

**EMERGENCY ESCAPE BREATHING DEVICE (EEBD)  
REQUIREMENTS AND RECOMMENDATIONS  
FOR SINGAPORE-FLAG SHIPS  
(Chapter II-2 of SOLAS 1974, as amended)**

**1. Placement and Number of EEBDs**

1.1 All ships shall carry at least two emergency escape breathing devices within accommodation spaces. In passenger ships, at least two emergency escape breathing devices shall be carried in each main vertical zone. In passenger ships carrying more than 36 passengers, two additional emergency escape breathing devices, shall be carried in each main vertical zone (Reg 3.4).

1.2 The following factors should be taken into account when considering placement and number of EEBDs in machinery spaces:

- a. the activities or operations in the various spaces, the normal number of people in them and the amount of time they spend there, including unmanned spaces that are frequently visited, eg stores. Therefore in addition to the number of persons on watch in machinery spaces (usually at least two), the number of persons normally working in the spaces should be taken into account;
- b. the risk of fire hazard in the space and potential for fire development and smoke generation;
- c. the distance of the escape routes or ease of access to an emergency exit or shelter [fresh open air] from the hazardous atmosphere, taking note that the EEBD could have a service duration of only about 10 minutes, and vertical routes may shorten the service duration further;
- d. the criteria of “easily visible places” and “be reached quickly and easily at any time” mentioned in Reg. 13.4.3;
- e. the protection of the stowed EEBD, eg from extreme heat, etc;
- f. the machinery spaces layout, particular attention being paid to any hard-to-exit spaces;
- g. the number of engine room personnel in the engine room work space at any one time and the practical working requirements of the particular vessel. Each and every workshop might not need to have an EEBD; and
- h. any unique configuration or situation of a ship or engine room.

1.3 Since engine room layouts differ from ship to ship, each specific ship proposal should be based on common/practical sense, bearing in mind the purpose of EEBDs, and shall be to the satisfaction of the attending surveyor, taking into consideration the guiding criteria mentioned above. This is comparable to the placement of portable fire extinguishers, which, although the regulations also do not state the required quantities and their location, have always been based on practical considerations, eg. they have to be prominently and strategically placed, easily reached, fire hazard, etc.

1.4 Although the new regulations require a minimum of two EEBDs in the accommodation spaces, placement of additional EEBDs in work spaces [control stations, service spaces] within accommodation spaces should be considered where there are a number of crew spending a considerable amount of time in them.

## 2. Size and type of ships

The number of EEBDs to be placed on board is not dependent on the size or type of ship.

## 3. Fire Control Plan



The location and the number of EEBDs shall be indicated in the fire control plan [Reg 13.4.3.2]. The relevant drawing should be endorsed by the attending surveyor after confirming the provision of EEBDs are in accordance with the regulations. The symbol for EEBD (see *left*) from the International Standard ISO 17631 *Ships and marine technology – Shipboard plans for fire protection, life-saving appliances, and means of escape* may be used, as IMO

Assembly resolution A.654(16) *Graphical Symbols for Fire Control Plans* is currently being revised.

## 4. UMS and manned engine rooms

The number of engine room personnel performing activities in the engine room at any one time and their access to EEBDs should be the prime considerations, whether the engine room is UMS or manned.

## 5. Approval of EEBD

Type-approval certificates issued by any of our recognized organizations are acceptable.

## 6. Spares

6.1 Regulation 13.3.4.1 requires the provision of spare EEBDs. We would consider the provision of a minimum of **two** fully functional spares – one for accommodation spaces and another for engine room as sufficient to meet this requirement.

6.2 The spare for accommodation spaces need not be kept in the “accommodation spaces” as defined in SOLAS, but may be kept in the navigation bridge, fire control station or cargo operations control room.

6.3 EEBDs placed in machinery spaces and accommodation spaces would be considered as operational EEBDs, and cannot be considered as inclusive of spares; and would have been clearly marked as such in the fire control plan. Spare EEBDs would be those kept in store with other LSA or FFA spares, ready to be used as replacement for any operational EEBD which has become unusable. This simplifies the arrangement and will not create confusion.

## **7. Maintenance and training**

7.1 The new regulations contain additional requirements of a maintenance plan and crew training in the use of EEBDs (Regs. 14 and 15).

7.2 On-board safety management manuals under the ISM Code should be modified to reflect these changes.

7.3 Means to identify unauthorized tampering of the devices should be incorporated.

7.4 All training EEBDs should be clearly marked, for example, using special labels or colour. They should be stowed away from operational EEBDs, eg. in the training officer's locker. This is to avoid mistakenly using a training unit during an emergency when darkness or smoke may make seeing the labels or colour difficult. The training units allow personnel to remain proficient in the use of the EEBD without expending an actual EEBD unit. Personnel should receive adequate training prior to use, including the limitations to which the equipment is subject.

7.5 Training EEBDs would include special trainer sets or dummies (non-functional copies), with accompanying spare parts, so that they can be reused.

7.6 Operational EEBDs are "one-time use throw away" devices, and condemned/unusable EEBDs should be promptly and properly disposed of, eg. fully release all air or oxygen; no "recycling" of such EEBDs for training purposes should be attempted.

7.7 The ship's weekly safety appliances and equipment inspection/testing routine should be modified to incorporate training and inspection of EEBDs.

## **8. Service Life**

According to some manufacturers, EEBDs may have a service life of up to 15 years. In any case, EEBDs which have exceeded their service life as indicated by the manufacturer should be discarded. We do not require periodic hydrostatic testing for EEBD cylinders.

## **9. Conclusion**

Although EEBDs are new to SOLAS, the clarifications and recommendations in this annex should enable shipowners to place the optimum number and locate them in the best possible way.