

## Modern emergency lighting technologies bring major benefits

**UK fire safety legislation requires – subject to a risk assessment - reliable, good quality emergency lighting that works correctly at all times. Bernard Pratley, Technical Manager at ICEL, the emergency lighting arm of the Lighting Industry Federation (LIF), shows how the latest emergency lighting technologies bring significant benefits to building owners and managers, as well as to installers and maintenance personnel.**

There are a number of modern technologies that are providing emergency lighting systems with beneficial design and operating options, two of the most notable being automated testing and the use of LEDs.

### **Automatic Test Systems (ATS)**

Taking automated testing first, ATS allow peace of mind for those tasked with ensuring that their emergency lighting system is fully working and fit for purpose. The Regulatory Reform (Fire Safety) Order 2005 places the responsibility for premises' fire safety with owners/occupiers and their appointed 'Responsible Person'. Additionally, the emergency lighting Code of Practice BS5266: Part 10, and Fire Safety legislation under Section 7 (testing, maintenance and record keeping), requires that 'Responsible Persons' must test their emergency lighting systems regularly and record the results. In large buildings, manual testing can be a lengthy, expensive and disruptive job that is difficult to achieve whilst keeping the building legal and fully working.

Moreover, a significant number of building owners, facilities managers and employers may not always be aware of the emergency lighting periodic testing and

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maintenance requirements laid down in BS 5266 and this when combined with time pressures on employees can lead to manual emergency lighting checking not being fully carried out. As a result legal requirements are not being fully complied, which can result in prosecutions, but more importantly, individuals using the buildings concerned are being put at risk.

### **ATS gives peace of mind**

One way of avoiding this problem is to use ATS (Figure 2). There are two main types (under BSEN 62034):

1. A self-test emergency luminaire performs tests and indicates the results. Anyone near an emergency luminaire indicating a fault can report this to the 'Responsible Person'. The emergency luminaires must still be visually checked every month to ensure that they are un-obscured and able to function correctly. If a fault is indicated, corrective action must be carried out within a reasonable time.

Or:

2. A test system that performs tests automatically on one or more emergency luminaires, with a remote panel providing the results, which the 'Responsible Person' can monitor. If a fault is indicated, corrective action must be carried out within a reasonable time. The monthly walk-round check will still be needed to ensure that emergency luminaires are un-obscured and able to function correctly.

The result of using ATS is peace of mind for all concerned, and ICEL recommends that due consideration should be given to installing one that conforms to BS EN 62034.

### **LEDs bring many benefits**

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White LEDs have been suitable for exit signs for about three years (Figure 3), but the technology has been improved such that they are now suitable for emergency lighting luminaires (Figure 4) as well, bringing many benefits for lighting designers, building managers and occupants, installers and maintenance staff.

The latest white LEDs produce bright, uniform light relatively efficiently. Compared with equivalent fluorescents, good quality LED emergency luminaires and exit signs often show energy savings of 30% or better because of their better directed use of light, saving significant money over the installation's life. LEDs are also virtually unbreakable, have a long life, and are unaffected by extremely low temperatures. Exceptionally sleek, modern, unobtrusive and sometimes unusual LED emergency lighting luminaires can be designed - even integrated into building structures in ways that are impossible with conventional lighting (Figure 5).

Correctly installed at 3m mounting height at recommended spacings, emergency lighting luminaires should easily achieve the required 1 lux at the floor, using just two 1W LEDs, plus LED control gear (driver), inverter and a three-hour non-maintained 3.6V battery. Figure 6 shows an emergency luminaire with four LEDs for greater light source integrity.

For exit signs, LEDs are most effective when used in the 'edge light' style, but all types must be sufficiently well lit to be clear even at maximum viewing distances, according to application standard EN1838 and the luminaire construction standard EN60598-2-22, which define minimum luminance and uniformity levels.

### **Reducing the costs of maintenance**

Maintained emergency lighting and exit signs provide the best building safety, but maintenance costs will be higher than for a non-maintained installation because of the need for periodic lamp replacement. LED lamps have a significantly longer life, and this will substantially reduce maintenance costs and office disruption. Therefore, the use of

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LED emergency lighting luminaires and automatic testing systems provide, individually or together, clear benefits for building managers, installers and maintenance staff. However, for increased confidence, purchasers could also check that any proposed supplier is an Industry Committee for Emergency Lighting (ICEL) member.

For more details on emergency lighting and for a list of ICEL member companies able to provide advice, go to [www.icel.co.uk](http://www.icel.co.uk).

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**CAPTIONS:**

**CAPTION 1 (file - ORBIK\_Corridor.jpg)**

Figure 1: Emergency and escape route illumination must make it easy for people evacuating buildings to safely and quickly get out, using the nearest and shortest designated exit paths (photo Orbik).

**CAPTION 2 (file - ADVANCED\_ELEC\_Lx\_Panel.jpg)**

Figure 2: Lx system emergency lighting products from Advanced Electronics, includes a control panel that provides cost-effective automatic emergency lighting testing and monitoring.

**CAPTION 3 (file - EMERGILITE\_Serenga\_Escape\_Route.jpg)**

Figure 3: Emergi-Lite's LED-powered Serenga escape route sign. This provides excellent soft illumination with energy and space savings.

**CAPTION 4 (file - JORDAN\_AXIOM\_LED\_Bulkhead.jpg)**

Figure 4: One of Jordan Reflector's Axiom LED bulkhead emergency luminaires.

**CAPTION 5 (file - P4\_StairwayLED.jpg)**

Figure 5: This photo of a P4 LED escape route fitting shows what is possible in terms of innovative design.

**CAPTION 6 (file - P4\_QuadLED.jpg)**

Figure 6: This very compact LED-powered recessed open area emergency luminaire by P4 displays innovative design.

**Notes for editors:**

**1) About ICEL**

ICEL ([www.icel.co.uk](http://www.icel.co.uk)) is the foremost UK authority on emergency lighting, and its members are manufacturers of components and products for emergency lighting fittings. ICEL's representatives serve on BSI and International Standards committees, developing harmonised product and application standards. Therefore, ICEL members are well placed to give advice on product selection and can be expected to provide good quality emergency lighting products.

**2) Emergency lighting and escape route illumination**

Emergency lighting and escape route illumination must make it easy for people evacuating a building to see clearly enough to safely and quickly make their way out, using the nearest and shortest designated exit paths. Most people unfamiliar with a building tend to leave it the same way they entered it, often ignoring shorter escape routes not clearly marked (Figure 1).

Compliance with BS EN 60598-2-22, the emergency lighting luminaires standard, and EN50172 (BS 5266 series), the emergency escape lighting application series of standards, together ensure that there will be sufficient illumination for people to see and be directed towards emergency exits, with exit or directional signs being in view at all points along the escape route (Figure 2).

**3) Emergency lighting under BS EN 60598-2-22**

Self-contained luminaires - These provide maintained or non-maintained emergency lighting in which all the elements (such as the battery, lamp, control unit, and test and monitoring facilities where provided) are contained within the luminaire or adjacent to it (within 1m cable length).

Centrally supplied (slave fittings) - In these fittings, the lamp and some of the control gear is located in the luminaire, but the charger and battery (and often the changeover device) is located remotely, providing the supply to a number of luminaires. Central power units may supply the luminaires with a range of DC voltages, or at 230V AC from an inverter. To operate on DC, some are specifically designed as emergency luminaires; others are converted mains luminaires.

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