standards or existing standards that are being revised.

### LLL on Ships

Per International Maritime Organization (IMO), the Safety of Life at Sea (SOLAS) Convention Regulation II-2/41-2, paragraph 4.7, II-2/28-1.11, and Resolution A752(18), **LLL** will be required on all passenger vessels carrying more than 36 passengers on an international voyage. The regulation states that;

- ◆ "the means of escape including stairways and exits, shall be marked by lighting or photoluminescent strip indicators placed not more than 0.3m above the deck at all points of the escape route including angles and intersections.
- ◆ The marking must enable passengers to identify all the routes of escape and readily identify the escape exits call for the installation of **LLL** in all passageways and stair towers that will be used by passengers to egress to their muster stations."
- ◆ Regulation II-2/41-2 enters into force on October 1, 1997 but concerns passenger accommodation spaces only.
- ◆ Regulation II-2/28-1.11 requires that **LLL** be installed in crew accommodation spaces but does not enter into force until July 1 1998.
- ◆ All **LLL** installations are required to be in accordance with IMO Resolution A752 (18).

### Background

After a deadly fire on the cruise ship Scandinavian Star left 158 dead, a paper was submitted to the IMO requesting that a regulation be developed for a type of lighting such as is found on aircraft, lighting that would help to identify the path to be taken that would lead an occupant to safety.



The system was designated as a Low-Location Lighting (**LLL**) system and the United States offered to develop a regulation and guidance on how to design, operate, test, and maintain the system.

The guidelines eventually formed IMO Resolution A.752 (18), "Guidelines for the Evaluation, Testing, and Application of Low-Location Lighting on Passenger Ships."

## **Types of LLL**

The IMO resolution was developed to leave as much room as possible for the development of new products to be used in **LLL** systems. At the time the resolution was being developed, manufacturers were developing **LLL** systems using the 'following' technologies. Other technologies exist but either may not be profitable (incandescent, fibre optic) or are not suitable (strobe).

*IMO/FAX16/97  
30 September 1997*

*Older passenger ships must have fire safety features upgraded by 1 October*

*New fire safety measures for passenger ships will enter into force on 1 October 1997.*

*The safety regulations are contained in amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, which were adopted in 1992 and apply to existing ships constructed before 1 October 1994 and carrying more than 36 passengers.*

*The fire safety requirements have been applicable to new passenger ships carrying more than 36 passengers built since 1 October 1994 from that date, but a phase-in period was allowed for existing ships.*

*SOLAS, the most important of all international treaties dealing with shipping safety, was adopted under the auspices of the International Maritime Organization, the United Nations agency concerned with maritime safety and the prevention of marine pollution from ships. SOLAS has been ratified by 135 countries.*

*Regulations 41-1 and 41-2 of Part B (Fire safety measures for passenger ships) of SOLAS Chapter II-2 (Construction – Fire protection, fire detection and fire extinction) apply to existing passenger ships carrying more than 36 people, constructed before 1 October 1994.*

*The regulations require all accommodation spaces, stairway enclosures and corridors to be equipped with smoke and fire detection and alarm systems.*

*Fire doors must be self-closing and be capable of being operated from a central control station, where a panel should be placed to indicate whether all such doors are closed or open. In addition, ships which do not comply with all the requirements of the original SOLAS 1974 must be equipped with automatic sprinkler systems.*

*Other requirements restrict the location of spaces within stairway enclosures and furniture there must be limited to seating. Means of escape must be marked by lighting or photoluminescent strip indicators (low-level lighting). A general emergency alarm and public address system must be provided.*