



ICEL 1004:2003 - converting the converter

Converting standard luminaires for emergency use is common in the UK, but if the conversion is incorrectly carried out, the consequences can be far reaching. ICEL - the emergency lighting arm of the Lighting Industry Federation (LIF) - says that such conversions should be tested for compliance with appropriate regulations and standards, and that ICEL 1004:2003 provides clear guidelines on how to ensure safe and consistent engineering during modification:

20th December 2010, London - Throughout mainland Europe, specifying central emergency lighting systems and dedicated emergency luminaires is normal practise. In the UK, however, the re-engineering of standard mains or low voltage luminaires for emergency use is common, because there are aesthetic advantages.

Such conversions have to be right. If poorly designed and made, they could pose a risk to public safety in a building emergency, such as a fire. To reduce the risk of this, ICEL has introduced a registration scheme of competent companies capable of ensuring that mains luminaires have been converted to emergency use according to best practise. The scheme also ensures that such luminaires are thoroughly tested after conversion. Called ICEL 1004:2003, it provides clear advice on conventional emergency luminaire conversion and the legal obligations.

Emergency lighting products are a vital part in the raft of measures in place to try to ensure the safety of a building's occupants in the event of mains failure, fire or other emergency. They must work as required, and conversions carried out to ICEL 1004:2003 specifications should ensure this on the part of emergency lighting.

Says ICEL Technical Manager Bernard Pratley: "ICEL members and their LIF colleagues are fully supportive of ICEL 1004:2003 and are observing its procedures. Those specifying

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converted luminaires, such as owners, occupiers and designers, should specify that the conversions are fully in line with regulations and standards, and an easy way of doing that is to insist that such products are sourced from a supplier that is registered under ICEL 1004: 2003.

Making a safe conversion:

Poor conversions may not be reliable, or provide the correct amount of light at the right time in an emergency and may need repeated site visits by the installer concerned to correct faults. The luminaire could fail in both mains and emergency modes - quickly negating any perceived initial cost advantages. If a property is damaged, or people put at risk because the emergency lighting failed, the specifier, installer or 'Responsible Person' might end up in court. Although a manufacturer, or third party conversion shop, usually make the conversions - not the installer – there is still a responsibility to ensure that the work has been correctly carried out.

Says Chris Watts of ICEL and Cooper Lighting and Security: "If the battery overheats because of component rearrangement, the converted luminaire will no longer function. If the emergency control module added is not compatible with the running gear, then operational problems are inevitable. If the converter does not apply the correct testing procedure, it will not be known whether overheating is an issue or not."

New standard luminaires are tested in compliance with the Construction Products, Low Voltage and EMC Directives. However, conversion suppliers change wiring, move components and introduce new parts. If they do not carry out thermal, electrical safety and EMC tests, they cannot be sure that the luminaire complies with the standards. If a standard CE-marked luminaire is altered, its CE-mark becomes invalid and the luminaire needs re-testing, so all emergency converted luminaires should be tested on completion either by the converter or a third party test house. A new CE-mark should be applied and a Technical Construction File produced

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to support CE conformity. In reality, this probably does not always happen; some converted luminaires may carry a CE-marking that bears no relevance to the completed work.

Testing is essential:

Only proper testing can identify potential problems. For example, emergency lighting should use fire retardant components and the enclosure should comply with both EN 60598-2-22 and a glow wire test of 850°C (unless component contact with an inflammable surface is impossible). Many standard non-emergency mains luminaires do not need to meet this requirement, but for emergency lighting they do.

In addition, multiple lamp luminaires and increasing use of more compact light sources can more easily lead to overheating of the additional emergency lighting components if they are not designed in well. Even a few degrees above the designed temperature can significantly reduce the performance and reliability of emergency modules and batteries. Only strict testing ensures that overheating is not an issue.

The compact nature of the modern luminaire also reduces the location alternatives for components, which could adversely affect the EMC compliance of the converted luminaire.

For all these reasons, it is essential to ensure that emergency lighting conversions are carried out to the required standards – non-compliance is not an option where there is potential risk to people and property.

ICEL 1004:2003 can be downloaded free from www.icel.co.uk.

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PICTURE CAPTION:

Converting standard luminaires for emergency use is common practice in the UK, but getting it wrong can have serious implications for installers and specifiers as well as converters. This compliant one, by Poselco Lighting, is correctly done.

Notes for editors:

1) About ICEL

ICEL (www.ice1.co.uk) is the emergency lighting arm of the Lighting Industry Federation (LIF). It 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) Effects of fire legislation

The Fire Safety Order (FSO), which concerns non-domestic premises having employees (such as businesses), or guests (such as hotels) in England and Wales, has resulted in significant alterations to the ways in which all premises are assessed and made safe. The main effect has been a greater emphasis on fire prevention in such premises, which include the voluntary sector and self-employed people having premises separate from their homes. An important change is that no longer is it the Fire Service's duty to make sure the workplace is safe. That duty lies with the 'responsible person', who is legally accountable.

Although the Government has given responsible persons the authority to oversee their premises' fire safety, Fire Protection Officers (FPO) will audit Fire Risk Assessments and associated documentation relating to any premises. The responsible persons will then be informed of their compliance or otherwise. If there are concerns, FPOs can and do use their powers of enforcement.

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