

High-pressure discharge lamps are not normally suitable for emergency lighting because of their extended run-up and restrike times.

Light emitting diodes can be used, particularly for safety signs where long lamp life is a priority. They are also very efficient at low temperatures.

An important consideration in selection of lamps for use in emergency lighting is the likelihood of lamp failure, as any dark spot in an emergency lighting installation can be dangerous. Information on the likelihood of lamp failure is given in the lamp survival factor (LSF). Table 21.3 gives typical LSFs for a range of common lamps. For accurate results, the lamp manufacturer's data should be used for all actual designs of emergency lighting. The data are based on lamps running on conventional control gear and thus give values of survival factor that may be expected for maintained emergency lighting installations. LSF in non-maintained installations is harder to predict. Although the number of hours that lamps are running in non-maintained installations is low, it is common for the control gear to heat the cathodes of fluorescent lamps continuously by passing a current through them; regular inspection is therefore necessary to ensure all units are working.

8.4.6 Others

There are two forms of safety sign that do not require any power to be delivered. One uses radioactive tritium as a light source. Tritium powered signs give a low light output but can be useful in locations where flammable or explosive atmosphere is present. A risk assessment should be undertaken to ensure that their output is adequate at the location where they are intended to be used. Special care must be taken during disposal of these devices as they are radioactive; there are legal obligations for safe handling and storing.

The other uses the phenomenon of photoluminescence to provide light (see Section 3.1.4). For this to work, the sign has to be well illuminated prior to the emergency. In the event of mains failure, a chemical reaction, created by the previous illumination, causes the sign to emit light at a low level, considerably less than the signage requirements of BS 5266-7/BS EN 1838; however, they are useful to provide additional information and are required for emergency lighting on ships.

Low-mounted way guidance systems may be used in addition to the required emergency lighting. Such systems should conform to BS 5266-6.

8.5 Scheme planning

8.5.1 Risk assessment

The first step in planning an emergency lighting installation is to carry out a fire risk assessment. In work places where five or more people are employed, such an assessment is a legal requirement. A fire risk assessment requires working through the following steps:

- Identify potential fire hazards in the workplace: sources of ignition, fuels, work processes.
- Identify the location of people at significant risk in case of fire: who might be in danger (employees, visitors) and why?
- Evaluate the risks: are safety measures adequate or does more need to be done (fire detection, warning, means of fighting fire, means of escape, fire safety training of employees, maintenance and testing of fire precautions?)